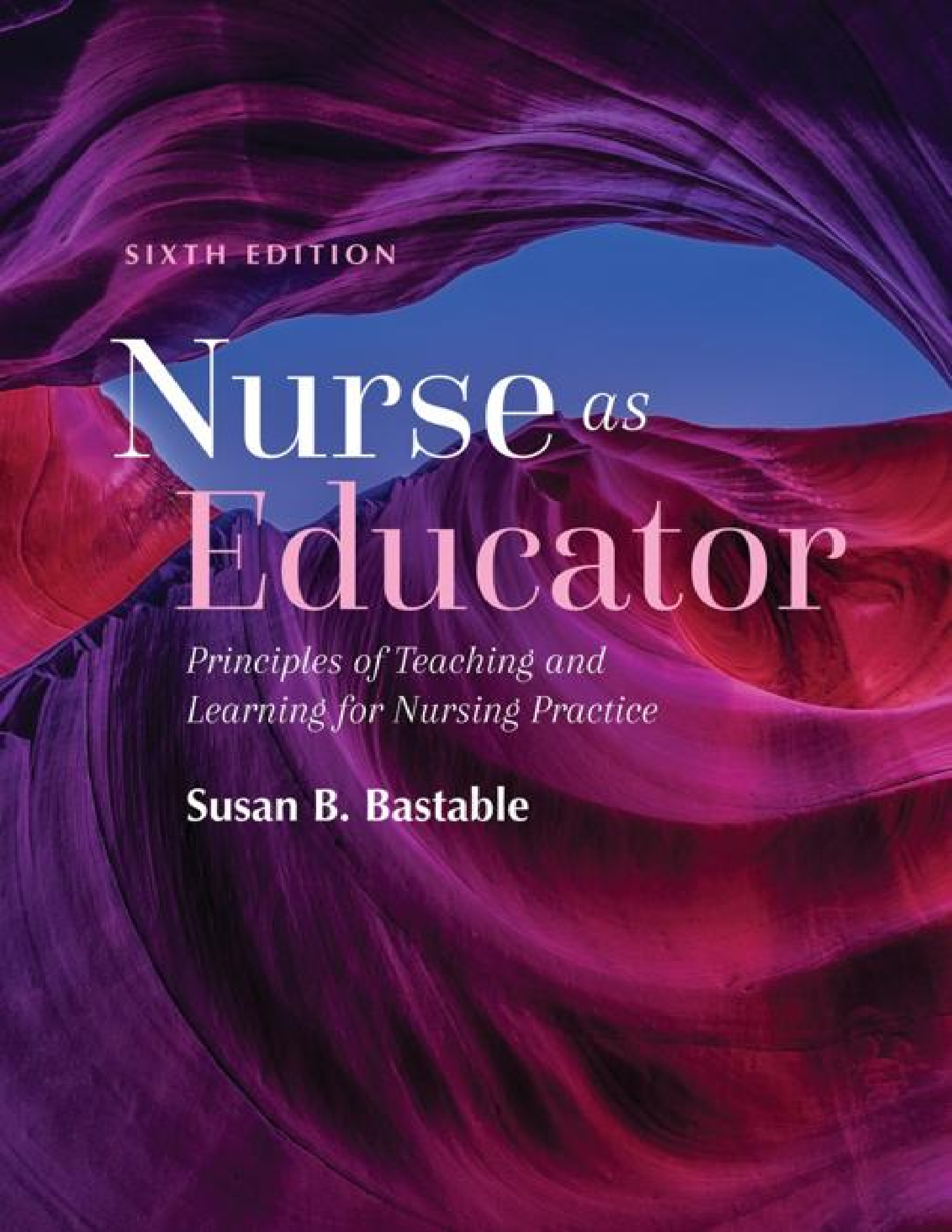

SIXTH EDITION
Nurse as Educator
Principles of Teaching and Learning for Nursing Practice
Susan B. Bastable

Nurse as Educator Principles of Teaching and Learning for Nursing Practice

1. Cover
2. Nav
3. Cover
4. Title Page
5. The Pedagogy
6. Copyright Page
7. Dedication Page
8. Brief Contents
9. Contents
10. Foreword
11. Preface
12. Acknowledgments
13. Contributors
14. About the Author
15. CHAPTER 1 Overview of Education in Health Care
    1. Historical Foundations for Patient Education in Health Care
    2. The Evolution of the Teaching Role of Nurses
    3. Social, Economic, and Political Trends Affecting Health Care
    4. Purposes, Goals, and Benefits of Patient and Nursing Staff/Student Education
    5. The Education Process Defined
    6. The Contemporary Role of the Nurse as Educator
    7. Barriers to Teaching and Obstacles to Learning
    8. Questions to Be Asked About Teaching and Learning
    9. State of the Evidence
    10. Summary
    11. Review Questions
    12. References

16. CHAPTER 2 Ethical, Legal, and Economic Foundations of the Educational Process
    1. A Differentiated View of Ethics, Morality, and the Law
    2. Evolution of Ethical and Legal Principles in Health Care
    3. Application of Ethical Principles to Patient Education
    4. The Ethics of Education in Classroom and Practice Settings
    5. Legality of Patient Education and Information
    6. Legal and Financial Implications of Documentation
    7. Economic Factors in Healthcare Education: Justice and Duty Revisited
    8. Financial Terminology
    9. Program Planning and Implementation
    10. Cost-Benefit Analysis and Cost-Effectiveness Analysis
    11. State of the Evidence
    12. Summary
    13. Review Questions
    14. References
17. CHAPTER 3 Applying Learning Theories to Healthcare Practice
    1. Psychological Learning Theories
    2. Neuropsychology and Learning
    3. Comparison of Learning Theories
    4. Motor Learning
    5. Common Principles of Learning
    6. State of the Evidence
    7. Summary
    8. Review Questions
    9. References
18. CHAPTER 4 Determinants of Learning
    1. The Educator’s Role in Learning
    2. Assessment of the Learner
    3. Learning Needs
    4. General Methods to Assess Learning Needs
    5. Readiness to Learn
    6. Learning Styles
    7. Learning Style Models and Instruments
    8. Interpretation of the Use of Learning Style Models and Instruments

9. State of the Evidence
10. Summary
11. Review Questions
12. References

19. CHAPTER 5 Developmental Stages of the Learner
    1. Developmental Characteristics
    2. The Developmental Stages of Childhood
    3. The Developmental Stages of Adulthood
    4. The Role of the Family in Patient Education
    5. State of the Evidence
    6. Summary
    7. Review Questions
    8. References
20. CHAPTER 6 Motivation and Adherence: Impact on Changing Learner Behavior
    1. Motivation
    2. Adherence
    3. Health Behavior Models and Theories
    4. Models for Health Education
    5. Role of Nurse as Educator in Behavioral Change
    6. State of the Evidence
    7. Summary
    8. Review Questions
    9. References
21. CHAPTER 7 Literacy in the Adult Client Population
    1. Definition of Terms
    2. Scope and Incidence of the Problem
    3. Those at Risk
    4. Myths, Stereotypes, and Assumptions
    5. Assessment: Clues to Look For
    6. Impact of Illiteracy on Motivation and Adherence
    7. Ethical, Financial, and Legal Concerns
    8. Readability of Printed Education Materials
    9. Measurement Tools to Test Literacy Levels
    10. Formulas to Measure Readability of Printed Education Materials

11. Tests to Measure Comprehension of Printed Education Materials
12. Tests to Measure General Reading Skills and Health Literacy Skills of Clients
13. Simplifying the Readability of Printed Education Materials
14. Teaching Strategies to Promote Health Literacy
15. State of the Evidence
16. Summary
17. Review Questions
18. References

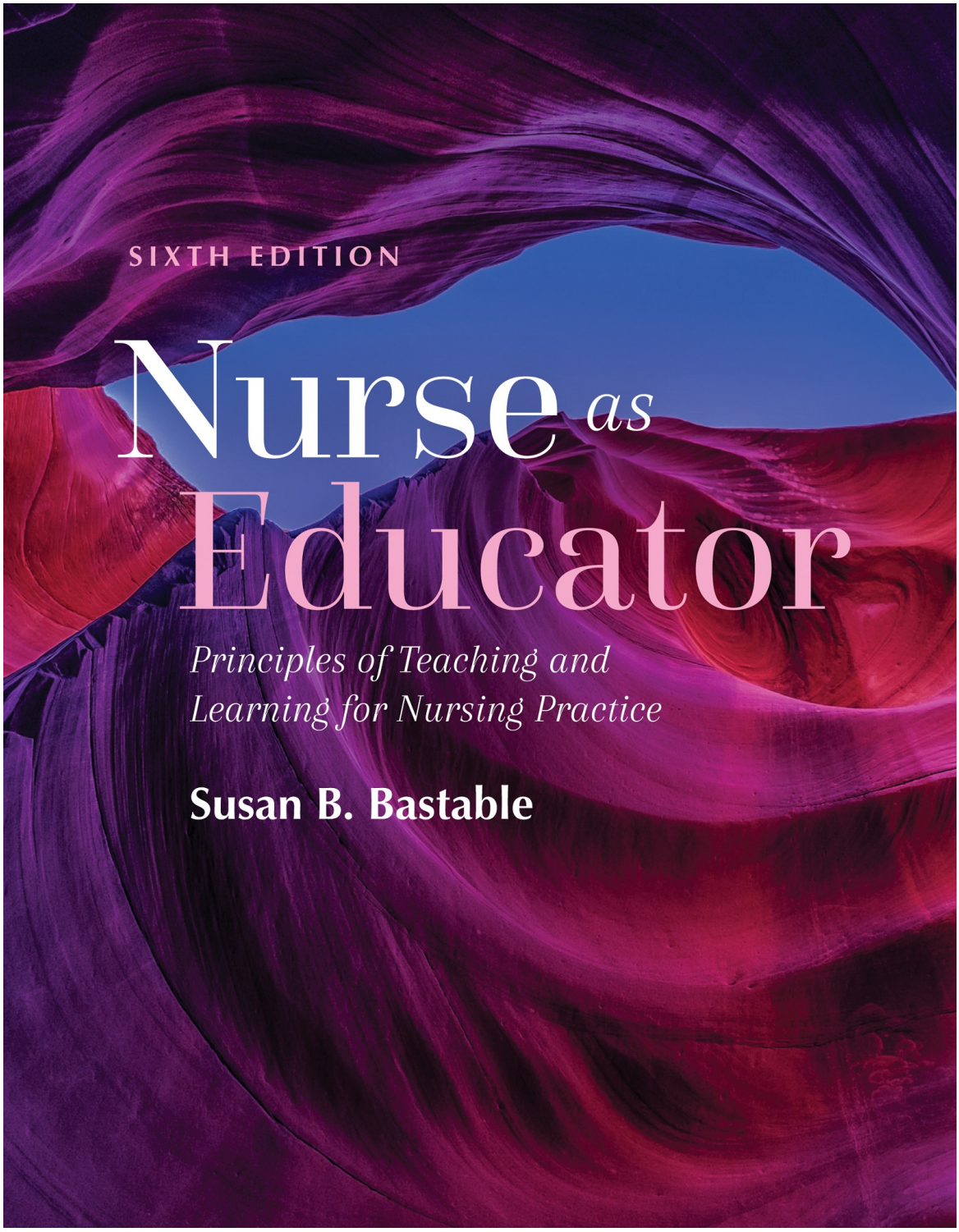
22. CHAPTER 8 Cultural Attributes of the Learner
    1. Sex and Gender Characteristics
    2. Socioeconomic Characteristics
    3. Cultural Characteristics
    4. Preparing Nurses for Diversity Care
    5. Stereotyping: Identifying the Risks and Solutions
    6. State of the Evidence
    7. Summary
    8. Review Questions
    9. References
23. CHAPTER 9 Educating Learners With Disabilities and Chronic Illnesses
    1. Scope of the Problem
    2. Models and Definitions
    3. The Language of Disabilities
    4. The Roles and Responsibilities of Nurse Educators
    5. Types of Disabilities
    6. Sensory Disabilities
    7. Learning Disabilities
    8. Developmental Disabilities
    9. Physical Disabilities
    10. Communication Disorders
    11. Chronic Illness
    12. The Family's Role in Chronic Illness or Disability
    13. Assistive Technologies
    14. State of the Evidence
    15. Summary

16. Review Questions
17. References
24. CHAPTER 10 Behavioral Objectives and Teaching Plans
    1. Types of Objectives
    2. Characteristics of Goals and Objectives
    3. The Importance of Using Behavioral Objectives
    4. Writing Behavioral Objectives and Goals
    5. Common Mistakes When Writing Objectives
    6. Taxonomy of Objectives According to Learning Domains
    7. Development of Teaching Plans
    8. Use of Learning Contracts
    9. The Concept of Learning Curve
    10. State of the Evidence
    11. Summary
    12. Review Questions
    13. References
25. CHAPTER 11 Teaching Methods and Settings
    1. Teaching Methods
    2. Selection of Teaching Methods
    3. Educator Self-Assessment
    4. Evaluation of Teaching Methods
    5. Characteristics of a Great Teacher
    6. Settings for Teaching
    7. State of the Evidence
    8. Summary
    9. Review Questions
    10. References
26. CHAPTER 12 Instructional Materials
    1. General Principles
    2. Choosing Instructional Materials
    3. The Three Major Components of Instructional Materials
    4. Types of Instructional Materials
    5. Evaluating Instructional Materials
    6. State of the Evidence
    7. Summary
    8. Review Questions
    9. References

27. CHAPTER 13 Technology in Education
    1. The World Wide Web
    2. The Internet
    3. Health Education in a Technology-Based World
    4. The Impact of Technology on the Teacher and the Learner
    5. Strategies for Using Technology in Healthcare Education
    6. Educational Strategies Using the World Wide Web
    7. Educational Strategies Using the Internet
    8. Healthcare Consumer Education in a Technology-Based World
    9. Telehealth and Remote Patient Monitoring
    10. Technology for Professional Development and Higher Education
    11. Issues Related to the Use of Technology
    12. State of the Evidence
    13. Summary
    14. Review Questions
    15. References
28. CHAPTER 14 Evaluation in Healthcare Education
    1. Evidence-Based Practice, Practice-Based Evidence, and Implementation Science
    2. Evaluation Versus Assessment
    3. Evaluation Models
    4. Designing the Evaluation
    5. Conducting the Evaluation
    6. Analyzing and Interpreting Data Collected
    7. Reporting Evaluation Results
    8. State of the Evidence
    9. Summary
    10. Review Questions
    11. References
29. Appendix A Tests to Measure Readability, Comprehension, and Health Literacy and Tools to Assess Instructional Materials
    1. How to Use the Flesch Reading Ease Formula
    2. How to Use the Fog Formula
    3. How to Use the Fry Readability Graph
    4. How to Use the SMOG Formula

5. The Cloze Test
6. Newest Vital Sign
7. Guidelines for Writing and Evaluating Printed Education Materials
8. References

30. Appendix B Resources and Organizations for People With Disabilities
    1. Assistive Technology
    2. Head Injury
    3. Healthcare-Related Federal Agencies
    4. Learning Disabilities
    5. Neuromuscular Disorders
    6. Stroke
31. Glossary
32. Index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Nurse *as* Educator

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LEARNING

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The Pedagogy

Nurse as Educator: Principles of Teaching and Learning for Nursing Practice, Sixth Edition drives comprehension of various strategies that meet the learning needs of students, while also generating enthusiasm about the topic. This interactive approach addresses different learning styles, making this the ideal text to ensure mastery of key concepts. The pedagogical aids that appear in most chapters include the following:

Chapter Highlights Found at the beginning of each chapter, these highlights provide a quick-look overview of the content presented in each chapter.

Key Terms A list of terms at the beginning of each chapter will expand the student's professional vocabulary.

CHAPTER HIGHLIGHTS

- Historical Foundations for Patient Education in Health Care
- The Evolution of the Teaching Role of Nurses
- Social, Economic, and Political Trends Affecting Health Care
- Purposes, Goals, and Benefits of Patient and Nursing Staff/Student Education
- The Education Process Defined
- The Contemporary Role of the Nurse as Educator
  - *Interprofessional Education and Practice*
  - *Patient-Centered Care*
  - *Quality and Safety Education in Nursing*
  - *The Institute of Medicine Report: The Future of Nursing*
- Barriers to Teaching and Obstacles to Learning
  - *Factors Affecting the Ability to Teach*
  - *Factors Affecting the Ability to Learn*
- Questions to Be Asked About Teaching and Learning
- State of the Evidence

KEY TERMS

barriers to teaching
education process
interprofessional education (IPE)
interprofessional practice
learning
obstacles to learning
patient education
patient-centered care (PCC)
staff education
teaching and instruction

Description

Objectives These learning objectives provide instructors and students with a snapshot of the key information they will encounter in each chapter. They serve as a checklist to help guide and focus study.

OBJECTIVES

After completing this chapter, the reader will be able to:

1. Discuss the evolution of patient education in health care and the teaching role of nurses.
2. Recognize trends affecting the healthcare system in general and nursing practice in particular.
3. Identify the purposes, goals, and benefits of patient and nursing staff/student education.
4. Compare the education process to the nursing process.
5. Define the terms *education process*, *teaching*, and *learning*.
6. Identify why patient and staff/student education is an important duty for nurses.
7. Analyze the significance of interprofessional education (IPE) and interprofessional practice to the delivery of patient care.
8. Explain why the patient-centered care (PCC) movement is an important trend in health care.
9. Discuss the barriers to teaching and the obstacles to learning.
10. Formulate questions that nurses in the role of educator should ask about the teaching–learning process.

Education in health care today—both patient education and nursing staff/student education—is a topic of utmost interest to nurses in every setting in which they practice. Teaching is an important aspect of the nurse's professional role (Andersson et al., 2015; McKenna et al., 2018; Steketee & Bate, 2013), whether it involves educating patients and their family members, colleagues, or nursing students. The current trends in health care are making it essential that patients be prepared to assume responsibility for self-care management and that nurses in the workplace be accountable for the delivery of safe, high-quality care (Dineen-Griffin et al., 2019; Lockhart, 2016; Shi & Singh, 2015; U.S. Department of Health and Human Services [USDHHS], 2015). The focus of modern health care is on outcomes that demonstrate the extent to which patients and their significant others have learned essential knowledge and skills for independent care or to which staff nurses and nursing students have acquired the up-to-date knowledge and skills needed to competently and confidently render care to the consumer in a variety of settings (Committee on Quality of Health Care in America & Institute of Medicine [IOM], 2001; Doyle et al., 2013; IOM, 2001; Salmond & Echevarria, 2017).

Patient education is an issue in nursing practice and will continue to be a significant focus in the healthcare environment (Friberg et al., 2012). Because so many changes are occurring in the healthcare system, nurses are increasingly finding themselves in challenging, constantly changing, and highly complex positions and, in some cases, do not have the appropriate skills to effectively teach patients (Gillespie & McFetridge, 2006; McKenna et al., 2018; Pollack, 2017; Vennum, 2017). Nurses in the role of educators must understand the forces, both historical and present day, that have influenced and continue to influence their responsibilities in practice.

One purpose of this chapter is to shed light on the historical evolution of patient education in health care and the nurse's role as teacher. Another purpose is to offer a perspective on the current trends in health care that make the teaching of clients a highly visible and required function of nursing care delivery. Also, this chapter addresses the continuing education efforts necessary to ensure ongoing practice competencies of nursing personnel.

In addition, this chapter clarifies the broad purposes, goals, and benefits of the teaching–learning process; focuses on the philosophy of the nurse–client partnership in teaching and learning; compares the education process to

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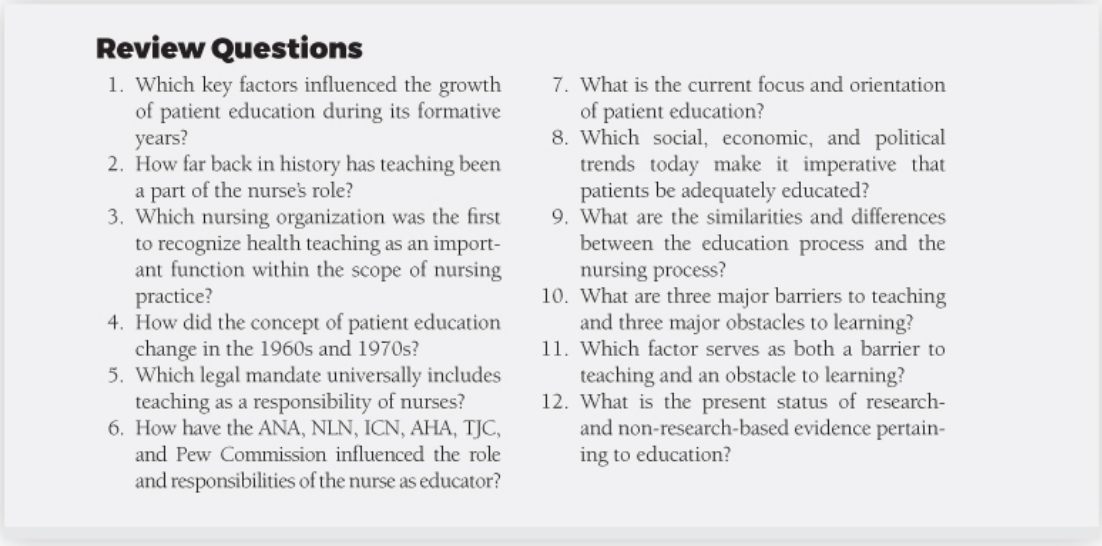
Description

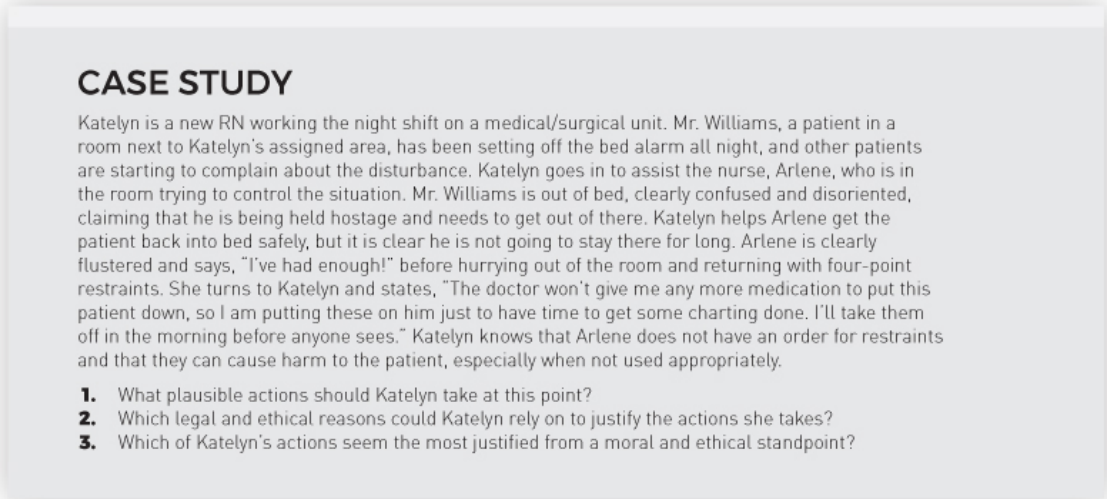
Review Questions Review key concepts from your reading with these exercises at the end of each chapter.



Review Questions

1. Which key factors influenced the growth of patient education during its formative years?
2. How far back in history has teaching been a part of the nurse's role?
3. Which nursing organization was the first to recognize health teaching as an important function within the scope of nursing practice?
4. How did the concept of patient education change in the 1960s and 1970s?
5. Which legal mandate universally includes teaching as a responsibility of nurses?
6. How have the ANA, NLN, ICN, AHA, TJC, and Pew Commission influenced the role and responsibilities of the nurse as educator?
7. What is the current focus and orientation of patient education?
8. Which social, economic, and political trends today make it imperative that patients be adequately educated?
9. What are the similarities and differences between the education process and the nursing process?
10. What are three major barriers to teaching and three major obstacles to learning?
11. Which factor serves as both a barrier to teaching and an obstacle to learning?
12. What is the present status of research- and non-research-based evidence pertaining to education?

Case Studies Located at the end of each chapter, case studies encourage active learning and promote critical thinking skills in learners. Students can read about real-life scenarios and then analyze the situation the case study presents by answering three or four questions relevant to the scenario.



CASE STUDY

Katelyn is a new RN working the night shift on a medical/surgical unit. Mr. Williams, a patient in a room next to Katelyn's assigned area, has been setting off the bed alarm all night, and other patients are starting to complain about the disturbance. Katelyn goes in to assist the nurse, Arlene, who is in the room trying to control the situation. Mr. Williams is out of bed, clearly confused and disoriented, claiming that he is being held hostage and needs to get out of there. Katelyn helps Arlene get the patient back into bed safely, but it is clear he is not going to stay there for long. Arlene is clearly flustered and says, "I've had enough!" before hurrying out of the room and returning with four-point restraints. She turns to Katelyn and states, "The doctor won't give me any more medication to put this patient down, so I am putting these on him just to have time to get some charting done. I'll take them off in the morning before anyone sees." Katelyn knows that Arlene does not have an order for restraints and that they can cause harm to the patient, especially when not used appropriately.

1. What plausible actions should Katelyn take at this point?
2. Which legal and ethical reasons could Katelyn rely on to justify the actions she takes?
3. Which of Katelyn's actions seem the most justified from a moral and ethical standpoint?

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In honor of Dr. M. Janice Nelson, a dear professional colleague, mentor, long-time friend, and fellow student at Columbia University, who was the one to inspire me to write the first edition of this textbook. As my dean for 14 years, she granted me a semester off from my educator responsibilities in 1995 to make this book a reality. The rest is history. Little did I realize that her belief in me as a writer with knowledge to share about many facets of teaching and learning would start me on a 25-year publication journey with this sixth edition release along with two other books, each now with two editions. Janice is the original author of Chapter 2 and served as a contributor to my first four editions of this text. She opened many doors for me and her advice, guidance, support, and friendship throughout my professional career will be forever cherished.

Also, to nursing students and professional colleagues who over the years have shared their teaching experiences as well as their knowledge, skills, ideas, and reflections on the principles of teaching and learning.

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Brief Contents

Foreword

Preface

Acknowledgments

Contributors

About the Author

PART ONE Perspectives on Teaching and Learning

CHAPTER 1 Overview of Education in Health Care

CHAPTER 2 Ethical, Legal, and Economic Foundations of the Educational Process

CHAPTER 3 Applying Learning Theories to Healthcare Practice

PART TWO Characteristics of the Learner

CHAPTER 4 Determinants of Learning

CHAPTER 5 Developmental Stages of the Learner

CHAPTER 6 Motivation and Adherence: Impact on Changing Learner Behavior

CHAPTER 7 Literacy in the Adult Client Population

CHAPTER 8 Cultural Attributes of the Learner

CHAPTER 9 Educating Learners With Disabilities and Chronic Illnesses

PART THREE Techniques and Strategies for Teaching and Lear

CHAPTER 10 Behavioral Objectives and Teaching Plans

CHAPTER 11 Teaching Methods and Settings

CHAPTER 12 Instructional Materials

CHAPTER 13 Technology in Education

CHAPTER 14 Evaluation in Healthcare Education

Appendix A

Appendix B

Glossary

Index

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Contents

Foreword

Preface

Acknowledgments

Contributors

About the Author

PART ONE **Perspectives on Teaching and Learning**

CHAPTER 1 **Overview of Education in Health Care**

Susan B. Bastable, Kattiria M. Rosario-Gonzalez

Historical Foundations for Patient Education in Health Care

The Evolution of the Teaching Role of Nurses

Social, Economic, and Political Trends Affecting Health Care

Purposes, Goals, and Benefits of Patient and Nursing Staff/Student Education

The Education Process Defined

The Contemporary Role of the Nurse as Educator

Barriers to Teaching and Obstacles to Learning

Questions to Be Asked About Teaching and Learning

State of the Evidence

Summary

Review Questions

References

CHAPTER 2 **Ethical, Legal, and Economic Foundations of the Educational Process**

M. Janice Nelson, Kattiria M. Rosario-Gonzalez

A Differentiated View of Ethics, Morality, and the Law

Evolution of Ethical and Legal Principles in Health Care

Application of Ethical Principles to Patient Education

The Ethics of Education in Classroom and Practice Settings

Legality of Patient Education and Information

Legal and Financial Implications of Documentation

Economic Factors in Healthcare Education: Justice and Duty Revisited

Financial Terminology

Program Planning and Implementation

Cost-Benefit Analysis and Cost-Effectiveness Analysis

State of the Evidence

Summary

Review Questions

References

CHAPTER 3 **Applying Learning Theories to Healthcare Practice**

Margaret M. Braungart, Richard G. Braungart, Pamela R. Gramet

Psychological Learning Theories

Neuropsychology and Learning

Comparison of Learning Theories

Motor Learning

Common Principles of Learning

State of the Evidence

Summary

Review Questions

References

PART TWO **Characteristics of the Learner**

CHAPTER 4 **Determinants of Learning**

Sharon Kitchie

The Educator's Role in Learning

Assessment of the Learner

Learning Needs

General Methods to Assess Learning Needs

Readiness to Learn

Learning Styles

Learning Style Models and Instruments

Interpretation of the Use of Learning Style Models and Instruments

State of the Evidence

Summary

Review Questions

References

CHAPTER 5 **Developmental Stages of the Learner**

Susan B. Bastable, Gina M. Myers

Developmental Characteristics

The Developmental Stages of Childhood

The Developmental Stages of Adulthood

The Role of the Family in Patient Education

State of the Evidence

Summary

Review Questions

References

CHAPTER 6 **Motivation and Adherence: Impact on Changing Learner Behavior**

Lois Linden

Motivation

Adherence

Health Behavior Models and Theories

Models for Health Education

Role of Nurse as Educator in Behavioral Change

State of the Evidence

Summary

Review Questions

References

CHAPTER 7 **Literacy in the Adult Client Population**

Susan B. Bastable, Gina M. Myers

Definition of Terms

Scope and Incidence of the Problem

Those at Risk

Myths, Stereotypes, and Assumptions

Assessment: Clues to Look For

Impact of Illiteracy on Motivation and Adherence

Ethical, Financial, and Legal Concerns

Readability of Printed Education Materials

Measurement Tools to Test Literacy Levels

Formulas to Measure Readability of Printed Education Materials

Tests to Measure Comprehension of Printed Education Materials

Tests to Measure General Reading Skills and Health Literacy Skills of Clients

Simplifying the Readability of Printed Education Materials

Teaching Strategies to Promote Health Literacy

State of the Evidence

Summary

Review Questions

References

CHAPTER 8 **Cultural Attributes of the Learner**

Susan B. Bastable, Kara Evans

Sex and Gender Characteristics

Socioeconomic Characteristics

Cultural Characteristics

Preparing Nurses for Diversity Care

Stereotyping: Identifying the Risks and Solutions

State of the Evidence

Summary

Review Questions

References

CHAPTER 9 **Educating Learners With Disabilities and Chronic Illnesses**

Deborah L. Sopczyk

Scope of the Problem

Models and Definitions

The Language of Disabilities

The Roles and Responsibilities of Nurse Educators

Types of Disabilities

Sensory Disabilities

Learning Disabilities

Developmental Disabilities

Physical Disabilities

Communication Disorders

Chronic Illness

The Family's Role in Chronic Illness or Disability

Assistive Technologies

State of the Evidence

Summary

Review Questions

References

PART THREE **Techniques and Strategies for Teaching and Learning**

CHAPTER 10 **Behavioral Objectives and Teaching Plans**

Susan B. Bastable, Natalie M. Capacci

Types of Objectives

Characteristics of Goals and Objectives

The Importance of Using Behavioral Objectives

Writing Behavioral Objectives and Goals

Common Mistakes When Writing Objectives

Taxonomy of Objectives According to Learning Domains

Development of Teaching Plans

Use of Learning Contracts

The Concept of Learning Curve

State of the Evidence

Summary

Review Questions

References

CHAPTER 11 **Teaching Methods and Settings**

Kathleen Fitzgerald, Susan B. Bastable, Kara Evans

Teaching Methods

Selection of Teaching Methods

Educator Self-Assessment

Evaluation of Teaching Methods

Characteristics of a Great Teacher

Settings for Teaching

State of the Evidence

Summary

Review Questions

References

CHAPTER 12 **Instructional Materials**

Diane Hainsworth, Mary Jean (MJ) Petersen

General Principles

Choosing Instructional Materials

The Three Major Components of Instructional Materials

Types of Instructional Materials

Evaluating Instructional Materials

State of the Evidence

Summary

Review Questions

References

CHAPTER 13 **Technology in Education**

Deborah L. Sopczyk, Mary Jean (MJ) Petersen

The World Wide Web

The Internet

Health Education in a Technology-Based World

The Impact of Technology on the Teacher and the Learner

Strategies for Using Technology in Healthcare Education

Educational Strategies Using the World Wide Web

Educational Strategies Using the Internet

Healthcare Consumer Education in a Technology-Based World

Telehealth and Remote Patient Monitoring

Technology for Professional Development and Higher Education

Issues Related to the Use of Technology

State of the Evidence

Summary

Review Questions

References

CHAPTER 14 **Evaluation in Healthcare Education**

Priscilla Sandford Worral

Evidence-Based Practice, Practice-Based Evidence, and Implementation Science

Evaluation Versus Assessment

Evaluation Models

Designing the Evaluation

Conducting the Evaluation

Analyzing and Interpreting Data Collected

Reporting Evaluation Results

State of the Evidence

Summary

Review Questions

References

Appendix A Tests to Measure Readability, Comprehension, and Health Literacy and Tools to Assess Instructional Materials

How to Use the Flesch Reading Ease Formula

How to Use the Fog Formula

How to Use the Fry Readability Graph

How to Use the SMOG Formula

The Cloze Test

Newest Vital Sign

Guidelines for Writing and Evaluating Printed Education Materials

References

Appendix B Resources and Organizations for People With Disabilities

Assistive Technology

Head Injury

Healthcare-Related Federal Agencies

Learning Disabilities

Neuromuscular Disorders

Stroke

Glossary

Index

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Foreword

Health care in the United States is being delivered during a time of great uncertainty, transformation, and consumerism. Patients and communities are demanding greater control and input into their healthcare decisions and how care should be provided. The positive impact of healthcare reform is improving access to care, but the need continues for a more integrated and equitable health system, driven by highly competent and compassionate caregivers who fully understand and embrace the needs of their patients and who collaborate with all members of the healthcare team. In addition, the future will require a relentless focus on quality, care coordination, innovation, and efficiency in an environment of ever scarcer resources and disruptive forces.

Nurse as Educator recognizes these changes and builds on the author's five successful editions of the book, which have given nurses invaluable strategies for partnering with patients and serving the community. Nurses are the most trusted members of the healthcare team and *Nurse as Educator* gives them all of the practical tools they need to provide effective and efficient patient/family education as well as to educate nursing colleagues and nursing students.

This book could not be more timely as nurses strive to enhance their patients' ability to manage their own care, educate family members to support the overwhelming complexity of clinical protocols, and understand the needs of learners who have highly variable levels of health literacy and diverse social and cultural attributes. Nurses also play a vital role in

teaching other members of the healthcare team and in educating the next generation of nurses.

The author and her chapter contributors have anticipated and explored all the dimensions of teaching and learning in this very important text. Although it includes the fundamentals of learning theories, teaching methods, and instructional materials, *Nurse as Educator* also focuses on critical issues such as readiness to learn, learning styles, motivation and adherence, teaching people with disabilities, and technology in education all based on the latest research and theoretical underpinnings.

Nurses will greatly benefit from the content and format of this comprehensive and well-organized book that prepares them to fully embrace the new challenges of an ever-changing healthcare environment. The knowledge, skills, and commitment of nurses in educating patients and families to manage their care independently and in teaching colleagues and students to practice competently for the delivery of high-quality, compassionate, and efficient care will drive the necessary improvements in the health system and will demonstrate their leadership in transforming health care.

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Preface

This text has been written for undergraduate and graduate nursing students learning the knowledge and skills to become the professional nurses of tomorrow; for faculty teaching in academic nursing programs to prepare future nurses at all levels of education; and for staff nurses serving as patient educators, in-service educators, clinical preceptors, and mentors for whom the role of teacher is a significant practice component of their daily activities. No matter their role or status, it is a legal, ethical, and moral responsibility of registered nurses practicing in any setting to teach others, whether their audience consists of patients and families, fellow colleagues, prospective members of the profession, or the general public in the community. Mandates included in the nurse practice acts of all states and territories, expectations by the national and regional standards of nursing organizations and accrediting bodies, and the policies and procedures adopted by local healthcare institutions and agencies require that nurses function in the role of educators.

Teaching patients and their significant others has been the obligation of nurses since the profession began during the era of Florence Nightingale. Since then, the scope of nursing practice has significantly evolved and has grown to include nurses teaching members of their own discipline to render safe, high-quality care. Nevertheless, most nurses acknowledge that they have not had the formal preparation to successfully and securely carry out their role as educator. Every nurse must have the knowledge and skills to competently and confidently teach learners who have a variety of needs and who are found in many different settings. Also, the

educator must be able to do so with efficiency and effectiveness based on a solid mastery of the principles of teaching and learning.

However, nurses are not born with the innate ability to teach or to understand the ways in which people learn. The art and science of teaching takes special expertise about how to best communicate information and about how that information is most successfully acquired by the learner. Teaching patients, staff, and students is critical to the provision of high-quality nursing care, and nurses must capture this domain as an important and unique aspect of their holistic approach to professional practice.

This text is a timely resource that provides approaches essential to addressing many of today's pressing issues in the healthcare environment. The growing demand for nurses to deliver the highest quality of care possible, the critical shortage of faculty in nursing schools nationwide, the significant problem of consumer health literacy, the ongoing movement to guarantee access to care for all, the technological advances increasing the complexity of health care, the changing demographics of the population, the increasing emphasis on health promotion and disease prevention, and the rise in chronic illnesses are just a few of the many important trends. Not only is it recognized that patient education by nurses can significantly improve client health outcomes, but consumers today must be taught how to independently manage their own care. In turn, nurses must be adequately prepared as lifelong learners to participate in the constantly transformative and challenging system of health care.

The content of this text reflects a balance between theories and models associated with education and the real-world application of the principles of teaching and learning pertinent to patients, staff, and students acquiring knowledge, attitudes, and skills essential to their roles. This latest edition fully acknowledges the important role of the professional nurse as well as the changing role of the consumer of health care with respect to accountability and responsibility for teaching and learning. No longer should the nurse be the giver of information only but must function as the guide on the side and as the facilitator in partnership with the consumer, who must assume a much more active part in learning. The philosophy of the interdependence between the teacher and learner in the education process is emphasized throughout the chapters.

All chapters have been revised to include new content, such as the addition of many more innovative teaching methods for collaborative learning; emphasis on patient-centered care and patient engagement; the focus on quality and safety education in nursing; information on nursing education transformation and the importance of interprofessional education; the use of electronic health records and patient portals; advances in telehealth and patient monitoring from a distance; and technology for remote teaching and learning. Also, the most updated, research-based references have been added to every chapter, but classic works relevant to the field of education have been retained. Current statistics reflect changes in population trends, and new tables and figures have been added to visually summarize the information presented. In addition, the most recent websites are provided throughout the text as sources of further information on particular topics. And, by popular demand, new case study scenarios appear at the end of each chapter for application of teaching and learning principles to nursing practice.

This text is comprehensive in scope, taking into consideration the basic foundations of the education process, the needs and characteristics of learners, the appropriate techniques and strategies for instruction, and the methods to evaluate the achievement of educational outcomes. In essence, this text provides answers to questions that pertain to the teaching and learning process—who, what, where, when, how, and why.

Thus, the focus of this text is on the contemporary role of the nurse as educator. Teaching patients, well or ill, to maintain optimal health and to prevent disease and disability assists them to become as independent as possible in self-care activities. Properly educating consumers has the potential to accomplish the economic goal of reducing the high costs of healthcare services. Teaching staff and students to practice competently, confidently, effectively, and efficiently in an interdisciplinary manner in any setting with individuals and groups from diverse backgrounds will ensure the delivery of high-quality care.

I sincerely hope that this text serves as an invaluable resource to its readers who are striving to become adept at delivering patient, staff, and/or student education based on the principles of how the nurse can best teach and how consumers can best learn. As nurses, we must never forget our solemn duty to make a positive difference in the lives of those

we serve, and teaching is a major factor that influences the health, development, and well-being of our audience of learners.

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Acknowledgments

A special appreciation is extended to the original authors of the 14 chapters whose valuable work provided the foundation for adding new material to this most recent *Sixth Edition*. I am grateful for the loyalty of five contributors who agreed to edit their own original work once again, five other contributors who previously have worked on recent editions of this book, and three new colleagues who joined the team to contribute their professional knowledge, practice expertise, and fresh perspectives in revising the content of the remaining chapters. Every one of them dedicated their efforts to significantly updating the information and references contained in every chapter for the benefit of the intended audience of readers.

Also, I extend my sincerest thanks to the entire publishing staff of the nursing division of Jones & Bartlett Learning for making this newest edition possible. In particular, I would like to acknowledge Tina Chen, product manager; Christina Freitas, content strategist; Melina Leon, content strategist; and Maria Leon Maimone, rights specialist. They have provided expert technical advice and guidance, organizational skills, and constant support, understanding, and encouragement throughout the process of launching this publication. Also, I want to recognize Escaline Charlette Aarthi from S4Carlisle Publishing Services for her meticulous skills as a project manager and Elizabeth Hamblin of Hamblin LLC for her incredible copyediting skills, both of whom are publishing partners of Jones & Bartlett Learning. All of them together are a very talented team of professionals!

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Thanks, too, to Nancy Schlichting who once again has written the foreword in this text. She has been a national leader in health care for decades and is recognized for her keen mind, person-centered leadership, incredible compassion toward others, advocacy for the health of the public, and innovative spirit in transforming healthcare delivery. She has been a very close friend and colleague for many years.

And last, but certainly not least, my husband, Jeffrey, deserves the deepest gratitude from me for his steadfast support during the countless hours and endless months that I devoted to research, writing, and editing, which was key to making this *Sixth Editio*n a reality.

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About the Author

Susan Bacorn Bastable earned her MEd in community health nursing and her EdD in curriculum and instruction in nursing at Teachers College, Columbia University, in 1976 and 1979, respectively. She received her diploma in nursing from Hahnemann Hospital School of Nursing (now known as Drexel University of the Health Sciences) in Philadelphia in 1969 and her bachelor's degree in nursing from Syracuse University in 1972.

Dr. Bastable was professor and founding chair of the Department of Nursing at Le Moyne College in Syracuse, New York for 11 years. She retired in May 2015 and was honored with the title of professor emerita.

She began her academic career in 1979 as assistant professor at Hunter College, Bellevue School of Nursing in New York City, where she remained on the faculty for 2 years. From 1987 to 1989, she was assistant professor in the College of Nursing at the University of Rhode Island. In 1990, she joined the faculty of the College of Nursing at the State University of New York (SUNY) at Upstate Medical University in Syracuse, where she was associate professor and chair of the undergraduate program for 14 years. In 2004, she assumed her leadership position at Le Moyne College and successfully established an RN-BS completion program; an innovative 4-year undergraduate dual-degree partnership in nursing (DDPN) supported by two Robert Wood Johnson Foundation grants in conjunction with the associate's degree program at St. Joseph's College of Nursing in Syracuse; a BS-MS bridge program; a postbaccalaureate RN-MS certificate program; a master of science program and three post-MS certificate programs with tracks in nursing education, nursing administration, and informatics; and most recently a family nurse practitioner (FNP) program as well as a post-MS FNP option.

Dr. Bastable has taught undergraduate courses in nursing research, community health, and the role of the nurse as educator, and courses at the master's and postmaster's level in the academic faculty role, curriculum and program development, and educational assessment and evaluation. For 31 years, she served as consultant and external faculty member for Excelsior College (formerly known as Regents College of the University of the State of New York). Her clinical practice includes experiences in community health, oncology, rehabilitation and neurology, occupational health, and medical/surgical nursing.

Dr. Bastable received the President's Award for Excellence in Teaching at Upstate Medical University and the SUNY Chancellor's Award for Excellence in Teaching. Also, she was recognized for the Women in Leadership Award from the Greater Syracuse Chamber of Commerce and was honored with the Distinguished Achievement Award in Nursing Education from Teacher's College, Columbia University. In addition to authoring six editions of *Nurse as Educator*, she is the author of two editions of *Essentials of Patient Education* and is the main editor of two editions of the textbook *Health Professional as Educator*.

In retirement, she has been serving in the role of a nursing education consultant for national and regional program accreditations and assisting

colleges of nursing across New York and other states in replicating the unique 1+2+1 dual-degree partnership model mentioned herein, the first of its kind in the country. For years she has been an involved member of numerous nursing education advisory boards. Currently, she also has been an active volunteer for 10 years with Honor Flight Syracuse, an organization that flies veterans to Washington, DC to visit the war memorials erected in their honor. She is the proud parent of two Navy officer veterans and the grandparent to three beautiful grandchildren.

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CHAPTER 1

Overview of Education in Health Care

Susan B. Bastable

Kattiria M. Rosario-Gonzalez

CHAPTER HIGHLIGHTS

- Historical Foundations for Patient Education in Health Care
- The Evolution of the Teaching Role of Nurses
- Social, Economic, and Political Trends Affecting Health Care
- Purposes, Goals, and Benefits of Patient and Nursing Staff/Student Education
- The Education Process Defined
- The Contemporary Role of the Nurse as Educator
  - *Interprofessional Education and Practice*
  - *Patient-Centered Care*
  - *Quality and Safety Education in Nursing*
  - *The Institute of Medicine Report: The Future of Nursing*
- Barriers to Teaching and Obstacles to Learning
  - *Factors Affecting the Ability to Teach*
  - *Factors Affecting the Ability to Learn*
- Questions to Be Asked About Teaching and Learning
- State of the Evidence

KEY TERMS

barriers to teaching

education process

interprofessional education (IPE)

interprofessional practice

learning

obstacles to learning

patient education

patient-centered care (PCC)

staff education

teaching and instruction

OBJECTIVES

After completing this chapter, the reader will be able to:

1. Discuss the evolution of patient education in health care and the teaching role of nurses.
2. Recognize trends affecting the healthcare system in general and nursing practice in particular.
3. Identify the purposes, goals, and benefits of patient and nursing staff/student education.
4. Compare the education process to the nursing process.
5. Define the terms *education process*, *teaching*, and *learning*.
6. Identify why patient and staff/student education is an important duty for nurses.
7. Analyze the significance of interprofessional education (IPE) and interprofessional practice to the delivery of patient care.
8. Explain why the patient-centered care (PCC) movement is an important trend in health care.
9. Discuss the barriers to teaching and the obstacles to learning.
10. Formulate questions that nurses in the role of educator should ask about the teaching–learning process.

Education in health care today—both patient education and nursing staff/student education—is a topic of utmost interest to nurses in every setting in which they practice. Teaching is an important aspect of the nurse's professional role (Andersson et al., 2015; McKenna et al., 2018; Steketee & Bate, 2013), whether it involves educating patients and their family members, colleagues, or nursing students. The current trends in health care are making it essential that patients be prepared to assume

responsibility for self-care management and that nurses in the workplace be accountable for the delivery of safe, high-quality care (Dineen-Griffin et al., 2019; Lockhart, 2016; Shi & Singh, 2015; U.S. Department of Health and Human Services [USDHHS], 2015). The focus of modern health care is on outcomes that demonstrate the extent to which patients and their significant others have learned essential knowledge and skills for independent care or to which staff nurses and nursing students have acquired the up-to-date knowledge and skills needed to competently and confidently render care to the consumer in a variety of settings (Committee on Quality of Health Care in America & Institute of Medicine [IOM], 2001; Doyle et al., 2013; IOM, 2001; Salmond & Echevarria, 2017).

Patient education is an issue in nursing practice and will continue to be a significant focus in the healthcare environment (Friberg et al., 2012). Because so many changes are occurring in the healthcare system, nurses are increasingly finding themselves in challenging, constantly changing, and highly complex positions and, in some cases, do not have the appropriate skills to effectively teach patients (Gillespie & McFetridge, 2006; McKenna et al., 2018; Pollack, 2017; Vennum, 2017). Nurses in the role of educators must understand the forces, both historical and present day, that have influenced and continue to influence their responsibilities in practice.

One purpose of this chapter is to shed light on the historical evolution of patient education in health care and the nurse's role as teacher. Another purpose is to offer a perspective on the current trends in health care that make the teaching of clients a highly visible and required function of nursing care delivery. Also, this chapter addresses the continuing education efforts necessary to ensure ongoing practice competencies of nursing personnel.

In addition, this chapter clarifies the broad purposes, goals, and benefits of the teaching–learning process; focuses on the philosophy of the nurse–client partnership in teaching and learning; compares the education process to the nursing process; stresses the importance of interprofessional education (IPE), interprofessional practice, and patient-centered care (PCC); identifies barriers to teaching and obstacles to learning; and highlights the status of research in the field of patient education as well as in the education of nursing staff and students. The focus is on the overall role of the nurse in teaching and learning,

regardless of who the audience of learners might be. Nurses must have a basic prerequisite understanding of the principles and processes of teaching and learning to carry out their professional practice responsibilities with efficiency and effectiveness.

Historical Foundations for Patient Education in Health Care

“Patient education has been a part of health care since the first healer gave the first patient advice about treating his (or her) ailments” (May, 1999, p. 3). Although the term *patient education* was not specifically used, considerable efforts by the earliest healers to inform, encourage, and caution patients to follow appropriate hygienic and therapeutic measures occurred even in prehistoric times (Bartlett, 1986). Because these early healers—physicians, herbalists, midwives, and shamans—did not have a lot of effective diagnostic and treatment interventions, it is likely that education was, in fact, one of the most common interventions (Bartlett, 1986).

From the mid-1800s through the turn of the 20th century, described as the formative period by Bartlett (1986) and as the first phase in the development of organized health care by Dreeben (2010), several key factors influenced the growth of patient education. The emergence of nursing and other health professions, technological developments, the emphasis on the patient–caregiver relationship, the spread of tuberculosis and other communicable diseases, and the growing interest in the welfare of mothers and children all had an impact on patient education (Bartlett, 1986; Dreeben, 2010). In nursing, Florence Nightingale emerged as a resolute advocate of the educational responsibilities of district public health nurses and authored *Health Teaching in Towns and Villages*, which advocated for school teaching of health rules and health teaching in the home (Monterio, 1985).

Dreeben (2010) describes the first four decades of the 20th century as the second phase in the development of organized health care. In support of maternal and child health in the United States, the Division of Child Hygiene was established in New York City in 1908 (Bartlett, 1986). Under the auspices of this organization, public health nurses provided instruction to mothers of newborns in the

Lower East Side on how to keep their infants healthy. Diagnostic tools, scientific discoveries, new vaccines and antibiotic medications, and effective surgery and treatment practices led to education programs in sanitation, immunization, prevention and treatment of infectious diseases, and a growth in the U.S. public health system. The National League of Nursing Education (NLNE) recognized that public health nurses were essential to the well-being of communities and the teaching they provided to individuals, families, and groups was considered “a precursor to modern patient and health education” (Dreeben, 2010, p. 11).

The third phase in the development of organized health care began after World War II. It was a time of significant scientific accomplishments and a profound change in the delivery system of health care (Dreeben, 2010). The late 1940s through the 1950s is described as a time when patient education continued to occur as part of clinical encounters, but often it was overshadowed by the increasingly technological orientation of health care (Bartlett, 1986). The first references in the literature to patient education began to appear in the early 1950s (Falvo, 2004). In 1953, Veterans Administration hospitals issued a technical bulletin titled *Patient Education and the Hospital Program*. This bulletin identified the nature and scope of patient education and provided guidance to all hospital services involved in patient education (Veterans Administration, 1953).

In the 1960s and 1970s, patient education began to be seen as a specific task in which emphasis was placed on educating individual patients rather than providing general public health education. Developments during this time, such as the civil rights movement, the women’s movement, and the consumer and self-help movement, all affected patient education (Bartlett, 1986; Nyswander, 1980; Rosen, 1977). In the 1960s, voluntary agencies and the U.S. Public Health Service funded several patient and family education projects dealing with congestive heart failure, stroke, cancer, and renal dialysis, and hospitals in a variety of states became involved in various education programs and projects (Rosen, 1971). By the mid-

1960s, patients were recognized as healthcare consumers and society adopted the new perspective that health care was a right and not a privilege for all Americans. In 1965, the U.S. Congress passed Titles XVIII and XIX of the Social Security Act, which created, respectively, the Medicare and Medicaid plans to provide health care to indigent persons, older adults, and people with medical disabilities (Dreeben, 2010).

Concerned that patient education was being provided only occasionally and that patients were not routinely being given information that would allow them to participate in their own health care, the American Public Health Association formed a multidisciplinary Committee on Educational Tasks in Chronic Illness in 1968 that recommended a more formal approach to patient education (Rosen, 1971). One of the committee's seven basic premises was an educational prescription that would base teaching on individual patient needs and be included as part of the patient's record. This recommendation represented one of the earliest mentions of the documentation of patient education (Falvo, 2004). The committee ultimately developed a model that defined the educational processes necessary for patient and family education that could be used with any illness by any member of the healthcare team (Health Services and Mental Health Administration, 1972).

In 1971, two significant events occurred: (1) A publication from the U.S. Department of Health, Education, and Welfare, titled *The Need for Patient Education,* emphasized a concept of patient education that provided information about disease and treatment as well as teaching patients how to stay healthy, and (2) President Richard Nixon issued a message to Congress using the term *health education* (Falvo, 2004). Nixon later appointed the President's Committee on Health Education, which recommended that hospitals offer health education to families of patients (Bartlett, 1986; Weingarten, 1974). Although the terms *health education* and *patient education* were used interchangeably, this recommendation had a great impact on the future of patient education because a health

education focal point was established in what was then the U.S. Department of Health, Education, and Welfare (Falvo, 2004).

Resulting from this committee's recommendations, the American Hospital Association (AHA) appointed a special committee on health education (Falvo, 2004). The AHA committee suggested that it was a responsibility of hospitals and other healthcare institutions to provide educational programs for patients and that all health professionals were to be included in patient education AHA, 1976). Also, the healthcare system began to pay more attention to patient rights and protections involving informed consent (Roter et al., 2001).

Also in the early 1970s, patient education was a significant part of the AHA's *Statement on a Patient's Bill of Rights*, affirmed in 1972 and then formally published in 1973 (AHA, 1973). This document outlines patients' rights to receive current information about their diagnosis, treatment, and prognosis in understandable terms, and information that enables them to make informed decisions about their health care. The *Patient's Bill of Rights* also guarantees a patient's right to respectful and considerate care. The adoption of this bill of rights promoted additional growth in the concept of patient education, which reinforced the concept as a "patient right" and it being seen as an obligation and legal responsibility of health professionals. In addition, patient education was recognized as a condition of high-quality care and as a factor that could affect the efficiency of the healthcare system (Falvo, 2004). Furthermore, during the 1970s, insurance companies began to deal with issues surrounding patient education, because they saw how patient education could positively influence the costs of health care (Bartlett, 1986).

Further support for and validation of patient education as a right and the expectation of high-quality health care came in the 1976 edition of the *Accreditation Manual for Hospitals* published by the Joint Commission on Accreditation of Healthcare Organizations (JCAHO), now known as The Joint Commission (Falvo, 2004). This manual broadened the scope of patient education to include both outpatient

and inpatient services and specified that criteria for patient education should be established. Patients had to receive information about their medical problem, prognosis, and treatment, and evidence had to be provided indicating that patients understood the information they were given (JCAHO, 1976).

In the 1980s and 1990s, national health education programs once again became popular as healthcare trends focused on disease prevention and health promotion. This evolution represented a logical response to the cost-containment efforts occurring in health care at that time (Dreeben, 2010). The USDHHS's *Healthy People 2000: National Health Promotion and Disease Prevention Objectives*, issued in 1990 and building on the U.S. Surgeon General's *Healthy People* report of 1979, established important goals for national health promotion and disease prevention, which included establishing educational and community-based programs (USDHHS, 1990).

In addition, in recognition of the importance of patient education by nurses, The Joint Commission (TJC) established nursing standards for patient education as early as 1993. These standards, known as mandates, describe the type and level of care, treatment, and services that agencies or organizations must provide to receive accreditation. Required accreditation standards have provided the impetus for nursing service managers to emphasize unit-based clinical staff education activities for the improvement of nursing care interventions to achieve expected client outcomes (JCAHO, 2001). These standards required nurses to achieve positive outcomes of patient care through teaching activities that must be patient centered and family oriented. More recently, TJC expanded its expectations to include an interdisciplinary team approach in the provision of patient education, and evidence that patients and their significant others participate in care and decision making and understand what they have been taught. This requirement means that all healthcare providers must consider the literacy level, educational background, language skills, and culture of every client during the education

process (Cipriano, 2007; Davidhizar & Brownson, 1999; JCAHO, 2001).

In the mid-1990s, the Pew Health Professions Commission (1995), influenced by the dramatic changes surrounding health care, published a broad set of competencies it believed would mark the success of the health professions in the 21st century. Shortly thereafter, the commission released a fourth report as a follow-up on health professional practice in the new millennium (Pew Health Professions Commission, 1998). This report offered recommendations pertinent to the scope and training of all health professional groups, as well as a new set of competencies for the 21st century. Many of the competencies deal with the teaching role of health professionals, including nurses. These competencies for the practice of health care include the need for all health professionals to do the following:

- Embrace a personal ethic of social responsibility and service.
- Provide evidence-based, clinically competent care.
- Incorporate the multiple determinants of health in clinical care.
- Rigorously practice preventive health care.
- Improve access to health care for those with unmet health needs.
- Practice relationship-centered care with individuals and families.
- Provide culturally sensitive care to a diverse society.
- Use communication and information technology effectively and appropriately.
- Continue to learn and help others learn.

For the 21st century, the Institute for Healthcare Improvement announced the 5 Million Lives campaign in 2006. This campaign's objective was to reduce the 15 million incidents of medical harm that occur in U.S. hospitals each year. Such an ambitious campaign has major implications for teaching patients and their families as well as teaching staff and students the ways they can improve care to reduce injuries, save lives, and decrease costs of health care (Proctor, 2007).

Another initiative was the formation of the Sullivan Alliance to recruit and educate health professionals, including nurses, to deliver culturally competent care to the public they serve. Effective health care and health education of patients and their families depend on a sound scientific base and cultural awareness in an increasingly diverse society. This organization's goal is to increase the racial and cultural mix of health professional faculty, students, and staff, who are sensitive to the needs of clients of diverse backgrounds (Sullivan & Bristow, 2007).

In addition, following on the heels of *Healthy People 2000, Healthy People 2010* built on the previous two initiatives and provided an expanded framework for health prevention for the nation (USDHHS, 2000). Specific goals and objectives included the development of effective health education programs to assist individuals to recognize and change risk behaviors, to adopt or maintain healthy practices, and to make appropriate use of available services for health care (USDHHS, 2010). As the latest iteration of the *Healthy People* initiative, *Healthy People 2030* is the product of an extensive evaluation process by stakeholders. Its 63 objectives support building a healthy future for all people using five topic areas: health conditions, health behaviors, populations, settings and system, and social determinants of health (USDHHS, 2020). Patient education is a fundamental component of these far-reaching national initiatives.

Thus, since the 1980s, the role of the nurse as educator has undergone a paradigm shift, evolving from what once was a disease-oriented approach to a more prevention-oriented approach. In other words, the focus is on teaching for the promotion and maintenance of health (Roter et al., 2001). Education, which was once performed as part of discharge planning at the end of hospitalization, has expanded to become part of a comprehensive plan of care that occurs across the continuum of the healthcare delivery process (Davidhizar & Brownson, 1999).

As described by Grueninger (1995), this transition toward wellness entails a progression "from disease-oriented patient education

(DOPE) to prevention-oriented patient education (POPE) to ultimately become health-oriented patient education (HOPE)" (p. 53). Instead of the traditional aim of simply imparting information, the emphasis is now on empowering patients to use their potentials, abilities, and resources to the fullest (Glanville, 2000; Kelliher, 2013). Along with supporting patient empowerment, nurses must be mindful to continue to ensure the protection of "patient voice" and the therapeutic relationship in patient education against the backdrop of ever-increasing productivity expectations and time constraints (Liu et al., 2016; Roter et al., 2001).

The Evolution of the Teaching Role of Nurses

Nursing is unique among the health professions in that patient education has long been considered a major component of standard care given by nurses. Since the mid-1800s, when nursing was first acknowledged as a unique discipline, the responsibility for teaching has been recognized as an important role of nurses as caregivers. The focus of nurses' teaching efforts is on the care of the sick and promoting the health of the well public.

Florence Nightingale, the founder of modern nursing, was the ultimate educator. Not only did she develop the first school of nursing, but she also devoted a large portion of her career to teaching nurses, physicians, and health officials about the importance of proper conditions in hospitals and homes to improve the health of people. Nightingale also emphasized the importance of teaching patients the need for adequate nutrition, fresh air, exercise, and personal hygiene to improve their well-being. By the early 1900s, public health nurses in the United States clearly understood the significance of the role of the nurse as teacher in preventing disease and in maintaining the health of society (Chachkes & Christ, 1996; Dreeben, 2010).

For decades, then, patient teaching has been recognized as an independent nursing function. Nurses have always educated others —patients, families, colleagues, and nursing students. It is from these roots that nurses have expanded their practice to include the broader concepts of health and illness (Glanville, 2000).

As early as 1918, the NLNE in the United States, now known as the National League for Nursing (NLN), observed the importance of health teaching as a function within the scope of nursing practice. Two decades later, this organization recognized nurses as agents for the promotion of health and the prevention of illness in all settings in

which they practiced (NLNE, 1937). By 1950, the NLNE had identified course content in nursing school curricula to prepare nurses to assume the role. Most recently, the NLN (2006) developed the first Certified Nurse Educator (CNE) exam to raise "the visibility and status of the academic nurse educator role as an advanced professional practice discipline with a defined practice setting" (Klestzick, 2005, p. 1).

In similar fashion, the American Nurses Association (ANA, 2015) has for years issued statements on the functions, standards, and qualifications for nursing practice, of which patient teaching is a key element. In addition, the International Council of Nurses (ICN, 2015) has long endorsed the nurse's role as patient educator to be an essential component of nursing care delivery.

Today, all state nurse practice acts (NPAs) include teaching within the scope of nursing practice responsibilities. Nurses, by legal mandate of their NPAs, are expected to provide instruction to consumers to assist them in maintaining optimal levels of wellness and manage illness. Nursing career ladders often incorporate teaching effectiveness as a measure of excellence in practice (Rifas et al., 1994; Fukada, 2018). By teaching patients and families as well as fellow staff nurses, nurses can achieve the professional goal of providing cost-effective, safe, and high-quality care (Coleman & Desai, 2019; Santo et al., 2007; Shi & Singh, 2015).

A variety of other health professions also identify their commitment to patient education in their professional documents (Falvo, 2004). Standards of practice, practice frameworks, accreditation standards, guides to practice, and practice acts of many health professions delineate the educational responsibilities of their members. In addition, professional workshops and continuing education programs routinely address the skills needed for high-quality patient and staff education. Although specific roles vary according to profession, directives related to contemporary patient education clearly echo Bartlett's (1986) assertion that it "must be viewed as a fundamentally multidisciplinary enterprise" (p. 146).

In addition to providing patient education, professional nurses are responsible for educating their colleagues. Another role of today's nurse educator is one of training the trainer—that is, preparing nursing staff through continuing education, in-service programs, and staff development to maintain and improve their clinical skills and teaching abilities. Nurses must be prepared to effectively perform teaching services that meet the needs of many individuals and groups in different circumstances across a variety of practice settings. The key to the success of our profession is for nurses to teach other nurses. We are the primary educators of our fellow colleagues and other healthcare staff personnel (Donner et al., 2005; Lockhart, 2016; McKinley, 2009). In addition, the demand for educators of nursing students is at an all-time high (American Association of Colleges of Nursing, September 2020).

Another very important role of the nurse as educator is serving as a clinical instructor for students in the practice setting. Many staff nurses function as clinical preceptors and mentors to ensure that nursing students meet their expected learning outcomes. However, evidence indicates that nurses in the clinical and academic settings feel inadequate as preceptors and mentors as a result of poor preparation for their role as teachers. This challenge of relating theory learned in the classroom setting to the practice environment requires nurses not only to keep up to date with clinical skills and innovations in practice but also to possess knowledge and skills related to the principles of teaching and learning (Levy et al., 2009; Licata, 2014). Knowing the practice field is not the same as knowing how to teach the field. The role of the clinical educator is a dynamic one that requires the teacher to actively engage students to become competent and caring professionals (Billings & Halstead, 2019; Cangelosi et al., 2009; Gillespie & McFetridge, 2006; Salminen et al., 2013).

Social, Economic, and Political Trends Affecting Health Care

In addition to the professional and legal standards put forth by various organizations and agencies representing or regulating the practice of nursing, many social, economic, and political trends nationwide that affect the public's health have focused attention on the role of the nurse as teacher and the importance of client, staff, and student education. The following are some of the significant forces influencing nursing practice, in particular, and healthcare practice in general (Berwick, 2014; Committee on Quality of Health Care in America & IOM, 2001; Gantz et al., 2012; Glanville, 2000; Health Catalyst Editors, 2020; IOM, 2001, 2011; Lea et al., 2011; Lockhart, 2016; Martin, 2021; Moses et al., 2013; Shi & Singh, 2015; USDHHS, 2010, 2020):

- The federal government, as discussed earlier, published *Healthy People 2030,* a document that set forth national health goals and objectives for the next decade. Achieving these national priorities would dramatically cut the costs of health care, prevent the premature onset of disease and disability, and help all Americans lead healthier and more productive lives. Among the major causes of morbidity and mortality are those diseases now recognized as being lifestyle related and preventable through educational intervention. Nurses, as the largest group of health professionals, play an important role in making a real difference by teaching clients to attain and maintain healthy lifestyles.
- The Institute of Medicine (2011) established recommendations designed to enhance the role of nurses in the delivery of health care. This includes nurses functioning to the full extent of their education and scope of practice. Patient and family education is a key component of the nurse's role.
- The U.S. Congress passed into law in 2010 the Affordable Care Act (ACA), a comprehensive healthcare reform legislation. The

ACA remains one of the top healthcare trends to ensure health insurance coverage for millions of Americans. The ACA is designed to provide cost-effective, accessible, equitable, high-quality health care to all Americans with the intent of improving their health outcomes. If the ACA survives the political pressures to alter or dismantle it, universal accessibility to health care has the potential to transform the healthcare system, and nurses will play a major role in meeting the demands and complexities of this increasing population of patients.

- Medicaid expansion took effect in 2019, but legislation is still pending in many places throughout the United States, with only 37 states in 2020 providing Medicaid expanded coverage under the ACA. Medicaid expansion means more people have access to health care, especially those in remote communities where access to care has been previously unavailable.
- The growth of managed care has resulted in shifts in reimbursement for healthcare services. Greater emphasis is placed on outcome measures, many of which can be achieved primarily through the health education of clients.
- Health providers are recognizing the economic and social values of reaching out to communities, schools, and workplaces—all settings where nurses practice—to provide public education for disease prevention and health promotion.
- Social issues, such as where people live, employment status, family situation, and level of education, affect an individual's health. Social determinants of health (SDOH) impact on mortality, morbidity, life expectancy, health status, and functional well-being, to name a few. SDOH is now recognized as the cause of major disparities in health and healthcare delivery.
- Politicians and healthcare administrators alike recognize the importance of health education to accomplish the economic goal of reducing the high costs of health services. Political emphasis is on productivity, competitiveness in the marketplace, and cost-containment measures to restrain health service expenses.
- Health professionals are becoming increasingly concerned about malpractice claims and disciplinary action for incompetence. Continuing education, either by legislative

mandate or as a requirement of the employing institution, has come to the forefront in response to the challenge of ensuring the competency of practitioners. It is a means to transmit new knowledge and skills and to reinforce or refresh previously acquired knowledge and abilities for the continuing growth of staff.

- Nurses continue to define their professional role, body of knowledge, scope of practice, and expertise, with client education and PCC as central to the practice of nursing.
- Consumers are demanding increased knowledge and skills about how to care for themselves and how to prevent disease. As people are becoming more aware of their needs and desire a greater understanding of treatments and goals, the demand for health information is expected to intensify. The quest for consumer rights and responsibilities, which began in the 1960s, continues into the 21st century. Consumerization also includes improving the efficiency, effectiveness, and transparency of care in appointment scheduling, exam availability, and speed in receiving exam results to reduce wasted time and increase patient satisfaction with care.
- An increasing number of self-help groups exist to support clients in meeting their physical and psychosocial needs. The success of these support groups and behavioral change programs depends on the nurse's role as teacher and advocate.
- Demographic trends, particularly the aging of the population, require nurses to emphasize self-reliance and maintenance of a healthy status over an extended life span. The percentage of the U.S. population older than age 65 years will climb dramatically in the next 20 to 30 years, and the healthcare needs of the baby-boom generation of the post–World War II era will increase as this vast cohort deals with degenerative illnesses and other effects of the aging process.
- In addition, millions of incidents of medical harm occur every year in U.S. hospitals. Clearly, it is imperative that clients, nursing staff, and nursing students be educated about preventive measures to reduce these incidents.

- The increased prevalence of chronic and incurable conditions requires that individuals and families become informed participants to manage their own illnesses. Patient teaching can facilitate an individual's adaptive responses to illness and disability.
- Advanced technology increases the complexity of care and treatment in home and community-based settings. More rapid hospital discharge and more procedures done on an outpatient basis are expecting patients to be more self-reliant in managing their own health. Patient education assists them in following through with self-management activities independently. Virtual care solutions from telehealth visits to virtual home-based care is the new mindset to support healthcare providers and patients in staying connected in a meaningful and productive way.
- Healthcare providers increasingly recognize client health literacy as an essential skill to improve health outcomes nationwide. Nurses must attend to the education needs of their patients and families to be sure that they adequately understand the information required for independence in self-care activities that promote, maintain, and restore their health.
- Many healthcare providers believe—and this belief is supported by research—that client education improves adherence and, hence, health and well-being. Better understanding by patients and their families of the recommended treatment plans can lead to increased cooperation, decision making, satisfaction, and independence with therapeutic regimens. Health education enables patients to solve problems they encounter outside the protected care environments of hospitals, thereby increasing their independence.
- Online technologies used in nursing education programs are increasing. Nurses are expected to have the critical thinking skills needed to identify problems, conduct research on problems encountered, and apply new knowledge to address these problems. In addition, nurses are expected to have familiarity with computerized charting and electronic health information records. Nursing informatics is becoming highly important in the paperless world of patient care, and nurse

educators are beginning to address the gap in skills with respect to electronic data collection and analysis that nursing students and staff face in the practice settings.
- The fields of genetics and genomics, as included in the holistic approach of nursing practice, are providing patients with more options to consider for screenings, procedures, and therapies to obtain optimal health. The United States and Europe have established core competencies in genetics and genomics for nurses to support the development of skills, knowledge, and attitudes in the delivery of safe comprehensive care.

Nurses recognize the need to develop their expertise in teaching to keep pace with the demands of patient, staff, and student education. As they continue to define their role, body of knowledge, scope of practice, and professional expertise, they are realizing, more than ever before, the significance of their role as educators. Nurses have many opportunities to carry out health education. They are the healthcare providers who have the most continuous contact with clients, are usually the most accessible source of information for the consumer, and are the most highly trusted of all health professionals. In Gallup polls conducted since 2001, nurses have continued to be ranked number 1 for 18 consecutive years in honesty and ethical standards (ANA, 2020; Olshansky, 2011; Reinhart, 2020; Riffkin, 2014; Williamson, 2016). This is pertinent because a trusting relationship between nurses and clients facilitates the exchange of health education information.

Purposes, Goals, and Benefits of Patient and Nursing Staff/Student Education

The purpose of patient education is to increase the competence and confidence of clients for self-management. The primary goal is to increase the responsibility and independence of clients for self-care. This can be achieved by supporting patients through the transition from being dependent on others to being self-sustaining in managing their own care and from being passive listeners to active learners. An interactive partnership education approach provides clients with opportunities to explore and expand their self-care abilities (Cipriano, 2007; Dineen-Griffin et al., 2019).

The single most important action of nurses as educators is to prepare patients for self-care. If patients cannot independently maintain or improve their health status when on their own, nurses have failed to help them reach their potential (Glanville, 2000). The benefits of client education are many (Adams, 2010; Dreeben, 2010; Fereidouni et al., 2019; Marcus, 2014: Sarasohn-Kahn, 2013; Timmers et al., 2020; Wingard, 2005). For example, effective teaching by the nurse can do the following:

- Increase consumer satisfaction
- Improve quality of life
- Ensure continuity of care
- Decrease patient anxiety
- Effectively reduce the complications of illness and the incidence of disease
- Promote adherence to treatment plans
- Maximize independence in the performance of activities of daily living
- Energize and empower consumers to become actively involved in the planning of their care

Because patients must handle many health needs and problems at home, people must be educated on how to care for themselves—that is, both to get well and to stay well. Illness is a natural life process, but so is humankind's ability to learn. Along with the ability to learn comes a natural curiosity that allows people to view new and difficult situations as challenges rather than as defeats. As Orr (1990) observed, "Illness can become an educational opportunity. . . a 'teachable moment' when ill health suddenly encourages [patients] to take a more active role in their care" (p. 47). This observation remains relevant today.

Numerous studies have documented that informed clients are more likely to comply with medical treatment plans, more likely to find innovative ways to cope with illness, and less likely to experience complications. Overall, clients are more satisfied with care when they receive adequate information about how to manage for themselves (Ferrer, 2015; Sarasohn-Kahn, 2013). One of the most frequently cited complaints by patients in litigation cases is that they were not adequately informed (Reising, 2007).

Just as there is a need for teaching patients to become participants and informed consumers to achieve independence in self-care, so too is there a need for staff nurses to be exposed to up-to-date information with the ultimate goal of enhancing their practice. The purpose of staff and student education is to increase the competence and confidence of nurses to function independently in providing care to the consumer and to function interprofessionally with colleagues in a collaborative, team-based approach to healthcare delivery (Johnson & Johnson. 2016; Weinstein et al., 2013). The goal of education efforts is to improve the quality of care delivered by nurses. Nurses play a key role in improving the nation's health, and lifelong learning is essential to keep their knowledge and skills current (Kelliher, 2013; Witt, 2011). According to a 2016 report by the All-Party Parliamentary Group on Global Health (APPG) of the World Health Organization (WHO), nurses are the key to improving health, promoting gender equality, and supporting economic growth (WHO, 2016).

In turn, the benefits to nurses in their role as educators include increased job satisfaction when they recognize that their teaching actions have the potential to forge therapeutic relationships with clients, enhanced patient–nurse autonomy, increased accountability in practice, and the opportunity to create change that really makes a difference in the lives of others (Witt, 2011).

The primary aims of nurse educators, then, should be to nourish clients, mentor staff, and serve as teachers, clinical instructors, and preceptors for nursing students. They must value their role in educating others and make it a priority for their patients, fellow colleagues, and the future members of the profession. As the ancient Chinese (author unknown) proverb says, “Provide a man a fish, and he may eat for a day. Teach a man to fish, and he may eat for a lifetime.” In other words, teaching is a sacred and honorable act; it is imparting knowledge to others and empowering them to no end—and there can be no higher calling than that of an educator (Jackson, 2015).

The Education Process Defined

The **education process** is a systematic, sequential, logical, science-based, planned course of action consisting of two major interdependent operations: teaching and learning. This process forms a continuous cycle that also involves two interdependent players: the teacher and the learner. Together, they jointly perform teaching and learning activities, the outcome of which leads to mutually desired behavior changes. These changes foster growth in the learner and, it should be acknowledged, growth in the teacher as well. Thus, the education process is a framework for a participatory, shared approach to teaching and learning (Carpenter & Bell, 2002; Kelo, Eriksson, et al., 2013).

The education process is similar across the practice of many of the health professions. In fact, it can be compared to the nursing process because the steps of each process run parallel to the steps of the other (**Figure 1-1**). The education process, like the nursing process, consists of the basic elements of assessment, planning, implementation, and evaluation (Dreeben, 2010; Ward, 2012; Wingard, 2005). The two are different in that the nursing process focuses on the planning and implementation of care based on the assessment and diagnosis of the physical and psychosocial needs of the patient. The education process, in contrast, focuses on the planning and implementation of teaching based on an assessment and prioritization of the client's learning needs, readiness to learn, and learning styles (Carpenter & Bell, 2002).

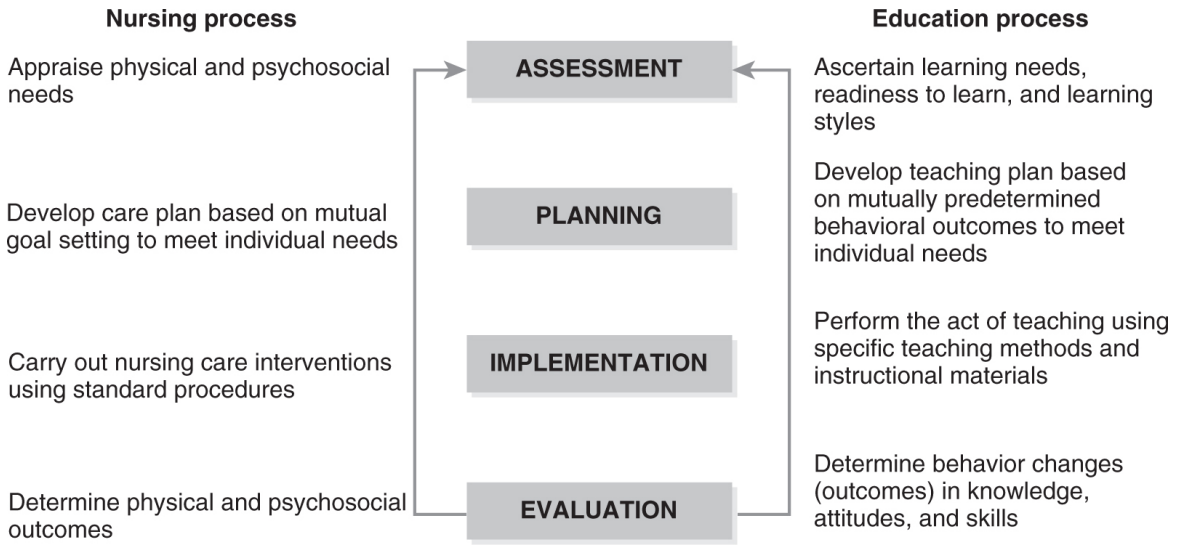

Figure 1-1 Education process parallels nursing process.

Description

The outcomes of the nursing process are achieved when the physical and psychosocial needs of the client are met. The outcomes of the education process are achieved when changes in knowledge, attitudes, and skills occur. Both processes are ongoing, with assessment and evaluation perpetually redirecting the planning and implementation phases. If mutually agreed-on outcomes in either process are not achieved, as determined by evaluation, the process can and should begin again through reassessment, replanning, and reimplementation.

Note that the actual act of teaching or instruction is merely one component of the education process. **Teaching and instruction**—terms that are often used interchangeably—are deliberate interventions that involve sharing information and experiences to meet intended learner outcomes in the cognitive, affective, and psychomotor domains according to an education plan. Teaching and instruction, both one and the same, are often thought of as formal, structured, organized activities, but they also can be informal, spur-of-the-moment education sessions that occur during conversations and incidental encounters with the learner. Whether formal or informal, planned well in advance or spontaneous, teaching and instruction are nevertheless deliberate and conscious acts with the objective of producing learning (Carpenter & Bell, 2002; Gregor, 2001).

Just because teaching and instruction are intentional does not necessarily mean that they must be lengthy and complex tasks, but it does mean that they comprise conscious actions on the part of the teacher in responding to an individual's need to learn. The cues that someone has a need to learn can be communicated in the form of a verbal request, a question, a puzzled or confused look, a blank stare, or a gesture of defeat or frustration. In the broadest sense, then, teaching is a highly versatile strategy that can be applied in preventing, promoting, maintaining, or modifying a wide variety of behaviors in a learner who is receptive, motivated, and adequately informed (Gregor, 2001).

Learning is defined as a change in behavior (knowledge, attitudes, and/or skills) that can be observed or measured and that occurs at any time or in any place resulting from exposure to environmental stimuli. Learning is an action by which knowledge, skills, and attitudes are consciously or unconsciously acquired such that behavior is altered in some way. The success of the nurse educator's endeavors in teaching is measured not by how much content the nurse imparts but rather by how much the person learns (Ackoff & Greenberg, 2008; Seelig, 2016).

Patient education is a process of assisting people in learning health-related behaviors that they can incorporate into everyday life, with the goal of achieving optimal health and independence in self-care. Friedman et al. (2011) specifically define it as "any set of planned educational activities, using a combination of methods (teaching, counseling, and behavior modification), that is designed to improve patients' knowledge and health behaviors" (p. 12). **Staff education**, by contrast, is the process of influencing the behavior of nurses by producing changes in their knowledge, attitudes, and skills to help them maintain and improve their competencies for the delivery of high-quality care to the consumer. Both patient and staff education involve forging a relationship between the learner and the educator so that the learner's information needs (cognitive, affective, and psychomotor) can be met through the process of education.

The ASSURE model is a useful paradigm originally developed to assist nurses in organizing and carrying out the education process (Rega, 1993). This model is appropriate for all health professional educators. The acronym stands for

Analyze the learner.

State the objectives.

Select the instructional methods and materials.

Use the instructional methods and materials.

Require learner performance.

Evaluate the teaching plan and revise as necessary.

The Contemporary Role of the Nurse as Educator

Over the years, organizations governing and influencing nurses in practice have identified teaching as an important responsibility (Dreeben, 2010; Lewenson et al., 2016). For nurses to fulfill the role of educator—regardless of whether their audience consists of patients, family members, nursing students, nursing staff, or other agency personnel—they must have a solid foundation in the principles of teaching and learning.

With significantly more attention being paid to the teaching role of nurses, it is imperative that nurse educators recognize the theories in nursing and educational psychology that provide the frameworks to guide them in understanding how and why people change their health-related behaviors. Dorothy Orem's Self-Care Theory professes that patients and family caregivers are capable of being self-reliant and responsible for their own care, a goal that can be achieved only through patient teaching (Orem, 1991). Other nursing theories—Betty Neuman's Systems Model Theory (Neuman, 1995), Jean Watson's Human Caring Science (Watson, 2012), and Patricia Benner's Novice to Expert Theory (Benner, 1984)—are all foundational to how nurses can best teach and how learners can best learn. Also foundational are behaviorist, cognitive, and other learning theories described in Chapter 3 as they apply to the role of nurses as teachers.

Legal and accreditation mandates as well as professional nursing standards of practice have made the educator role of the nurse an integral part of high-quality care to be delivered by all registered nurses (RNs) licensed in the United States, regardless of their level of nursing school preparation. Given this fact, it is imperative to examine the present teaching role expectations of nurses, irrespective of their preparatory background. The role of educator is not primarily to teach but rather to promote learning and provide for

an environment conducive to learning. Also, the role of the nurse as teacher of patients and families, nursing staff, and students certainly should stem from a partnership philosophy (Gleasman-DeSimone, 2012). A learner cannot be made to learn, but an effective approach in educating others is to create the teachable moment, rather than just waiting for it to happen, and to actively involve learners in the education process (Lawson & Flocke, 2009; Tobiano et al., 2015).

Although all nurses are expected to teach as part of their licensing criteria, many lack formal preparation in the principles of teaching and learning (Donner et al., 2005; Steketee & Bate, 2013). Of course, a nurse needs a great deal of knowledge and skill to carry out the role of educator with efficiency and effectiveness. Although all nurses have always functioned as givers of information, they must now assume a new role by acquiring the skills as a facilitator of the learning process (Dreeben, 2010; Kelliher, 2013). Consider the following questions:

- Is every nurse adequately prepared to assess for learning needs, readiness to learn, and learning styles?
- Can every nurse determine whether the information given is actually received and understood? Are all nurses capable of taking appropriate action to revise the approach to educating the patient if the patient does not comprehend the information provided through the initial approach?
- Do nurses realize that they need to transition their role as educator from being a content transmitter to becoming a process manager, from controlling the learner to releasing the learner, and from being a teacher to becoming a facilitator?

A growing body of evidence suggests that effective education and learner participation go hand in hand (Dreeben, 2010; Kelliher, 2013). As a facilitator, the nurse should create an environment conducive to learning that motivates individuals to want to learn and makes it possible for them to learn (Seelig, 2016; Sykes et al., 2013). Both the educator and the learner should participate in the assessment of learning needs, the design of a teaching plan, the

implementation of teaching methods and instructional materials, and the evaluation of teaching and learning. Thus, the emphasis should be on the facilitation of learning from a nondirective rather than a didactic teaching approach (Ackoff & Greenberg, 2008; Donner et al., 2005; Knowles et al., 1998; Mangena & Chabeli, 2005).

No longer should teachers see themselves as simply transmitters of content. Indeed, the role of the educator has shifted from the traditional position of giver of information to that of a process designer and coordinator. This role alteration from the traditional teacher-centered perspective to a learner-centered approach is a paradigm shift that requires educators to possess skill in needs assessment as well as the ability to involve learners in planning, link learners to learning resources, and encourage learner initiative (Kelliher, 2013; Knowles et al., 1998; Mangena & Chabeli, 2005).

Instead of the teacher teaching, the new educational paradigm focuses on the learner learning (Ackoff & Greenberg, 2008). That is, the teacher becomes the guide on the side, assisting the learner in their effort to determine objectives and goals for learning, with both parties being active partners in decision making throughout the learning process. To increase comprehension, recall, and application of information, clients must be actively involved in the learning experience (Adams, 2010; Kessels, 2003; Smith et al., 2013). Glanville (2000) describes this move toward assisting learners to use their own abilities and resources as “a pivotal transfer of power” (p. 58).

Interprofessional Education and Practice

A relatively recent transformative movement in the delivery of patient care and, by extension, patient teaching is the emphasis on **interprofessional education (IPE)**. IPE is now included in many accreditation standards as an educational requirement (Zorek & Raehl, 2013) to prepare health profession students for future interprofessional practice and collaboration (Gilbert et al., 2010; Lutfiyya et al., 2016; WHO, 2010). Major barriers to the

implementation and sustainability of IPE include such issues as time constraints, rigid curriculum structures, desire to maintain professional identity, and limited faculty support.

To best serve consumers of health care, professionals today also must focus on **interprofessional practice**—also known as team-based care, interprofessional collaboration, and collaborative practice—by working more closely together in a collaborative, interdependent manner and in partnership with patients to deliver appropriate, cost-effective, and efficient care within the complex environment of the healthcare system (Hardin et al., 2017; Nester, 2016). Team-based care has been associated with improved healthcare outcomes (Reeves et al., 2013; Zwarenstein et al., 2009) and patient satisfaction (Wen & Shulman, 2014).

In the early 1970s, the IOM called for educating health professionals to function as a team (IOM, 1972). In more recent years, many international and federal reports have specifically advocated for IPE and practice (Frank et al., 2010; IOM, 2001, 2003a, 2003b; Interprofessional Education Collaborative Expert Panel, 2011; WHO, 1988, 2010). As a result, several countries (the United Kingdom, Canada, Australia, and the United States) developed IPE frameworks to guide the education of their health professionals. In the United States, core competencies (Interprofessional Education Collaborative Expert Panel, 2011) were identified by experts representing the various health professions, higher education institutions, and professional associations. These competencies are used by many institutions in this country as a guiding document for developing interprofessional initiatives. Five years later, an update was released that (1) reaffirmed the importance and impact of the core competencies; (2) organized the competencies within a singular domain that addresses the values and ethics of collaboration as well as the roles and responsibilities for communication and teamwork between professionals; and (3) broadened the interprofessional competencies to better achieve the Triple Aim of improving the patient experience, improving the health of populations, and

reducing per capita cost of health care (Interprofessional Education Collaborative, 2016).

Direct assessment of these competencies is challenging because of the varying definitions of IPE frameworks and constructs and the lack of clarity about interprofessional outcomes (Reeves et al., 2013; Thistlethwaite et al., 2014). It is important, however, that validated tools be designed to effectively translate IPE teaching to practice (Havyer et al., 2016). Currently, researchers are focusing on developing and testing assessment and evaluation tools to measure IPE outcomes (Lie et al., 2017; Lockeman et al., 2016; Nisbet et al., 2017; Thistlethwaite et al., 2016; West et al., 2015).

Creating a linkage between IPE and collaborative practice will result in a climate whereby "all participants learn, all teach, all care, and all collaborate" (Josiah Macy Jr. Foundation, 2013, p. 1). To achieve the goal of safe, high-quality care, a collaborative process is required whereby all team members have equal power. The silos that exist in the education and practice settings are difficult barriers to overcome because of the entrenched professional identities and power differentials. However, interdisciplinary cooperation and teamwork are essential to improve the health outcomes of patients and to achieve a more highly functional healthcare system (Hassmiller, 2014; Meleis, 2016; Tang et al., 2018).

Patient-Centered Care

A trend that often goes hand in hand with the interprofessional practice movement is the focus on **patient-centered care (PCC)**. Over the past 25 years, approaches to patient care have been transitioning from paternalistic care to more patient partnership-based care (Pomey et al., 2015). This is a logical transition given the prevalence of chronic diseases and the emphasis on containing healthcare costs (Schlesinger & Fox, 2016). The rising incidence of chronic illness is challenging the traditional healthcare delivery models that were developed after World War II to primarily provide acute care and manage infectious diseases (Pomey et al., 2015).

The role of nurses and other health professionals in managing chronic disease includes supporting and guiding patients as they carry out self-care activities, as opposed to the strictly healing practices approach that occurred previously (Karazivan et al., 2015).

In PCC, nurses and other healthcare professionals work to reach a shared understanding with patients and to more fully respond to their needs (Araki, 2019; Ben & Hochman, 2017; Stewart et al., 2000). PCC is defined as "health care that is respectful of, and responsive to, the preferences, needs and values of patients and consumers" (Australian Commission on Safety and Quality in Health Care [ACSQHC], 2011, p. 1). Patient-centric care, person-centered care, patient engagement, and the patient-as-partner approach are all forms of PCC. These approaches support the development of patient competency in care, guide clinical decision making, and require some surrendering of control by the health professional. They recognize that the patient as well as the healthcare provider possess special expertise (Karazivan et al., 2015).

Patients who actively participate in healthcare decision making have better health outcomes (Arnetz et al., 2010; Coleman et al., 2004; Coleman et al., 2006; Hibbard & Greene, 2013; Weingart et al., 2011) and more positive experiences of care (Weingart et al., 2011). According to Coulter (2012) and Domecq et al. (2014), patient participation can be a useful approach to ensure that appropriate care is provided in the current environment of strained resources. Hassmiller and Bilazarian (2018) found that consumer engagement focusing on compassionate interactions was associated with increases in treatment savings and patient safety in terms of length of stay and reduced medication errors. Systematic reviews demonstrate a positive relationship between PCC and reduced morbidity, improved quality of life, and increased adherence to management protocols (Casimir et al., 2013; Epstein et al., 2010, Hibbard & Greene, 2013) as well as a possible relationship between PCC and positive health behavior and health status (Dwamena et al., 2012). Shared decision making, expert patients, therapeutic

education, and self-management are all examples of ways to involve patients in their own care (Karazivan et al., 2015).

A number of national and international health agencies emphasize PCC in healthcare delivery (ACSQHC, 2011; Center for Advancing Health, 2010; JCAHO, 2003; National Health Service Commissioning Board, 2012; WHO, 2016b). In addition, the IOM published a signal report titled *Crossing the Quality Chasm: A New Health System for the 21st Century* (IOM, 2001). This report called for urgent and fundamental change to close the quality gap by redesigning the healthcare system in the United States. In this report, PCC was identified as an essential dimension of high-quality care and as a clear focus of new models of delivering care, such as primary care patient-centered medical homes and accountable care organizations.

In response to the concern for safe, better-quality care, the Nursing Alliance for Quality Care (NAQC)—a partnership of the leading health and nursing organizations in the United States—began advocating in 2010 for the highest-quality consumer-centered care by working with patients, nurses, and policymakers to encourage and promote optimum health care to consumers. In 2012, the NAQC issued an initiative with nine core principles as part of its drive to address care coordination, to promote patient engagement during care, and to integrate patients and their families in the decisions of their care (NAQC, 2012). A year later, the NAQC published a white paper updating these principles and providing a new strategic plan and road map for patient and family engagement with outcomes to be achieved. According to the NAQC (2013), the following principal assumptions should be used as a guide to provide PCC:

1. There must be an active partnership among patients, their families, and the providers of their health care.
2. Patients are the best and ultimate source of information about their health status and retain the right to make their own decisions about care.

3. In this relationship, there are shared responsibilities and accountabilities among the patient, the family, and clinicians that make it effective.
4. While embracing partnerships, clinicians must nevertheless respect the boundaries of privacy, competent decision making, and ethical behavior in all their encounters and transactions with patients and families. These boundaries protect recipients as well as providers of care. This relationship is grounded in confidentiality, where the patient defines the scope of the confidentiality.
5. This relationship is grounded in an appreciation of the patient's rights and expands on the rights to include mutuality. Mutuality includes sharing of information, creation of consensus, and shared decision making.
6. Clinicians must recognize that the extent to which patients and family members are able to engage or choose to engage may vary greatly based on individual circumstances, cultural beliefs, and other factors.
7. Advocacy for patients who are unable to participate fully is a fundamental nursing role. Patient advocacy is the demonstration of how all of the components of the relationship fit together.
8. Acknowledgment and appreciation of culturally, racially, or ethnically diverse backgrounds is an essential part of the engagement process.
9. Healthcare literacy and linguistically appropriate interactions are essential for patient, family, and clinicians to understand the components of patient engagement. Providers must maintain awareness of the language needs and healthcare literacy level of the patient and family and respond accordingly.

The American Association of Colleges of Nursing (AACN) recently proposed new Essentials of Baccalaureate Education (AACN, 2020 May), which includes a domain on "person-centered care." This domain includes a descriptor, contextual statement, and competencies that would be expected of nurses graduating from a baccalaureate program. The emphasis on person-centered care directly supports the need for effective patient education.

With the national concern about lack of good information on the quality of care, the Consumer Assessment of Healthcare Providers and Systems (CAHPS) program was established as a multiyear initiative in 1995 by the Centers for Medicare and Medicaid Services (CMS). The CAHPS national survey mandates that healthcare organizations regularly collect data on consumer involvement in healthcare decision making. In 2005, the Hospital CAHPS (HCAHPS) was developed that is specifically designed for use by hospitals (Agency for Healthcare Research and Quality, 2016). The purpose of the CAHPS and HCAHPS is to increase consumer engagement in healthcare decision making and to measure health outcomes. Also, many studies have focused on how effectively outcomes have been achieved in healthcare organizations by exploring the links between patient experiences and health outcomes as well as the extent to which actionable information has facilitated organizational change (Doyle et al., 2013; Manary et al., 2013).

Even though the focus has moved from paternalistic practices to patient-centered practices, much work still needs to be done to shift healthcare delivery and education culture. The vision statement from the Josiah Macy Jr. Foundation conference “Partnering With Patients, Families and Communities to Link Interprofessional Practice and Education” sums up the direction of the PCC movement:

We envision a future in which individuals, families, and communities are understood to be the very reason our healthcare system exists, and that those who are caring, teaching, learning, or otherwise working within the system must partner fully and effectively with them to foster optimal health and wellness for all. (Fulmer & Gaines, 2014, p. 27)

Initiatives in the PCC movement around the globe include such examples as the Patient Expert Programs in the United Kingdom (National Health Service, 2001); Patient Universities in Spain, Germany, and France (Karazivan et al., 2015); the University of

Gothenburg Centre for Person-Centered Care in Sweden (Moore et al., 2017); the Center for Patient Partnership in Health Care by the American College of Physicians (American College of Physicians, 2013); and the Patients as Partners approach introduced in Canada in 2007 and further expanded in 2010 to involve patients as full-fledged members of the healthcare team (Bar et al., 2018; Fulmer & Gaines, 2014). In addition, current literature calling for increasing patient involvement in drug development (Getz, 2015; Lowe et al., 2016), medical device development (Hurst et al., 2017), and research (Hamilton et al., 2017) reflects progression of the PCC healthcare initiative.

In a qualitative study by Pomey et al. (2015) about patients' engagement in their health care, patients who were familiar with the Patients as Partners concept described themselves as proactively engaging in three types of practice. The first is a process of continuous learning, the second is an assessment of the quality of the health care they receive, and the third is an adaptation process where the patients build on their learning and assessments to compensate for what they perceive to be optimal or nonoptimal health care. This occurred regardless of whether the health professionals they were working with were open to their role as a partner in their health care. That the patients in this study appeared to play a more active role in their own health care than previous literature suggests is encouraging and indicates that consumers, as well as policy mandates, are helping to change the healthcare culture.

Quality and Safety Education in Nursing

In 2005, the Robert Wood Johnson Foundation (RWJF) funded a national study, the Quality and Safety Education in Nursing (QSEN) project, to educate nursing students with knowledge, skills, and attitudes to improve patient safety and quality in healthcare delivery. During phase I, six competencies were developed (QSEN, 2012):

1. *Patient-centered care:* The patient has control of and is a full partner in the provision of holistic, compassionate, and comprehensive care based on the patient's values, needs, and preferences.
2. *Teamwork and collaboration:* Nurses and other health professionals must collaborate effectively with open communication, respect, and mutual decision making to achieve high-quality care.
3. *Evidence-based practice:* Current evidence must be integrated to support clinical expertise in providing optimal health care.
4. *Quality improvement:* Measure data and monitor patient outcomes to develop changes in methods to continuously improve the quality and safety in healthcare delivery.
5. *Informatics:* Use information technology to effectively communicate, manage knowledge, eliminate error, and support collaborative decision making.
6. *Safety:* Minimize the risk of harm to patients and healthcare providers through self- and system evaluation.

In 2007, the RWJF funded phase II of the QSEN project, which included launching a website (http://QSEN.org) dedicated to teaching strategies and resources. In 2009, the AACN also received funding to complete phase III of the QSEN project, the goal of which was to develop faculty expertise needed to teach the competencies, incorporate the competencies in textbooks, implement innovative teaching strategies, and assist in the licensure and accreditation processes (QSEN, 2012).

In 2012, phase IV of the QSEN was funded by RWJF to support AACN in the development of a new project to establish national competencies to prepare students in graduate education with the knowledge, skills, and attitudes required for advanced practice nurses to effectively improve safety and quality in healthcare delivery (AACN, 2012). Also in this fourth phase, RWJF funded the Academic Progression in Nursing (APIN) project to achieve the IOM (2011) goal of 80% of the nursing workforce being prepared at the baccalaureate level by 2020 (QSEN, 2012).

Quality and safety also have been included as a domain in the newly proposed Essentials of Baccalaureate Education (AACN, 2020 May). The goal is to have nurses entering the workforce who are fully equipped to enhance quality and minimize risks to patients in all aspects of care delivery.

The Institute of Medicine Report: The Future of Nursing

In 2011, the RWJF and the Institute of Medicine partnered to establish recommendations designed to enhance the role of nurses in the delivery of health care. In 2010, the U.S. Congress passed, and President Barack Obama signed into law, the Affordable Care Act, a comprehensive healthcare reform legislation. In response to this transformation of U.S. health care, four key messages were developed by a multidisciplinary committee whose membership represented a variety of healthcare professionals, educators, researchers, policymakers, consumers, advocacy groups, and healthcare institutions (IOM, 2011):

1. Nurses should practice to the full extent of their education and training.
2. Nurses should achieve higher levels of education and training.
3. Nurses should be full partners with health professionals in redesigning health care.
4. Effective workforce planning and policymaking require better data collection.

Based on these four key messages, the report made eight recommendations to achieve a transformation in nursing education and practice (IOM, 2011):

1. Remove scope of practice barriers (addressing key message #1).
2. Expand opportunities for nurses to lead in collaborative improvement efforts (addressing key message #3).

3. Implement nurse residency programs (addressing key message #1).
4. Increase the proportion of nurses with baccalaureate degrees to 80% by 2020 (addressing key message #2).
5. Double the number of nurses with a doctorate by 2020 (addressing key message #2).
6. Ensure that nurses engage in lifelong learning (addressing key message #2).
7. Prepare and enable nurses to lead change to advance health (addressing key message #3).
8. Build an infrastructure for the collection and analysis of data (addressing key message #4).

Certainly, patient education requires a collaborative effort among healthcare team members, all of whom play roles in teaching of greater or lesser importance. Because nurses are prepared to provide a holistic approach to care delivery, the teaching role is a unique part of nursing's professional domain. Given that consumers have always respected and trusted nurses for their knowledge and advocacy (Williamson, 2016), and nurses tend to be most accessible of all providers due to their continuous contact with patients, nurses are in an ideal position to carry out health education and to clarify information that consumers find confusing by making sense out of nonsense. Amid a fragmented healthcare delivery system involving many providers, the nurse serves as the coordinator of care. By ensuring consistency of information, nurses can support clients in their efforts to achieve the goal of optimal health (Donovan & Ward, 2001; Donovan et al., 2007). They also can assist their nurse colleagues in gaining knowledge and skills necessary for the delivery of professional nursing care.

Barriers to Teaching and Obstacles to Learning

It has been said by many educators that adult learning takes place not by the teacher initiating and motivating the learning process but rather by the teacher removing or reducing obstacles to learning and enhancing the process after it has begun. The educator should not limit learning to the information that is intended but should clearly make possible the potential for informal, unintended learning that can occur each day with every teacher–learner encounter (Carpenter & Bell, 2002; Gregor, 2001). The evidence supports that these teachable moments are not necessarily unplanned or that a coordinated set of circumstances will always lead to positive health change. Instead, it is the interaction between learner and teacher that is central to the development of a teachable moment, regardless of the obstacles or barriers that may be encountered (Konradsen et al., 2012; Lawson & Flocke, 2009).

Unfortunately, nurses must confront many barriers in carrying out their responsibilities for educating others. In addition, learners face a variety of potential obstacles that can interfere with their learning. Conditional factors, such as the environment, the organization's culture, the level of cooperation between the disciplines, beliefs and knowledge of the team members, types of patient education activities, and the patient population, can either enable or hinder the teaching–learning process (Farahani et al., 2013; Friberg et al., 2012).

For the purposes of this text, **barriers to teaching** are defined as those factors that impede the nurse's ability to deliver educational services. **Obstacles to learning** are defined as those factors that negatively affect the ability of the learner to pay attention to and process information.

Factors Affecting the Ability to Teach

The following barriers (**Figure 1-2**) may interfere with the ability of nurses to carry out their roles as educators (Carpenter & Bell, 2002; Donovan & Ward, 2001; Farahani et al., 2013; Friberg et al., 2012; Jahromi, 2016;

Livne et al., 2017; Smith & Zsohar, 2013; Tobiano et al., 2015; Wong, 2017):

1. Lack of time to teach is cited by nurses as the greatest barrier to being able to carry out their educator role effectively. Early discharge from inpatient and outpatient settings often results in nurses and clients having fleeting contact with each other. In addition, the schedules and responsibilities of nurses are very demanding. Finding time to allocate to teaching is very challenging in light of other work demands and expectations. Nurses must know how to adopt an abbreviated, efficient, and effective approach to client and staff education first by adequately assessing the learner and then by using appropriate teaching methods and instructional tools at their disposal. Discharge planning is playing an ever-more-important role in ensuring continuity of care across settings.
2. Many nurses and other healthcare personnel admit that they do not feel competent or confident with their teaching skills. As stated previously, although nurses are expected to teach, few have ever taken a specific course on the principles of teaching and learning. Instead, the concepts of patient education are often integrated throughout nursing curricula rather than being offered as a separate course. Frequently, assumptions have been made that nurses are adequately prepared with skills for the teaching role and how to facilitate learning. Only a scant number of studies have recently examined nurses' perceptions of their patient education and nursing staff/student clinical teaching skills (Jack et al., 2019; Kelo, Martikainen, et al., 2013; Lahl et al., 2013; Nyoni & Barnard, 2016), but the conclusions indicate that nurses neither feel nor demonstrate competence and confidence in teaching others. Fortunately, an upswing in interest and attention to the educator role has been gaining significant momentum in graduate nursing programs across the country. Nevertheless, the role of the nurse as educator must continue to be strengthened in both undergraduate and graduate nursing education programs as well as in programs for staff development in the clinical settings based on the findings of these studies.
3. Personal characteristics of the nurse educator play an important role in determining the outcome of a teaching–learning interaction. Motivation to teach and skill in teaching are prime factors in determining the success of any educational endeavor.

4. Until recently, administrators and supervisory personnel assigned a low priority to patient and staff education. With the strong emphasis of TJC mandates, the level of attention paid to the educational needs of both consumers and healthcare personnel has changed significantly. However, budget allocations for educational programs remain tight and can interfere with the adoption of innovative and time-saving teaching strategies and techniques.
5. The environment in the various settings where nurses are expected to teach is not always conducive to carrying out the teaching–learning process. Lack of space, lack of privacy, noise, and frequent interruptions caused by patient treatment schedules and staff work demands are just some of the factors that may negatively affect the nurse's ability to concentrate and effectively interact with learners.
6. An absence of third-party reimbursement to support patient education by RNs relegates teaching and learning to less than high-priority status. Nursing services within inpatient healthcare facilities are subsumed under hospital room costs and therefore are not specifically or separately reimbursed by insurance payers. However, as of 2013, a new Medicare rule allows for payment of advanced practice registered nurses (APRNs) for the delivery of primary care services in outpatient settings. "With up to 20% of Medicare patients readmitted to hospitals within 30 days of discharge, more value has been placed on effective transitional care and care coordination" by APRNs (Nurse.com, 2012, para. 3). A separate billing code for patient education and counseling by RNs is now included in the American Medical Association's Common Procedural Terminology (CPT) codes, but many restrictions exist in being able to use this code for reimbursement of staff nurse services (STD Related Reproductive Health Training and Technical Assistance Center, 2014). As for health education and wellness programs, Medicare generally does not cover these costs except in specific cases, such as diabetes and kidney disease education, depression screenings, and counseling to stop smoking or for alcohol misuse (U.S. Centers for Medicare & Medicaid Services, n.d.). Thus, under most circumstances when nurses deliver patient education, this therapeutic intervention is not reimbursable by third-party payers. Recently, a new role has been created mainly in primary care practices, known as health education specialists (HES). Given the nursing shortage in primary care settings, the drive to improve health outcomes, and the

cost of nursing professionals, HESs are being hired as substitutes to deliver patient education and coaching (Chambliss et al., 2014).

7. Some nurses as well as some physicians question whether patient education is effective in improving health outcomes. They view patients as impediments to teaching when patients do not display an interest in changing behavior, when they demonstrate an unwillingness to learn, or when their ability to learn is in question. Concerns about coercion and violation of free choice, based on the belief that patients have a right to choose and that they cannot be forced to comply, explain why some professionals feel frustrated in their efforts to teach. Unless all healthcare members buy into the utility of patient education (that is, they believe it can lead to significant behavioral changes and increased adherence to therapeutic regimens), some professionals may continue to feel absolved of their responsibility to provide adequate and appropriate patient education.
8. The type of documentation system used by healthcare agencies has an impact on the quality and quantity of patient teaching. Both formal and informal teaching are often done but not written down because of insufficient time, inattention to detail, and inadequate forms on which to record the extent of teaching activities. Many of the hard-copy forms or computer software used for documentation of teaching are designed to simply check off the areas addressed rather than to allow for elaboration of what has been accomplished. In addition, most nurses do not recognize the scope and depth of teaching that they perform daily. Communication among healthcare providers regarding what has been taught needs to be coordinated and appropriately delegated so that teaching can proceed in a timely, smooth, organized, and thorough fashion.

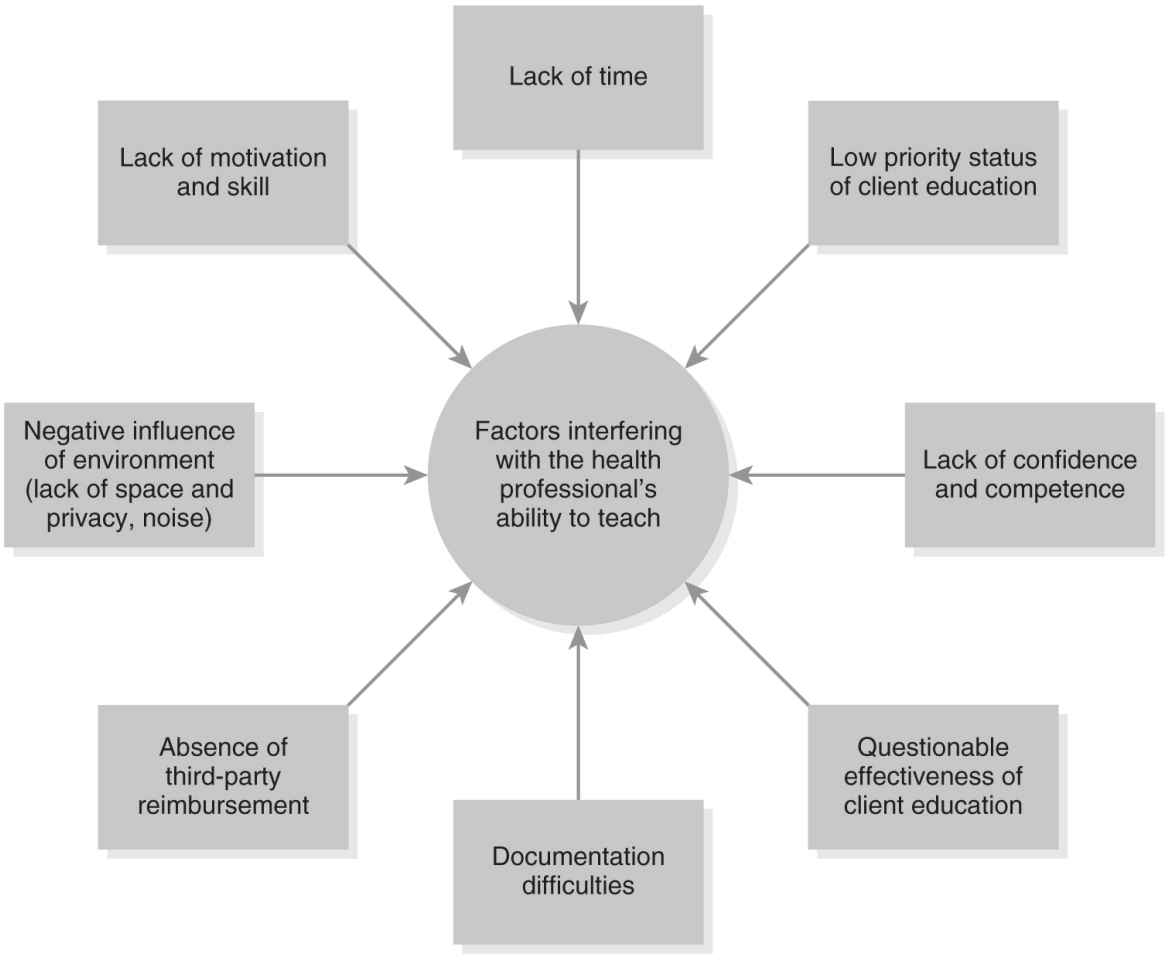

Figure 1-2 Barriers to teaching.

Description

Factors Affecting the Ability to Learn

The following obstacles (**Figure 1-3**) may interfere with a learner's ability to attend to and process information (Beagley, 2011; Billings & Kowalski, 2004; Farahani et al., 2013; Jahromi, 2016; Kessels, 2003; McDonald et al., 2004; Weiss, 2003):

1. Lack of time to learn as a result of rapid patient discharge from care and the amount of information a client is expected to learn can discourage and frustrate the learner, impeding their ability and willingness to learn.

2. The stress of acute and chronic illness, anxiety, and sensory deficits in patients are just a few problems that can diminish learner motivation and interfere with the process of learning. However, illness alone seldom acts as an impediment to learning. Rather, illness is often the impetus for patients to attend to learning, contact healthcare professionals, and take positive action to improve their health status.
3. Low literacy and functional health illiteracy have been found to be significant factors in the ability of clients to make use of the written and verbal instructions given to them by providers. Almost half of the American population reads and comprehends at or below the eighth-grade level, and an even higher percentage suffers from health illiteracy.
4. The negative influence of the hospital environment itself, which results in loss of control, lack of privacy, and social isolation, can interfere with a patient's active role in health decision making and involvement in the teaching–learning process.
5. Personal characteristics of the learner have major effects on the degree to which behavioral outcomes are achieved. Readiness to learn, motivation and adherence, developmental-stage characteristics, and learning styles are some of the prime factors influencing the success of educational endeavors.
6. The extent of behavioral changes needed, both in number and in complexity, can overwhelm learners and dissuade them from attending to and accomplishing learning objectives and goals.
7. Lack of support and lack of ongoing positive reinforcement from the nurse and significant others serve to block the potential for learning.
8. Denial of learning needs, resentment of authority, and lack of willingness to take responsibility (locus of control) are some psychological obstacles to accomplishing behavioral change.
9. The inconvenience, complexity, inaccessibility, fragmentation, and dehumanization of the healthcare system often result in frustration and abandonment of efforts by the learner to participate in and comply with the goals and objectives for learning.

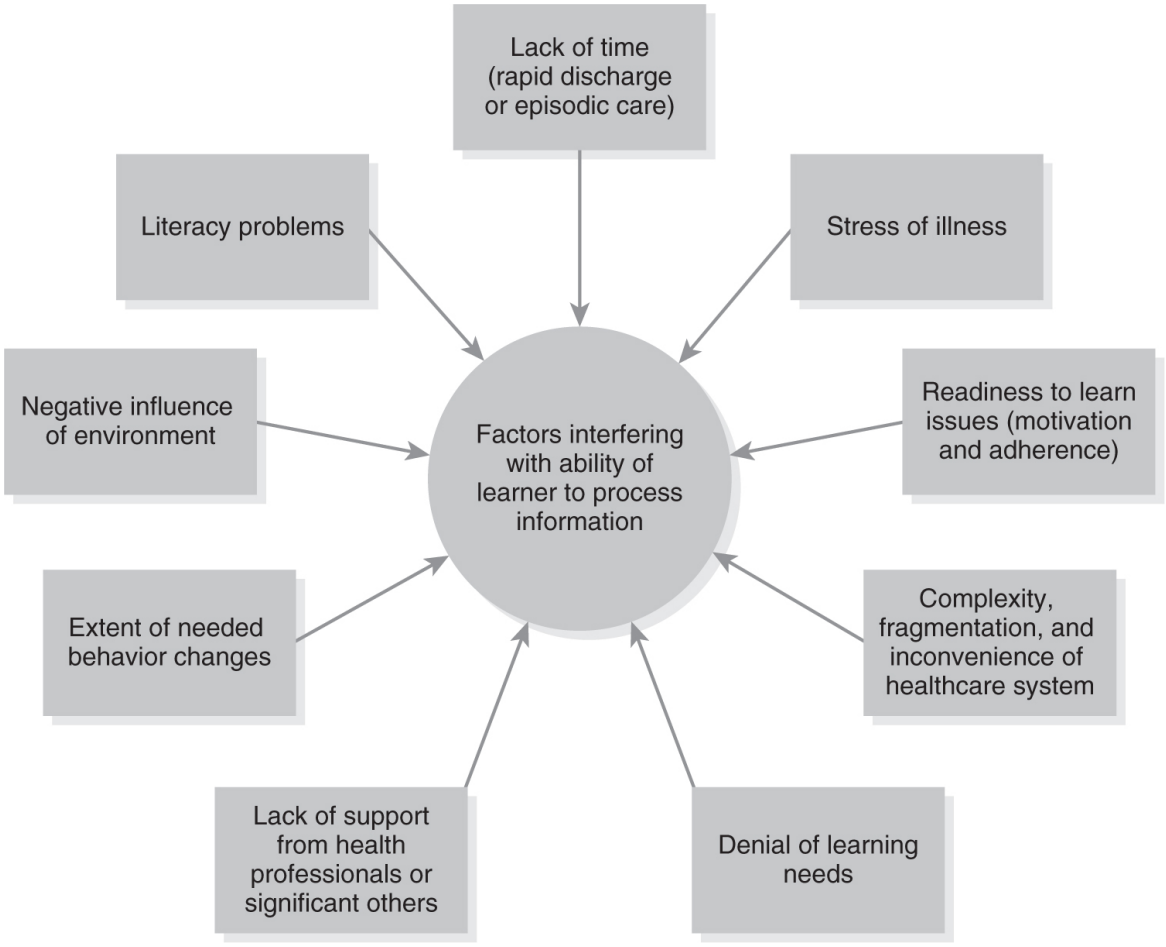

Figure 1-3 Obstacles to learning.

Description

Questions to Be Asked About Teaching and Learning

To maximize the effectiveness of patient, staff, and student education, the nurse must examine the elements of the education process and the role of the nurse as educator. Many questions arise related to the principles of teaching and learning, especially given the pressures to contain costs and to improve learner outcomes. The following are some of the important questions that this text addresses:

- How can members of the healthcare team work together more effectively to coordinate educational efforts?
- What are the ethical, legal, and economic issues involved in patient and staff education?
- Which theories and principles support the education process, and how can they be applied to change the behaviors of learners?
- Which assessment methods and tools can nurse educators use to determine learning needs, readiness to learn, and learning styles?
- Which learner attributes negatively and positively affect an individual's ability and willingness to learn?
- What can be done about the inequities (in quantity and quality) in the delivery of education services?
- How can teaching be tailored to meet the needs of specific populations of learners, such as those with diverse cultural backgrounds, low literacy skills, physical and mental disabilities, and different socioeconomic and educational levels?
- To what extent does teaching improve health status and reduce the costs of health care?
- Which instructional methods and materials are available to support teaching efforts?

- Which elements must the nurse as educator account for when developing and implementing teaching plans?
- Under which conditions should nurses use certain teaching methods and materials?
- Which common mistakes do nurses make when teaching others?
- How can teaching and learning be best evaluated?

State of the Evidence

The literature on patient and staff education, from both a research- and non-research-based perspective, is particularly extensive in nursing. The non-research-based literature on patient education is prescriptive in nature and tends to offer anecdotal tips on how to take individualized approaches to teaching and learning. A computer literature search, for example, reveals literally thousands of nursing and allied health articles and books on teaching and learning that are available, ranging from the general to the specific.

Although many research-based studies are being conducted on teaching specific population groups about a variety of topics, only recently has the field focused its attention on how to most effectively teach persons with long-term chronic illnesses. Nurses must conduct much more research on the benefits of patient education as they relate to the potential for increasing quality of life, enabling patients to lead a disability-free life and manage themselves independently at home, and decreasing the costs of health care through anticipatory teaching approaches. Studies from acute care settings tend to focus on preparing a patient for a procedure, with emphasis on the benefits of information in alleviating anxiety and promoting psychological coping. The evidence does suggest that patients cope much more effectively when taught exactly what to expect (Adams, 2010; Donovan & Ward, 2001; Dreeben, 2010; Mason, 2001; Wong et al., 2010).

More research is needed on the benefits of teaching methods and instructional tools that use Information (Digital) Age technologies such as the World Wide Web, the internet, social media, podcasts, webcasts, and webinars as methods to access health information for both patient and staff education. The use of Information Age technology has had such a dramatic effect on health education that a new field has emerged: consumer informatics (American Medical Informatics Association, 2017). Researchers in the field of consumer

informatics are working to find ways to use technology to strengthen the relationships between patient and healthcare provider and to teach and empower patients dealing with healthcare issues (Darvish et al., 2014; Nazi et al., 2016).

These new approaches to information dissemination require a role change for the educator, from being a giver of information to becoming a resource facilitator, as well as a shift in the role of the learner, from being a passive recipient to becoming an active partner. The rapid advances in technology for teaching and learning also require educators to have a better understanding of generational orientations and experiences of the learner (Billings & Kowalski, 2004). Because 25% of American adults ages 65 and older do not use the internet (Perrin & Atske, 2021), more investigation needs to be done regarding how to help older clients bridge the digital divide and the information literacy gap. The American Medical Informatics Association (AMIA) is dedicated to transforming health care to improve quality of care provided by health professionals and help consumers make better healthcare decisions (AMIA.org).

Physiologic and neuroendocrine variation in brain function by sex, the influence of socioeconomics on learning, and the strategies of teaching cultural groups and populations with disabilities need further exploration as well (see Chapters 8 and 9). Findings from interdisciplinary research on the influence of biological sex on learning remain inconclusive, although neuroscience continues to explore sex-linked variability in brain functioning and development. Research on the influence that socioeconomics has on learning reveals it plays a significant factor, but the underlying mechanisms of its effects are still unclear. More research needs to be done on the extent to which teaching can improve health status of individuals and communities, decrease the incidence of disease, and enhance the quality and safety of healthcare delivery.

Despite the questions that remain unanswered, nurses are expected to teach diverse populations with complex needs and a range of

abilities in both traditional settings and nontraditional, unstructured settings. For more than 30 years, nurse researchers have been studying how best to teach patients, but much more research is required (Adams, 2010; Mason, 2001). In addition, relatively few studies have examined nurses' perceptions about their role as educators in the practice setting (Friberg et al., 2012). We need to establish a stronger theoretical basis for intervening with clients throughout "all phases of the learning continuum, from information acquisition to behavioral change" (Donovan & Ward, 2001, p. 211). Also, emphasis needs to be given to research in nursing education to ensure that the nursing workforce is prepared for a challenging, complex, and uncertain future in health care (Benner et al., 2010; Committee on Quality of Health Care in America & IOM, 2001; IOM, 2011; Meleis, 2016).

In addition, nurses as educators should further investigate the cost-effectiveness of educational efforts in reducing hospital stays, decreasing readmissions, improving the personal quality of life, and minimizing complications of illness and therapies. Furthermore, given the number of variables that can potentially interfere with the teaching–learning process, additional studies must be conducted to examine the effects of environmental stimuli, the factors involved in readiness to learn, and the influences of learning styles on learner motivation, adherence, comprehension, and the ability to apply knowledge and skills once they are acquired. One notable void is the lack of information in the research database on how to assess motivation. Chapter 6 proposes parameters to assess motivation but notes the paucity of information specifically addressing this issue.

Over 30 years ago, Oberst (1989) delineated the major issues in patient education studies related to the evaluation of the existing research base and the design of future studies. The four broad problem categories that she identified remain pertinent today:

1. Selection and measurement of appropriate dependent variables (educational outcomes)

2. Design and control of independent variables (educational interventions)
3. Control of mediating and intervening variables
4. Development and refinement of the theoretical basis for education

Summary

Nurses can be considered information brokers—educators who can make a significant difference in how patients and families cope with their illnesses and disabilities, how the public benefits from education directed at prevention of disease and promotion of health, and how staff and student nurses gain competency and confidence in practice through education activities that are directed at continuous, lifelong learning. As the United States moves forward in the 21st century, many challenges and opportunities lie ahead for nurse educators in the delivery of health care.

The teaching role is becoming even more important and more visible as nurses respond to the social, economic, and political trends affecting health care today. The foremost challenge for nurses is to be able to demonstrate, through research and action, that definite links exist between education and positive behavioral outcomes of the learner. In this era of cost containment, government regulations, and healthcare reform, the benefits of client, staff, and student education must be made clear to the public, healthcare employers, healthcare providers, and payers of healthcare benefits. To be effective and efficient, nurses must be willing to embrace IPE and be able to practice collaboratively with one another to provide consistently high-quality education to the audiences they serve. They also must embrace PCC and recognize the expertise that patients bring to the provider–patient relationship.

Nurses can demonstrate responsibility and accountability for the delivery of care to the consumer in part through education based on solid principles of teaching and learning. The key to effective education of the varied audiences of learners is the nurse’s understanding of and ongoing commitment to the role of educator.

Review Questions

1. Which key factors influenced the growth of patient education during its formative years?
2. How far back in history has teaching been a part of the nurse's role?
3. Which nursing organization was the first to recognize health teaching as an important function within the scope of nursing practice?
4. How did the concept of patient education change in the 1960s and 1970s?
5. Which legal mandate universally includes teaching as a responsibility of nurses?
6. How have the ANA, NLN, ICN, AHA, TJC, and Pew Commission influenced the role and responsibilities of the nurse as educator?
7. What is the current focus and orientation of patient education?
8. Which social, economic, and political trends today make it imperative that patients be adequately educated?
9. What are the similarities and differences between the education process and the nursing process?
10. What are three major barriers to teaching and three major obstacles to learning?
11. Which factor serves as both a barrier to teaching and an obstacle to learning?
12. What is the present status of research- and non-research-based evidence pertaining to education?

CASE STUDY

As a clinical nurse educator at Utopia Hospital, part of your duties is to instruct nurses in the most up-to-date processes to improve patient safety and outcomes. Recently, due to an increase in readmission rates at your hospital for heart failure patients, you have been tasked with developing patient education goals based on

feedback from the professional nursing staff that patients must meet before discharge. You set out to find out how these nurses, of which more than half are bachelor's degree prepared or higher, are currently educating patients on heart failure medications, lifestyle changes, and self-monitoring techniques. In the process, you sense a definite interest and motivation from the nursing staff in wanting to improve their teaching skills and the quality of care they are providing, but also you hit a few roadblocks. Frequently, you hear nurses say, "I don't really know what or how much to tell patients when they ask me about heart failure," "I don't have time to educate patients throughout the day," and "I always try my best to teach, but I don't know if my efforts make much of a difference." Because the nursing staff obviously has some strong feelings about the education department's efforts, you believe a strengths, weaknesses, opportunities, and threats (SWOT) analysis is a good place to begin to gather information from your colleagues about the issues and problems they are facing.

1. As a prelude to the SWOT analysis, identify the goals of patient and staff education.
2. Identify the strengths and opportunities that currently are available when completing these two elements of the SWOT analysis.
3. Use the section titled "Barriers to Teaching and Obstacles to Learning" as a beginning framework for the weaknesses and threats section of the SWOT analysis and then describe five potential barriers to teaching and five potential obstacles to learning that your staff might identify.
4. Provide possible solutions to the barriers and obstacles identified that would serve to enhance patient education.

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CHAPTER 2

Ethical, Legal, and Economic Foundations of the Educational Process

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With acknowledgement to Catherine V. Caldicott, MD, FACP, former associate professor at the Center for Bioethics and Humanities, Upstate Medical University, Syracuse, NY, for her contributions to the Ethics of Education section of this chapter on Student-Teacher and Patient-Provider Relationships in the classroom and practice settings.

CHAPTER HIGHLIGHTS

- A Differentiated View of Ethics, Morality, and the Law
- Evolution of Ethical and Legal Principles in Health Care
- Application of Ethical Principles to Patient Education
  - *Autonomy*
  - *Veracity*
  - *Confidentiality*
  - *Nonmaleficence*
  - *Beneficence*
  - *Justice*
- The Ethics of Education in Classroom and Practice Settings
  - *The Student–Teacher Relationship*
  - *The Patient–Provider Relationship*
- Legality of Patient Education and Information
- Legal and Financial Implications of Documentation
- Economic Factors in Healthcare Education: Justice and Duty Revisited
- Financial Terminology
  - *Direct Costs* and *Indirect Costs*

    - *Cost Savings, Cost Benefit,* and *Cost Recovery*
- Program Planning and Implementation
- Cost-Benefit Analysis and Cost-Effectiveness Analysis
- State of the Evidence

Key Terms

autonomy

beneficence

code of ethics

confidentiality

cost benefit

cost recovery

cost savings

cost-benefit analysis

cost-benefit ratio

cost-effectiveness analysis

decision aids

direct costs

ethical

ethical dilemmas

ethics

fixed costs

hidden costs

indirect costs

justice

legal rights and duties

malpractice

moral values

negligence

nonmaleficence

practice acts

respondeat superior

revenue generation

variable costs

veracity

OBJECTIVES

After completing this chapter, the reader will be able to:

1. Identify major ethical principles as they apply to education in health care.
2. Distinguish between ethical and legal dimensions of the healthcare delivery system with respect to patient, staff, and student education.
3. Describe the importance of nurse practice acts and the code of ethics for the nursing profession.
4. Recognize the potential ethical consequences of power imbalances between the teacher and the student, or between the nurse and the patient, in educational and practice settings.
5. Describe the legal and financial implications of documentation.
6. Delineate the ethical, legal, and economic importance of federal, state, and accrediting body regulations and standards in the delivery of healthcare services.
7. Differentiate among financial terms associated with the development, implementation, and evaluation of patient and staff education programs.

Approximately 45 years ago, the field of modern Western bioethics arose in response to the increasing complexity of medical care and decision making. Novel challenges in health care continually stem from such influences as technological advances, changes in laws, and public awareness of scientific endeavors. The field of bioethics provides systematic theoretical and practical approaches for handling such complex issues and the dilemmas that ensue from them. As a result, programs of study for nursing and the other health professions now provide formal ethics education—some by mandate. Healthcare providers who commit ethical infractions while in training or practice may be referred for ethics remediation by their programs or specialty licensing boards or may risk professional sanctions.

In the popular media, bioethics translates into stem cell research, organ transplantation, genetic testing, and other sensational innovations. But every day, far from the spotlight, patients, nursing students, and nursing staff, as well as the educators who teach them, confront commonplace and vexing ethical dilemmas. Consider a patient who refuses a routine but lifesaving blood transfusion. Should they be allowed to refuse this treatment, or should the nursing staff persuade the patient otherwise? Suppose a nurse witnesses a confused patient signing a consent form for a procedure. Should they ask whether the patient is able to make the decision to agree to have the procedure done? Or suppose a surgeon misleads a family by indicating that a surgical error was really a complication. Should the nurse practitioner who observed the error speak to a superior in the healthcare hierarchy? What about a clinical nursing instructor who habitually introduces a nursing student to patients as a nurse, implying that the student has completed their program of study? Should the nursing student correct the faculty member, and, if so, when, where, and how?

These scenarios describe not only practice issues but also moral problems. They happen so frequently that convening an ethics committee to address every one of them is impractical. Increasingly, staff nurses, clinical educators, and nursing students are being called upon to reason through both medical and ethical issues. However, knowledge of basic ethical principles and concepts does not always suffice. According to Wintrup (2015), providing healthcare professionals with a structured ethics education that focuses on moral agency would help to provide better care and outcomes to patients in the acute care setting. This idea of a

structured ethics education is also supported by Kim et al. (2020), who used the ADDIE (Analysis, Design, Development, Implementation, and Evaluation) model to implement an ethics education program for nurses.

As the healthcare field has developed, so has a critical consciousness of individual rights stemming from both natural and constitutional law. Healthcare organizations are laden with laws and regulations ensuring clients' rights to a high-quality standard of care, to informed consent, and subsequently to self-determination. Further, in the interest of justice, it is worthwhile to acknowledge the relationship between costs to the healthcare facility and the provision of health services.

Although the physician is primarily held legally accountable for prescribing the medical regimen, it is a known fact that patient education generally falls to the nurse. Indeed, given the close relationship of the nurse to the client, the role of the nurse in this educational process is essential in providing safe, high-quality care as mandated in the standards and scope of nursing practice through each state nurse practice act and each state's board of nursing (Russell, 2012). Furthermore, the American public, according to the annual Gallup Poll, ranked registered nurses for the 18th consecutive year as the professionals with the highest honesty and ethical standards. Nursing is the most trusted among all other professions (Reinhart, 2020).

Today's enlightened consumers are aware of and demand recognition of their individual constitutional rights regarding freedom of choice and self-determination. In fact, it may seem strange to some that federal and state governments, accrediting bodies, and professional organizations find it necessary to legislate, regulate, or provide standards and guidelines to ensure the protection of human rights in matters of health care. The answer, of course, is that the federal government, which once had an historical hands-off policy toward the activities of physicians and other health professionals, has now become heavily involved in the oversight of provider practices. This is because of serious breaches of public confidence that resulted from shocking revelations of abuses of human rights in the name of biomedical research, which were first discovered in the mid-20th century. Unfortunately, human rights violations continue to occur in health care to this day in the United States and worldwide.

These issues of human rights are fundamental to the delivery of high-quality healthcare services. They are equally fundamental to the education process, in that the intent of the educator should be to empower the client to identify and articulate their values and preferences; acknowledge their role in a family, community, or other relationship; and make well-informed choices, reasonably aware of the alternatives and consequences of those choices. In addition, it is essential that nurses be proficient in educating the staff and students who are or will be the practitioners and educators of tomorrow (Bingham & Quinn, 2017; Butts & Rich, 2020; Dowd, 2018; Mason et al., 2020). Thus, an interpretation of the role of the nurse in the teaching–learning process must include the ethical and legal foundations of that process. Teaching and learning principles, with their inherent legal and ethical dimensions, apply to any situation in which the education process occurs.

The purpose of this chapter is to provide the ethical, legal, and economic foundations that are essential to carrying out patient education initiatives, on the one hand, and the rights and responsibilities of the healthcare provider, on the other hand. This chapter describes the differences between and among ethical, moral, and legal concepts. It explores the foundations of human rights based on ethics and the law, and it reviews the ethical and legal dimensions of health care. This chapter also explores student–teacher and patient–provider relationships as they relate to the ethics of education in the classroom and practice settings. Furthermore, this chapter examines the importance of documentation of patient teaching while highlighting the economic factors that must be considered in the delivery of patient education in healthcare settings. An additional section provides a brief discussion of evidence-based practice and its relationship to quality and evaluation of patient education programs.

A Differentiated View of Ethics, Morality, and the Law

Although ethics as a branch of classical philosophy has been studied throughout the centuries, by and large these studies were left to the domains of philosophical and religious thinkers. More recently, because of the complexities of contemporary life and the heightened awareness of an educated public, ethical issues related to health care have surfaced as a major concern of both consumers and healthcare providers. It is now a widely held belief that the patient has the right to know their medical diagnosis, the treatments available, and the expected outcomes. This information is necessary so that patients can make informed choices about their health and their care options with advice offered by health professionals.

Ethical principles that pertain to human rights are based on natural laws, which, in the absence of any other guidelines, are binding on human society. Inherent in these natural laws are, for example, the principles of respect for others, truth telling, honesty, and respect for life. Ethics as a discipline interprets these basic principles of behavior in broad terms that direct moral decision making in all realms of human activity, including health and health care (Guido, 2020; World Health Organization, 2017).

Although multiple perspectives on the rightness or wrongness of human acts exist, among the most commonly referenced are the writings of the 18th-century German philosopher Immanuel Kant, and those of the 19th-century English scholar and philosopher John Stuart Mill (Edward, 1967). Kant proposed that individual rights prevail and openly proclaimed the deontological notion of the "Golden Rule." Deontology (from the Greek word *deon*, which means "duty," and *logos,* which means "science" or "study") is the ethical belief system that stresses the importance of doing one's duty and following the rules. Thus, according to Kant, respect for individual rights is key, and one person should never be treated merely for the

benefit or well-being of another person or group (Stanford Encyclopedia of Philosophy, 2016a). Mill, in contrast, proposed the teleological notion or utilitarian approach to ethical decision making that allows for the sacrifice of one or more individuals so that a group of people can benefit in some important way. He believed that given the alternatives, choices should be made that result in the greatest good for the greatest number of people (Stanford Encyclopedia of Philosophy, 2016b).

Likewise, the legal system and its laws are based on ethical and moral principles that, through experience and over time, society has accepted as behavioral norms (Guido, 2020; Tingle & Cribb, 2013). In fact, the terms *ethical*, *moral*, and *legal* are often used in synchrony. It should be made clear, however, that although these terms are certainly interrelated, they are not necessarily synonymous (Schiller et al., 2019; The Ethics Centre, 2016).

Ethics refers to the guiding principles of behavior, and **ethical** refers to norms or standards of behavior accepted by the society to which a person belongs. Although the terms *moral* and *morality* are generally used interchangeably with the terms *ethics* and *ethical*, nurses can differentiate between the notion of moral rights and duties and the notion of ethical rights and duties. **Moral values** refer to an internal belief system (what one believes to be right). This value system, defined as morality, is expressed externally through a person's behaviors. **Ethical dilemmas** are a "specific type of moral conflict in which two or more ethical principles apply but support mutually inconsistent courses of action" (Dwarswaard & van de Bovenkamp, 2015, pp. 1131–1132). An example that these authors provide is that the nurse must respect patient autonomy and individual patient responsibility when encouraging and supporting self-management behaviors, but the ethical principle of the patient's right to self-determination may clash with professional values that promote health and help achieve medical outcomes. **Legal rights and duties**, in contrast, refer to rules governing behavior or conduct that are enforceable by law under threat of punishment or penalty, such as a fine, imprisonment, or both.

The intricate relationship between ethics and the law explains why ethics terminology, such as *informed consent*, *confidentiality*, *nonmaleficence*, and *justice*, can be found within the language of the legal system (Guido, 2020). In keeping with this practice, nurses may cite professional commitment or moral obligation to justify the education of clients as one dimension of their role. By law, the teaching role of nurses is legally mandated in the rules and standards of the nurse practice act and the state board of nursing that exist in the specific state where the nurse resides, is licensed, and is employed.

Practice acts are documents that define a profession, describe that profession's scope of practice, and provide guidelines for state professional boards regarding standards for practice, entry into a profession via licensure or certification, and disciplinary actions that can be taken when necessary. In the United States, all 50 states, the District of Columbia, and four U.S. territories have state boards of nursing that regulate individual nurse practice acts [NPAs] (Huynh & Haddad, 2020; Russell, 2012). However stringent, NPAs are constantly under review and are evolving to adapt to increasing standards. As of June 18, 2019, New York state requires registered nurses to acquire a bachelor's degree in nursing (BSN) within 10 years of licensure (New York State Education Department: Office of the Professions, 2018). This change in the NPA law was enacted based on research demonstrating improved outcomes for patients who are cared for by bachelor's prepared nurses (O'Brien et al., 2018). Practice acts were developed to protect the public from unqualified practitioners and to protect those with professional titles, such as registered nurse (RN), occupational therapist (OT), respiratory therapist (RT), and physical therapist (PT).

A model practice act (American Nurses Association, 1978) serves as a template for individual states to follow, with the goal being to minimize variability of professional practice from state to state within a profession. From the model, a state or other jurisdiction can develop its own practice act that addresses its specific needs in addition to including the basic information regarding scope of

practice, licensure requirements, and so forth. Essentially then, a professional practice act is not only legally binding but also protected by the police authority of the state in the interest of protecting the public (Huynh & Haddad, 2020; Russell, 2012).

Evolution of Ethical and Legal Principles in Health Care

In the past, ethics was relegated almost exclusively to the philosophical and religious domains. Likewise, from a historical vantage point, medical and nursing care was considered a humanitarian, if not charitable, endeavor. Often it was provided by members of religious communities and others considered to be generous of spirit, caring in nature, courageous, dedicated, and self-sacrificing in their service to others. Public respect for doctors and nurses was so strong that for many years, healthcare organizations in which they worked were considered charitable institutions and, thus, were largely immune from legal action “because it would compel the charity to divert its funds for a purpose never intended” (Lesnik & Anderson, 1962, p. 211). In the same manner, healthcare practitioners of the past—who were primarily physicians and nurses—were usually regarded as Good Samaritans who acted in good faith and for the most part were exempt from lawsuits.

Although court records of lawsuits involving hospitals, physicians, and nurses can be found dating back to the early 1900s, their numbers pale in comparison with the volumes being generated daily in today’s world (Reising & Allen, 2007). Malpractice claims against nurses are on the rise, with over 90 million dollars paid in nursing malpractice claims between 2010 and 2015 (Brown, 2016). Further, despite the horror stories that have been handed down through the years regarding inhumane and often torturous treatment of prisoners, the mentally ill, the disabled, and the poor, in the past there was only limited focus on ethical aspects of that care. In turn, little thought was given to legal protection of the rights of people with such mental, physical, or socioeconomic challenges (Neil, 2015).

Clearly, this situation has changed dramatically. For example, informed consent—a basic tenet of the ethical practice of health care—was established in the courts as early as 1914 by Justice

Benjamin Cardozo. Cardozo determined that every adult of sound mind has a right to protect their own body and to determine how it shall be treated (Hall, 1992; *Schloendorff v. Society of New York Hospitals*, 1914). Although the Cardozo decision has considerable magnitude in its scope, governmental interest in the bioethical underpinnings of human rights in the delivery of healthcare services did not really surface until after World War II.

Over the years, legal authorities such as federal and state governments had maintained a hands-off posture when it came to issues of biomedical research or physician–patient relationships. However, the human atrocities committed by the Nazis in the name of biomedical research during World War II shocked the world into critical awareness of gross violations of human rights. Unfortunately, such abuses were not confined to wartime Europe. On U.S. soil, for example, the lack of treatment of African Americans with syphilis in Tuskegee, Alabama; the injection of live cancer cells into uninformed, nonconsenting older adults at the Brooklyn Chronic Disease Hospital; and the use of institutionalized children with intellectual disabilities to study hepatitis at the Willowbrook State School on Staten Island, New York, startled the nation and raised public awareness of disturbing breaches in the physician–patient relationship (Brent, 2001; Centers for Disease Control and Prevention, 2005; Rivera, 1972; Thomas & Quinn, 1991; Weisbard & Arras, 1984).

Stirred to action by these disturbing phenomena, in 1974 Congress moved with all due deliberation to create the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research (U.S. Department of Health and Human Services [USDHHS], 1983). As an outcome of this unprecedented act, an institutional review board (IRB) for the protection of human subjects (IRBPHS) was required and rapidly established at the local level by any hospital, academic medical center, agency, or organization where research on human subjects was being conducted. To this day, the primary function of these IRBs is to safeguard all human study subjects by insisting that research protocols include voluntary

participation and withdrawal, confidentiality, truth telling, and informed consent, and that they address additional specific concerns for vulnerable populations such as infants, children, prisoners, and persons with mental illnesses. Every proposal for biomedical research that involves human subjects must be submitted to a local IRBPHS for intensive review and approval before the proposed study proceeds (USDHHS, 1983). Further, in response to concerns about the range of ethical issues associated with medical practice and a perceived need to regulate biomedical research, in 1978 Congress established the President's Commission for the Study of Ethical Problems in Medicine and Biomedical and Behavioral Research (Brent, 2001; Thomas & Quinn, 1991; USDHHS, 1983).

But did the professions themselves speak up in the face of the outrageous violations of human rights in the name of research? Indeed, two professional groups acted well before the 1970s to establish uniform standards for professional education and conduct. The first was the American Medical Association (AMA), which wrote and published its Code of Medical Ethics in 1847. Summarized as the *Principles of Medical Ethics* in 1903, the code is currently in its sixth revision (AMA, 2016). All versions address the precedence of patients' welfare and physicians' moral rectitude over scientific accomplishment and professional gain. Despite such regular attention to the values to which physicians commit themselves individually and collectively, the preceding historical examples attest to a disconnection between espoused values and actual practice, which are indicative of past failures of professional accountability.

As early as 1950, the American Nurses Association (ANA) developed and adopted an ethical code for professional practice, titled the *Code of Ethics for Nurses With Interpretative Statements,* that has since been revised and updated several times (ANA, 1976, 1985, 2001, 2015). This latest **code of ethics** represents an articulation of nine provisions for professional values and moral obligations with respect to the nurse–patient relationship and with respect to the profession and its mission. These provisions provide

guidance to nurses in making ethical decisions throughout their practice (Gaines, 2020).

Although other health professions have adopted their own codes of ethics, the nursing profession's code has been recognized as exemplary and has been used as a template by other health discipline organizations in crafting their own ethics documents. Health professional organizations have accepted the responsibility for establishing standards of ethical behavior for members of their disciplines in the context of healthcare practice. In the end, however, it is up to the individual healthcare provider to take their professional ethics code to heart. The next section of this chapter addresses the application of ethical and legal principles and concepts by nurses to their clients.

In addition to these professional ethics codes, the American Hospital Association (AHA) created a document in 1973 titled *A Patient's Bill of Rights*, which was revised in 1992 (Association of American Physicians and Surgeons, 1995). Since then, a copy of these patient rights has been framed and posted in a public place in every healthcare facility across the United States. This document listed 12 expectations that patients should have about their health care, such as communication with the healthcare team, treatment, medical records, privacy, and confidentiality.

Further, federal standards developed by the Centers for Medicare and Medicaid Services (CMS)—an agency within the USDHHS—require that each patient be provided with a personal copy of these rights, either at the time of admission to the hospital or long-term care facility or prior to the initiation of care or treatment at a surgery center, at a health maintenance organization (HMO), or when receiving home care or hospice services. In fact, many states have adopted the statement of patient rights for specific populations of healthcare consumers as part of their state health code, which is why there is no one single version of this document but many versions to fit the needs of each facility (USDHHS, 2020).

Regardless of the version used, these patient rights fall under the jurisdiction of the law, rendering them legally enforceable by threat of penalty. In 2003, the AHA replaced its original patient's bill of rights with what became known as The Patient Care Partnership, which condensed these rights and responsibilities into six expectations written in multiple languages and easy-to-understand terms (AHA, 2008). In 2010 with the enactment of the Affordable Care Act, a new version of the patient's bill of rights was passed to provide dependents and people with preexisting conditions the right to be protected by health insurance (Bazemore, 2016).

Application of Ethical Principles to Patient Education

Various theories and traditions frame a health professional's understanding of the ethical dimensions in the healthcare setting (Butts & Rich, 2020; Lee & McTeigue, 2019). In considering the ethical and legal responsibilities inherent in the process of patient education, nurses and nursing students can turn to a framework of six major ethical principles—including the so-called "big four" principles initially proposed by Beauchamp and Childress (1977)—that are specified in the ANA's *Code of Ethics* (2015) and in similar ethics and patient rights documents promulgated by other healthcare organizations as well as the federal government. These principles, which encompass the very issues that precipitated federal intervention into healthcare affairs, are autonomy, veracity, confidentiality, nonmaleficence, beneficence, and justice.

Autonomy

The term **autonomy** is derived from the Greek words *auto* ("self") and *nomos* ("law") and refers to the right of self-determination (Butts & Rich, 2020; Gaines, 2020; Guido, 2020). Laws have been enacted to protect the patient's right to make choices independently. Federal mandates, such as those dealing with informed consent, must be evident in every application for federal funding to support biomedical research. The local IRBPHS assumes the role of judge and jury to ascertain adherence to this enforceable regulation (Guido, 2020; Gupta, 2013).

The Patient Self-Determination Act (PSDA), which was passed by Congress in 1991 (Ulrich, 1999), is a clear example of the principle of autonomy enacted into law. Any healthcare facility that receives Medicare and/or Medicaid funds must comply with the PSDA. This

law requires that, either at the time of hospital admission or prior to the initiation of care or treatment in a community health setting,

every individual receiving health care be informed in writing of the right under state law to make decisions about his or her health care, including the right to refuse medical and surgical care and the right to initiate advance directives. (Mezey et al., 1994, p. 30)

Although ultimate responsibility for discussing treatment options and a plan of care as well as obtaining informed consent rests with the physician, Menendez (2013) and The Joint Commission (2016) point out that it is the nurse's responsibility to ensure informed decision making by patients. This includes, but is certainly not limited to, witnessing the signing of an informed consent form after verifying that the patient understands the procedure for which they are giving permission, and other advance directives (e.g., living wills, durable power of attorney for health care, and designation of a healthcare agent). Evidence of such instruction must appear in the patient's record, which is the legal document validating that informed consent took place (Hall et al., 2012; Shah et al., 2020).

One principle worth noting in the ANA's *Code of Ethics* addresses collaboration "with other health professionals and the public to protect human rights, promote health diplomacy, and reduce health disparities" (Gaines, 2020, p. 3). This principle certainly provides a justification for patient education both within and outside the healthcare organization. It provides an ethical rationale for health education classes open to the community, such as childbirth education courses, smoking cessation classes, weight reduction sessions, discussions of women's health issues, and positive interventions for preventing child abuse. Although health education per se is not an interpretive part of the principle of autonomy, it certainly lends credence to the ethical notion of assisting the public to attain greater autonomy when it comes to matters of health promotion and high-level wellness. In fact, consistent with the Model Nurse Practice Act (ANA, 1978), all contemporary nurse practice acts contain some type of direct or implicit statements identifying

health education as a legal duty and responsibility of the registered nurse.

Another example of autonomy is the development and use of patient decision aid interventions that are designed to assist patients in making informed treatment choices (Bekker, 2010; Clifford et al., 2017). These patient **decision aids**, which include printed materials, videos, and interactive web-based tutorials, provide patients with information about specific health issues, diagnoses, treatment risks and benefits, and questionnaires to determine whether they need more information (Ankolekar et al., 2018). “The emphasis on collaboration between providers and patients on decision making has, in turn, stimulated the development of tools to help patients and their families participate in clinical discussions and reach decisions that incorporate personal values and goals” (Wittmann-Price & Fisher, 2009, p. 60). A shared decision-making (SDM) paradigm has emerged that takes into consideration the input from both the patient and the provider so that there is two-way information sharing, consideration is based on patient preferences, and both parties are involved in the final decision-making process about treatment options (Ankolekar et al., 2018).

Veracity

Veracity, or truth telling, is closely linked to informed decision making and informed consent. The landmark decision by Justice Benjamin Cardozo (*Schloendorff v. Society of New York Hospitals*, 1914) identified an individual’s fundamental right to make decisions about their own body. This ruling provides a basis in law for patient education or instruction regarding invasive medical procedures. However, nurses are often confronted with other issues of truth telling in the interest of full disclosure of information with their patients. For example, a nurse might want to suggest alternative treatments with a patient yet learns that the physician did not disclose all possible treatment options when prescribing a medical regimen for the care of this patient (Rankin & Stallings, 1990). Thus, in some instances, nurses may find themselves in an ethical bind,

because nursing actions must be consistent with medical therapies prescribed by physicians. If such a dilemma arises, the nurse has a variety of actions available. One possibility would be to inform the physician of the professional double jeopardy and engage with them in achieving a course of action that best meets the patient's medical needs while respecting the patient's autonomy. The second possibility is to seek out the institutional ethics committee or an ethics consultant for assistance in negotiating interactions with both the physician and the patient (Bonsall, 2015; Menendez, 2013; Robichaux, 2012). An institutional ethics committee also could be helpful in resolving ethical conflicts that arise with differences between professional values and the values of the organization in which nurses and physicians work (Gaudine et al., 2011).

Cisar and Bell (1995) offer the following explanation of the four elements making up the notion of informed consent that are such vital aspects of patient education and that are still pertinent today:

1. *Competence*, which refers to the capacity of the patient to make a reasonable decision.
2. *Disclosure of information*, which requires that sufficient information regarding risks and alternative treatments—including no treatment at all—be provided to the patient to enable them to make a rational decision.
3. *Comprehension*, which speaks to the individual's ability to understand or to grasp intellectually the information being provided. A child, for example, may not yet be of an age to understand any ramifications of medical treatment and must, therefore, depend on parents or guardians to make a decision that will be in the child's best interest. As another example, all options must be expressed in a language the patient can understand and in lay terms for informed consent to be adequately provided.
4. *Voluntariness*, which indicates that the patient can make a decision without coercion or force from others.

Although all four of these elements might be satisfied, the patient may still choose to reject the regimen of care suggested by healthcare providers. This decision could be based on the cost of a treatment, or it might reflect certain personal or religious beliefs. Whatever the underlying motivation, it must be recognized by all concerned that competent, informed patients cannot be forced to accept treatment if they are aware of the alternatives as well as the consequences of any decision (Bonsall, 2015; Cisar & Bell, 1995; Menendez, 2013).

Another dimension of the legality of truth telling relates to the role of the nurse as expert witness. Professional nurses who are recognized for their skill or expertise in a specific area of nursing practice may be called on to testify in court on behalf of either the plaintiff (the one who initiates the litigation) or the defendant (the one being sued). The role of nurse as an expert witness, on either side, is to assess the care delivered in the case and offer an opinion on whether or not the care met the level of care accepted as standard (Casey, 2020).

In contemporary biomedical ethics, Zolkefli (2018) examines the value in healthcare settings of truth telling, a highly regarded quality of health professionals. Truth telling ensures patient autonomy, patient empowerment, and the ability of patients to make informed decisions for the benefit of their overall health. However, this author raises important issues about giving too much truthful information, which may be overwhelming and unduly stressful for some patients and may take away hope that is an essential psychological need of patients to carry on with their life.

Confidentiality

Confidentiality refers to personal information that is entrusted and protected as privileged information via a social contract, healthcare standard or code, or legal covenant. When this information is acquired in a professional capacity from a patient, healthcare providers may not disclose it without consent of that patient. If sensitive information were to be unprotected, patients would lose

trust in their providers and would be reluctant to openly share problems with them or even seek medical care at all (Butts & Rich, 2020; Lee & McTeigue, 2019; University of California, Irvine, 2015).

A distinction must be made between the terms *anonymous* and *confidential*. Information is anonymous when, for example, researchers are unable to link any subject's identity in the medical record of that person. Information is confidential when identifying materials appear on subjects' records but can be accessed only by the researchers (Statistics Solutions, 2018; Tong, 2007).

Only under special circumstances may confidentiality be ethically broken, such as when a patient has been the victim or subject of a crime to which the nurse or doctor is a witness (Lesnik & Anderson, 1962; Merideth, 2007; Wills, 2017; Wood, 2020). Other exceptions to confidentiality occur when nurses or other health professionals suspect or are aware of child or elder abuse, narcotic use, legally reportable communicable diseases, gunshot or knife wounds, or the threat of violence toward someone. To protect others from bodily harm, health professionals are legally permitted to breach confidentiality (Wills, 2017; Wood, 2020).

In the case of communicable diseases, patients should not be forced or coerced to name their contacts, again because respecting confidentiality maintains trust between the patient and the nurse or other health providers. But is it fair to deprive a vulnerable spouse or other contact of this important health information? Is it morally acceptable to put one person's rights above those of another or of a community of people? In some situations, yes, although these decisions are best considered after much deliberation with the patient and other health professionals. Of course, if a patient discloses the identity of their contacts, health professionals are mandated to inform them in accordance with applicable state laws. If a patient tests positive for HIV/AIDS, for example, and has no intention of telling their spouse about this diagnosis, the physician has an obligation to warn the spouse directly or indirectly (i.e.,

through anonymous lab reporting) of the risk of potential harm (Tong, 2007; Wood, 2020).

The principle of confidentiality with respect to infectious diseases has been put to the test with the recent occurrence of the COVID-19 pandemic. The need for contract tracing is essential to slow the spread of COVID-19 through such public health measures as letting people know they have been exposed, monitoring their health for signs and symptoms, helping people get tested, and asking people to self-isolate if infected or self-quarantine if they are a close contact. According to the CDC (2021), "all aspects of case investigation and contract tracing must be voluntary, confidential, and culturally appropriate…[and] efforts to locate and communicate with clients and close contacts must be carried out in a manner that preserves confidentiality and privacy of all involved" (paras. 1–2). That means that the name of the client (the person infected with the virus) cannot be revealed unless permission is granted, and confidential information gathered cannot be given to third parties, such as roommates, neighbors, and family members. Likewise, any information about the contacts (those exposed) also remains confidential (CDC, 2021).

As for people who have activated COVID-19 exposure notifications on their smartphones or downloaded other mobile apps, these systems do not track user locations. Therefore, such technology is both voluntary and anonymous and, thus, individual privacy is protected. However, health department officials are hampered in efforts to protect the public because they are not privy to user data—so they do not know where exposures happened, they cannot follow up to determine if exposed people are self-isolating and testing, and they are unable to identify potential hot spots for infection. Thus, the guarantee of individual privacy has limited the utility and effectiveness of digital contract tracing. In addition, equity is a concern because a person must own a smartphone or other mobile device to use the apps, which leaves some people vulnerable without access to this type of digital service (Van Ness, 2021).

Adequate deliberation with the patient and others can reveal circumstances in which the reality is even more complex. For example, if the physician or other primary healthcare provider explores the patient's rationale for not wanting to inform their spouse of the infectious disease status, it may be out of fear of inciting domestic violence. According to Brent (2001), "this area of legislation concerned with health care privacy and disclosure reveals the tension between what is good for the individual vis-à-vis what is good for society" (p. 141).

The 2013 updated Health Insurance Portability and Accountability Act (HIPAA) ensures nearly absolute confidentiality related to dissemination of patients' information, unless the patients themselves authorize release of such information. One goal of the HIPAA policy, first enacted by Congress in 1996, is to limit disclosure of patient healthcare information to third parties, such as insurance companies or employers. This law, which requires patients' prior written consent for release of their health information, was never meant to interfere with consultation between professionals but is intended to prevent, for example, "elevator conversations" about private matters of individuals entrusted to the care of health professionals. In a technologically advanced society with electronic medical records and data transactions between providers such as exists in the United States today, this law is a must to ensure confidentiality (Edemekong et al., 2020). Currently, in some states and under certain conditions, such as death or impending death, a spouse or members of the immediate family can be apprised of the patient's condition if this information was previously unknown to them. Despite federal and state legislation protecting the confidentiality rights of individuals, there are legal exceptions that allow health professionals to breach confidentially without the patient's permission. For example, health providers have a moral and ethical obligation to divulge to others that they may be at risk of contracting an infectious, communicable disease (e.g., HIV/AIDS or COVID) due to contact with an infected person (Edemekong et al., 2020).

Nonmaleficence

Nonmaleficence is defined as “do no harm” and refers to the ethics of legal determinations involving negligence and/or malpractice (Beauchamp & Childress, 2012; Payne, 2017). According to Brent (2001), **negligence** is defined as “conduct which falls below the standard established by law for the protection of others against unreasonable risk of harm” (p. 54). The author further asserts that the concept of professional negligence “involves the conduct of professionals (e.g., nurses, physicians, dentists, and lawyers) that falls below a professional standard of due care” (p. 55). As clarified by Tong (2007), due care is “the kind of care healthcare professionals give patients when they treat them attentively and vigilantly so as to avoid mistakes” (p. 25). For negligence to exist, there must be a duty between the injured party and the person whose actions (or nonactions) caused the injury. A breach of that duty must have occurred, it must have been the immediate cause of the injury, and the injured party must have experienced damages from the injury (Brent, 2001).

The term **malpractice**, by comparison, still holds as defined by Lesnik and Anderson in 1962. Malpractice, these authors assert, “refers to a limited class of negligent activities committed within the scope of performance by those pursuing a particular profession involving highly skilled and technical services” (p. 234). More recently, malpractice has been specifically defined as “negligence, misconduct, or breach of duty by a professional person that results in injury or damage to a patient” (Reising & Allen, 2007, p. 39). Thus, malpractice is limited in scope to those whose life work requires special education and training as dictated by specific educational standards. In contrast, negligence refers to all improper and wrongful conduct by anyone arising out of any activity.

Reising and Allen (2007) describe the most common causes for malpractice claims specifically against nurses, but these causes are also relevant to the conduct of other health professionals within the scope of their practice responsibilities:

1. Failure to follow standards of care
2. Failure to use equipment in a responsible manner
3. Failure to communicate
4. Failure to document
5. Failure to assess and monitor
6. Failure to act as a patient's advocate
7. Failure to delegate tasks properly

The concept of *duty* is closely tied to the concepts of negligence and malpractice. Nurses' duties are spelled out in job descriptions at their places of employment. Policy and procedure manuals of healthcare facilities are certainly intended to protect the patient and ensure good-quality care, but they also exist to protect both the employee—in this instance, the nurse—and the employer against litigation. Policies are more than guidelines. Policies and procedures determine standards of behavior (duties) expected of employees of an institution and can be used in a court of law in the determination of negligence or malpractice (Lee & McTeigue, 2019; Morales, 2012; Reising, 2012; Weld & Bibb, 2009; Yoder-Wise, 2018).

The role of the registered nurse has evolved over the past few decades. Nurses' responsibilities now include monitoring complex equipment and data, operating lifesaving equipment, coordinating patient care and services, and administering million-dollar healthcare programs (Weld & Bibb, 2009). As a result, nurses now have a higher duty of care to their patients, which in return can result in more risk of claims against them for negligence or malpractice. Expectations of professional nursing performance also are measured against the nurse's level of education and concomitant skills, standing orders issued by the physician, institution-specific protocols, standards of care upheld by the profession (ANA), and standards of care adhered to by any subspecialty organizations of which the nurse may be a member. If, for example, a nurse is certified in a clinical specialty or is identified as a "specialist" although not certified as such, they will be held to the standards of that specialty (Yoder-Wise, 2018).

In the instance of litigation, the key operational principle is that the nurse is not measured against the optimal or maximum professional standards of performance; rather, the yardstick consists of the prevailing practice of what a prudent and reasonable nurse would do under the same circumstances in a similar community (Morales, 2012). Thus, the nurse's duty to perform patient education (or lack thereof) is measured against not only the prevailing policy of the employing institution but also the prevailing practice in the community. For example, in the case of clinical nurse specialists (CNSs), nurse practitioners (NPs), and clinical education specialists (CESs), the practice is measured against institutional policies for this level of worker as well as against the prevailing practice of nurses performing at the same level in the community or in the same geographic region.

Beneficence

Beneficence is defined as "doing good" for the benefit of others. It is a concept that is legalized through properly carrying out critical tasks and duties contained in job descriptions; in policies, procedures, and protocols set forth by the healthcare facility; and in standards and codes of ethical behaviors established by professional nursing organizations (Beauchamp & Childress, 2012; Payne, 2017). Adherence to these various professional performance criteria and principles, including adequate and current patient education, speaks to the nurse's commitment to act in the best interest of the patient. Such behavior emphasizes patient welfare but not necessarily to the harm of the healthcare provider.

The effort to save lives and relieve human suffering is a duty to do what is right only within reasonable limits. For example, when COVID-19 first appeared, the means to diagnose and treat this potentially fatal disease were unknown. Some health professionals protested that the duty of beneficence did not include caring for patients who put providers at risk for this disease due to the lack of appropriate personal protective equipment (PPE). Others maintained that part of the decision to become a health professional involves the

acceptance of certain professional risks; it is part of the job (Milton, 2020). Beneficence determines when it becomes unethical to refuse to care for patients based on actual versus perceived risk to the healthcare professional.

Justice

Justice speaks to fairness and the equitable distribution of goods and services. The law is the justice system. The focus of the law is the protection of society; the focus of health law is the protection of the consumer. It is unjust to treat one person better or worse than another person in a similar condition or circumstance, unless a difference in treatment can be justified with good reason (Beauchamp & Childress, 2012). Justice is a complex ethical principle concerned with distributing benefits and burdens fairly to individuals in social institutions, but it opens the question of what it means to be fair (Feinsod & Wagner, 2008; Krau, 2015).

In today's healthcare climate, professionals must be as objective as possible in allocating scarce medical resources in a just manner. As an example, the question of distributed justice unexpectedly became a priority in the recent COVID-19 pandemic. Who should receive priority treatment against this life-threatening disease? Anticipating having to ration care due to a shortage of critical resources, such as a lack of supplies and equipment, adequate hospital beds, and the number of healthcare workers needed to treat the sick, this ethical question was proactively grappled with during this crisis by managers of health facilities, healthcare providers, and public health officials throughout the United States as well as in many other countries around the world (Tobin-Tyler, 2020).

Decision making for the fair distribution of resources includes the following criteria as defined by Tong (2007):

1. To each, an equal share
2. To each, according to need
3. To each, according to effort

4. To each, according to contribution
5. To each, according to merit
6. To each, according to the ability to pay (p. 30)

According to Tong (2007), professional nurses and other healthcare providers may have second thoughts about the application of these criteria in certain circumstances because one or more of the criteria could be at odds with the concept of justice. “To allocate scarce resources to patients on the basis of their social worth, moral goodness, or economic condition rather than on the basis of their medical condition is more often than not wrong” (p. 30).

As noted earlier, adherence to the rights of patients is legally enforced in most states. In turn, the nurse or any other health professional can be subjected to penalty or litigation for discrimination in provision of care. Regardless of their age, gender, physical disability, sexual orientation, or race, for example, the patient has a right to proper attention and treatment. Patients also have a right to proper instruction regarding risks and benefits of invasive medical procedures (Guido, 2020) and to adequate education for carrying out self-care activities, such as home dialysis, that are beyond normal activities of daily living for most people.

Furthermore, a nurse employed by a healthcare facility agrees to a binding contract, written or tacit, to provide nursing services in accordance with the policies of the facility. A nurse who fails to provide nursing care (including educational services) based on patient diagnosis, or who persists in providing substandard care based on patient age, diagnosis, culture, national origin, sexual preference, and the like, can result in the nurse being held liable for breach of contract with the employing institution (Emanuel, 2000).

In 1986, it became illegal for virtually every U.S. hospital to deny emergency evaluation and treatment to patients solely based on their ability to pay. Called the Emergency Medical Treatment and Active Labor Act (EMTALA), this federal legislation prohibits hospitals from rejecting or “dumping” uninsured patients or those covered by Medicare or Medicaid on “charity” or county hospitals

(Consolidated Omnibus Budget Reconciliation Act [COBRA] of 1985). In other words, all patients who present with an emergency medical condition (or in active labor) must be treated in the same way, regardless of insurance status.

Nevertheless, uninsured and Medicare and Medicaid patients remain subject to other, more subtle discrimination. Because many outpatient facilities do not accept these patients, this restriction on their right of access to health care extends to their right to access health education. Emanuel (2000) raises a critical point in asserting that "the diffuseness of decision making in the American health care system precludes a coherent process for allocating health care resources" (p. 8). Emanuel further contends that managed care organizations have systematically pursued drastic cost reductions by restructuring delivery systems and investing in expensive and elaborate information systems. For example, HMOs have bought out physician practices and have become involved in numbers of related activities with no substantial evidence that a high quality of health care will be achieved at lower prices. Furthermore, efforts to contain healthcare costs have pressured healthcare staff to do more with less. "Limited resources force tough choices in quality of care" (Dowd, 2018, p. 1).

These issues influence whether health educators can surmount the obstacles potentially blocking the patient education process. In the interest of cutting costs, HMOs also have succeeded in shortening lengths of hospital stays. This development, in turn, has had a tremendous effect on the delivery of education to the hospitalized patient and presents serious obstacles to the implementation of this mandate. Lack of time serves as a major barrier to the nurse's or other health professional's ability to give discharge instructions that contain sufficient information for self-care. Also, low health literacy, age, cultural influences, and illness acuity level interfere with the patient's ability to process the information necessary to meet their physical and emotional needs (Marks, 2009).

Clearly, professional nurses are mandated by organizational policy as well as by federal and state regulations to provide patient education. Great care must be taken to ensure that the education justly due to the patient will be addressed post discharge, either in the ambulatory care setting, at home, or in the physician’s office.

The Ethics of Education in Classroom and Practice Settings

The Student–Teacher Relationship

Many of the foundational principles and concepts of ethics that apply to patient care also apply to questions of what ought to be done or how health professionals ought to behave in the education of students for the health professions. Students and teachers have their own perspectives, visions, values, and preferences that are unknown to each other. These two worldviews come together in the classroom and clinical settings. They must be negotiated and understood by each party so connections can be formed for the process of education to proceed with trust and respect (Freedman, 2003; Gillespie, 2002).

A balance of power exists between the teacher (expert) and the student (novice). “An effective student–educator relationship is a key factor to ensure a positive learning climate where learning can take place…” (Froneman et al., 2016, p. 1595). The teacher possesses discipline-specific expertise that is key to the student’s academic success, career achievement, and competent care of patients. Students must be able to trust their teachers—even instantaneously—and believe that the instruction provided by them will be accurate, appropriate, and up to date. Students have a right to assume their instructors are competent, will employ that competence in the best interests of the students, will serve as mentors, and will be role models of professional nursing practice (Gillespie, 2002).

Another area of ethical import inherent in student–teacher relationships is the potential blurring of professional–personal boundaries. Students may experience personal difficulties that can interfere with their studies or with their goals in pursuing a degree in the health professions. If the nature of the student’s concerns is

outside pedagogic goals, how should the teacher respond? In such a case, the ethics of the situation applies not to the process of education itself but to two individuals who happen to know each other because of an educational context. This distinction is important. When teachers are called upon to serve as advisors for students, typically the advice given in the context of that relationship pertains to professional education matters. At other times, a teacher may be approached because the student knows them and considers them trustworthy in a classroom context, but the issue at hand requires counseling of a noneducational nature. In such a case, the teacher is expected to address openly and honestly with the student the potential consequences to their student–teacher relationship of discussing personal issues (Ewashen & Lane, 2007).

An exhaustive search of the nursing literature reveals scant information about the blurring of ethical boundaries in student–teacher relationships. However, the medical profession has addressed this issue in academic medicine in a number of key articles. The examples, findings, and conclusions can be translated to pertain to the relationships between nursing students and nursing educators in academic and clinical settings. Nurse educators and clinical nursing faculty can use the following five specific criteria to distinguish between interactions that are appropriate in the context of the educational process and those that are less appropriate or even frankly inappropriate (Larkin & Mello, 2010; Martinez, 2000; Plaut, 1993; Plaut & Baker, 2011):

- Risk of harm to the student or to the student–teacher relationship
- Presence of coercion or exploitation
- Potential benefit to the student or to the student–teacher relationship
- Balance of student's interests and teacher's interests
- Presence of professional ideals

These five criteria can assist teachers in being fully honest with themselves regarding the appropriateness of counseling the student

and can serve as an extremely useful guide in uncertain situations.

Students are autonomous agents. If they choose to follow the prescribed course of study and are successful, they will develop professional autonomy, attain their professional goals, achieve professional competence, and be equipped to develop relationships with colleagues and patients. Students are responsible for speaking up when they experience problems with or obstacles to their learning. Otherwise, their teachers may make overly ambitious demands on and have unrealistic expectations for students in the learning process. Just as students have the right to expect honesty from their teachers, so do they have a reciprocal duty to be truthful—such as when they have not done an assignment or prepared for a class activity or have made a mistake. In addition, truthfulness affects a vulnerable third party: the patient whose care is at the hands of the student. Taking responsibility for one's missteps as a student reveals the student's commitment to honesty, the primacy of patient welfare, and trustworthiness (Reiser, 1994).

Student autonomy becomes an extremely important point in academic settings when parents of students try to become involved in educational decisions. The Family Educational Rights and Privacy Act (FERPA) of 1974 was created to protect student education records (U.S. Department of Education [USDOE], 2018). When the student is under the age of 18, the right to access records belong to the parent, but once the student turns 18 years of age or attends school beyond the high school level, these rights transfer directly to the student. In many cases, this becomes an area of conflict when students begin college and do not provide a waiver for their parents to receive educational records, even though their parents may be the ones paying for their education (USDOE, 2011).

Sometimes students in the health professions also decide to shield their instructors from the complexities of their patients' situations. Perhaps students want to help their patients appear as "good" as possible. Alternatively, perhaps motivated by a desire to get a good evaluation themselves and avoid descriptors such as "difficult," "took

up too much time with details," or "not a team player," students may select what they believe their instructors will want to deal with. One student who was following a postsurgical patient remarked, "[I]n bringing up my patient's [sore] throat, I was also wasting precious time . . ., and so I learned to keep quiet about his complaints" (Zucker, 2009). By acting in this way, students place their *perceptions* of their instructors' needs before the needs of their patients, at a time when the students are trying to learn exactly which bona fide medical needs should legitimately assume priority over others. Who else but instructors can most effectively assist students to learn how to prioritize among competing patient concerns? Yet how can instructors perform this important component of their jobs if they are hearing a censored rendition of those concerns?

By trying to appear "good" and restrict the range and depth of concerns patients bring to their health professionals, students may undermine the reciprocity of the healthcare provider–patient relationship. Without the framework of an explicitly bidirectional education model, patients may be reluctant to voice all their concerns, reservations, and questions about a proposed recommendation or treatment.

In addition, consider the ethical import of the transience of many student–teacher relationships (Christakis & Feudtner, 1997). For example, the system of nursing education can create communities of relative strangers. A nursing student may conflate trust with authority when a visiting professor teaches a core course in the curriculum. Although the visiting professor may be a renowned authority on complementary and alternative therapies, she may be authoritarian in the classroom, a poor exemplar of putting the student's educational needs first. The student may deferentially endure the class, knowing that sooner or later it will end and the professor will return to her home institution. Such a poor learning climate discourages any reciprocity of concern or trust, impedes the student's professional development, and deprives the professor of valuable opportunities to demonstrate humility before the students.

Students rely on their teachers to be role models and mentors. They observe how teachers hold themselves and other instructors accountable to honest and conscientious practice standards. They witness how teachers treat students and colleagues. Such teacher behaviors exemplify instruction in a relational context: Technical information is interwoven with role modeling. From these observations, students receive lessons that assist them in developing and establishing habits of interaction with coworkers, patients, and, if they become educators themselves, their own future students (Larkin & Mello, 2010; Plaut & Baker 2011; Reiser, 1993).

The Patient–Provider Relationship

Nurses as well as other healthcare providers and the patients they care for also have their own worldviews that come together in the practice setting. These perspectives must be negotiated and understood by each party for the process of patient education to occur with a sense of trust.

As with the student–teacher relationship, it is important to recognize the balance of power that exists between a nurse—even a nursing student—and a patient. The nurse possesses medical expertise: keys to the patient's health, well-being, and ability to work, play, go to school, or engage in social relationships. For those reasons, the ethics of being a patient typically includes respecting nurses and other healthcare providers and trusting them to have the patient's best interests at heart (Aravind et al., 2012; Hanna & Suplee, 2012; National Council of State Boards of Nursing [NCSBN], 2018). Lachman (2012) speaks to the care nurses render to patients as being an ethical task, and Raina et al. (2014) and Ludwig and Burke (2013) address the ethical perspectives of the physician–patient relationship. Caring is not only essential for the physical and psychological well-being of patients but caring also requires getting involved in a network of relationships to meet the patient's needs. Patients have a moral claim on the nurse's and physician's competence and on the use of that competence for the patient's welfare (Pellegrino, 1993; Redman, 2008).

The blurring of professional–personal boundaries is also an area of ethical importance common to health providers' and health provider students' relationships with their patients. The potential for blurred boundaries between professionals and patients is particularly evident because of the intimacies of the practice setting. Patient care and patient education can take place when patients are wearing little clothing, are lying down in a bed, are sharing personal information with their provider, or are in the context of medically related physical contact. Again, the five specific criteria noted earlier in the student–teacher relationship section are relevant here. Simply substitute the word *patient* or *patient–provider relationship* in place of the word *student* or *student–teacher relationship* (used in the original criteria) to distinguish between interactions that are appropriate in the context of the practice setting and those that are less appropriate or even frankly inappropriate (Hanna & Suplee, 2012; Larkin & Mello, 2010; Martinez, 2000; NCSBN, 2018; Plaut, 1993; Plaut & Baker, 2011):

- Risk of harm to the patient or to the patient–provider relationship
- Presence of coercion or exploitation
- Potential benefit to the patient or to the patient–provider relationship
- Balance of the patient's interests and the provider's interests
- Presence of professional ideals

These five criteria can assist nurses and other providers in being fully honest with themselves regarding the appropriateness of providing care to patients, including teaching and counseling them, and can serve as an extremely useful guide in uncertain situations.

Nurses and other health professionals are obligated to remain mindful of the power imbalance between themselves and their patients, to put the patient's welfare before their own concerns, and to reflect honestly on the consequences of blurred boundaries to the patient and to their relationship with the patient in the practice setting.

Out of a respect for patient autonomy, models of medical decision making shared between health professionals and patients has

assumed primacy in various health communication curricula and practices (deBocanegra & Gany, 2004; Donetto, 2010; Freedman, 2003). As mentioned previously, decision aids have been developed to enhance collaboration between patients and providers in making informed decisions (Ankoleker et al., 2018; Clifford et al., 2017). Health-related information is given to patients so they have the opportunity to make their choices and preferences known to professional caregivers. Likewise, the shared decision making (SDM) paradigm allows for a bidirectional approach whereby both the patient and the provider weigh in on potential treatment options. Health professionals' perceptions of SDM highlight both barriers and facilitators to implementing this type of model (Légaré et al., 2008). Nevertheless, this contemporary model preserves the patient's right to autonomy in making choices affecting their own body and results in a much-improved process of ethical decision making for the benefit of the patient.

With respect to patient teaching, students in nursing and other health professions may be inclined to rely on a largely information-dissemination method of educating patients. This is understandable during the formative years of their education when they are beginning to appreciate and employ their own technical knowledge. Inevitably, such a reductionistic conception of patient education will bump up against real practice situations in which the complexity of individual patients' circumstances demands a more reciprocal model of education (Donetto, 2010).

Although patients are autonomous agents, they may choose to follow the recommended course of treatment because they trust their health professional and believe that what has been recommended will improve their condition. They may also follow recommendations because they understand the rationale for the treatment, they consider the treatment to be acceptable or at least tolerable, the treatment fits into their lifestyle and worldview, they can afford it financially, and for many other reasons.

Furthermore, some patients believe that they should behave like good patients by taking all medications or doing all exercises as prescribed, adhering to a recommended diet, not complaining, and so forth, so that their health professional will like them, consider them worthy of their time, and want to continue to take care of them (Buckwalter, 2007; Freedman, 2003). This desire to be a good patient underscores how dependent and vulnerable patients can feel. Even when presenting for a screening mammogram or follow-up MRI or CT scan, patients are not at their best. At every medical encounter, there exists the potential for discovering something that merits concern.

In the practice setting, it is plausible that a nurse providing discharge instructions to a patient might not necessarily give the patient a fair share of their time or be open to all the patient's questions if the nurse knows they will never see that patient again. Admittedly, the better the patient education, the longer the patient will likely remain out of the hospital. However, if the nurse is extremely busy with other competing priorities or is tired from having worked two shifts in a row, they may not reflect on how fatigue or work demands lead to a failure to focus primarily on this patient's welfare. It may be easier for the nurse to assume a let-someone-else-deal-with-it attitude. Transient relationships facilitate a lack of focus on the welfare, time, and interests of each patient.

All professional nurses will face a conflict of values, ethically and professionally, at some point in their career (Robichaux, 2012). Ethical dilemmas happen when ethics principles can be interpreted from different perspectives. That is, what is right or wrong can be debated and different courses of action are recommended by one or more parties. So, too, some actions can have two outcomes, one of which is beneficial and the other harmful. In ethics, this is known as the doctrine of double effect. For example, withdrawing life support relieves suffering but may result in someone's demise; administering high doses of opioids to a terminally ill patient may relieve pain and dyspnea but likely hastens death (Case Di Leonardi, 2012a). With respect to ethical leadership, nursing leaders need to be able to

anticipate ethical challenges and focus on appropriate professional values. Key to ethical nurse leadership is a willingness to collaborate with colleagues, apply evidence-based practice to remain competent, involve patients in their own care, and invite feedback from patients and other professionals for sound ethical decision making to occur (Gallagher & Tschudin, 2010; Ho & Pinney, 2015).

Legality of Patient Education and Information

The patient's right to adequate information regarding their physical condition, medications, risks, and access to information regarding alternative treatments is specifically spelled out in the revised edition of *A Patient's Bill of Rights* (AHA, 1992; President's Advisory Commission, 1998). In the United States, patient rights are based on both ethical and legal standards that not only create uniformity of care across healthcare settings but also provide patients with assurance of uniform standards of expected treatment regardless of their social, economic, religious, gender, or ethnic status. Countries other than the United States do have laws to protect a variety of individual rights, but not all have a specific patient bill of rights protecting human rights related specifically to health care (Olejarczyk & Young, 2020).

As noted earlier, many American states have adopted patient rights as part of their health code, thus rendering them legal and enforceable by law. Patients' rights to education and information also are regulated through standards put forth by accrediting bodies such as The Joint Commission [TJC] (2015), formerly known as the Joint Commission on Accreditation of Healthcare Organizations (JCAHO). Although these standards are not enforceable in the same manner as law, lack of organizational conformity can lead to loss of accreditation, which in turn jeopardizes the facility's eligibility for third-party reimbursement, as well as loss of Medicare and Medicaid reimbursement. Lack of organizational conformity also can lead to loss of public confidence in the institution.

In addition, state regulations pertaining to patient education are published and enforced under threat of penalty (fine, citation, or both) by the department of health in many states. Federal regulations, enforceable as laws, also mandate patient education in those healthcare facilities receiving Medicare and Medicaid funding.

Moreover, as discussed earlier, the federal government mandates full patient disclosure in cases of participation in biomedical research in any setting or for any federally funded project or experimental research involving human subjects.

It should be noted that the AHA's 1975 original draft rendition of *A Patient's Bill of Rights*, along with all the later revisions of these rights, is linked to or associated with every ethical principle. The revised *A Patient's Bill of Rights* (AHA, 1992) is rooted in the conditions of participation in Medicare set forth under federal standards established by the CMS. Corresponding accreditation standards promulgated by TJC further emphasize these standards. All these laws and professional standards serve to ensure the fundamental rights of every person as a consumer of healthcare services. **Table 2-1** outlines the relationship of ethical principles to the laws and professional standards applicable to each principle.

Table 2-1 Linkages Between Ethical Principles, the Law, and Practice Standards

Ethical Principles	Legal Actions/Decisions and Standards of Practice
Autonomy (self-determination)	Cardozo decision regarding informed consent Institutional review boards Patient Self-Determination Act *A Patient's Bill of Rights* TJC standards CMS standards

Ethical Principles	Legal Actions/Decisions and Standards of Practice
	Cardozo decision regarding informed consent
	A Patient's Bill of Rights
Veracity (truth telling)	Nursing Practice Acts and Code of Ethics for Nurses
	TJC standards
	CMS standards
	Privileged information
	A Patient's Bill of Rights
Confidentiality (privileged information)	TJC standards
	CMS standards
	HIPAA

Ethical Principles	Legal Actions/Decisions and Standards of Practice
Nonmaleficence (do no harm)	Malpractice/negligence rights and duties Nurse Practice Acts and Code of Ethics for Nurses *A Patient's Bill of Rights* *Darling v. Charleston Memorial Hospital* State health codes TJC standards CMS standards
Beneficence (doing good)	*A Patient's Bill of Rights* State health codes Job descriptions Nurse Practice Acts and Code of Ethics for Nurses Institutional policy and procedure manuals TJC standards CMS standards

Ethical Principles	Legal Actions/Decisions and Standards of Practice
Justice (equal distribution of benefits and burdens)	*A Patient's Bill of Rights* Antidiscrimination/affirmative action laws Americans with Disabilities Act TJC standards CMS standards

Physicians are responsible and accountable for proper patient education. Realistically, however, the nurse or some other physician-appointed designee often carries out patient education. Physicians' responsibility notwithstanding, "patient education is central to the culture of nursing as well as to its legal practice" (Redman, 2008, p. 817) by virtue of respective state nurse practice acts. The issue regarding patient education is not necessarily one of omission on anyone's part. Rather, the heart of the matter may be proper documentation that teaching has, in fact, been done.

Legal and Financial Implications of Documentation

The 89th Congress enacted the Comprehensive Health Planning Act in 1965, Public Law 89-97, 1965 (Boyd et al., 1998). The entitlements of Medicare and Medicaid—which revolutionized the provision of health care for older adults and people who are socioeconomically deprived—were established through this act. The act stressed the importance of disease prevention and rehabilitation in health care. Thus, to qualify for Medicare and Medicaid reimbursement, “a hospital has to show evidence that patient education has been a part of patient care” (Boyd et al., 1998, p. 26). Proper documentation provides written testimony that patient education has indeed occurred.

For at least the past 25 years, TJC has reinforced the federal mandate by requiring documentation of patient and/or family education in the patient record. Pertinent to this point is the doctrine of **respondeat superior**, or the master–servant rule. Respondeat superior provides that the employer may be held liable for negligence, assault and battery, false imprisonment, slander, libel, or any other tort committed by an employee (Lesnik & Anderson, 1962). The landmark case supporting the doctrine of respondeat superior in the healthcare field was the 1965 case of *Darling v. Charleston Memorial Hospital*. Although the *Darling* case dealt with negligence in the performance of professional duties of the physician, it brought out—possibly for the first time—the professional obligations or duties of nurses to ensure the well-being of the patient (Brown, 1976).

In any litigation where the doctrine of respondeat superior is applied, outcomes can hold the organization liable for damages (monetary retribution). Thus, it is the responsibility of the nurse as both employee and professional providing patient education to appropriately document that education and to be critically conscious

of the legal and financial ramifications to the healthcare facility in which they are employed (ANA, 2010; Marcus, 2014).

Casey (1995) pointed out many years ago that of all lapses in documentation, patient teaching was identified as "probably the most undocumented skilled service because nurses do not recognize the scope and depth of the teaching they do" (p. 257). Lack of documentation continues to reflect negligence in adhering to the mandates of the nurse practice acts. This laxity is unfortunate because patient records can be subpoenaed for court evidence in malpractice cases. Appropriate documentation can be the determining factor in the outcome of litigation (Case Di Leonardi, 2012b). Pure and simple, if the instruction isn't documented, it didn't occur!

Furthermore, documentation is a vehicle of communication that provides critical information between other health professionals involved with the patient's care. Given that patient education is a multidisciplinary responsibility, a recent research study found that documentation varies among providers (Shipman et al., 2016). Failure to document not only renders other staff potentially liable but also renders the facility liable and in jeopardy of losing its accreditation. Concomitantly, the institution is also in danger of losing its appropriations for Medicare and Medicaid reimbursement (Leventhal, 2014).

In this digital age, implementation of an electronic medical records (EMR) system, also known as electronic health records (EHR) system, is widespread in all healthcare settings with the passage of the Health Information Technology for Economic and Clinical Health Act (HITECH), which was part of the American Recovery and Reinvestment Act of 2009 (Blumenthal & Tavenner, 2010). Thorough and accurate documentation has always been of utmost importance in the delivery of safe, high-quality care, and it applies equally to paper and digital records (Balestra, 2017; Bernat, 2013; Palabindala et al., 2016). It has been estimated that 35% to 40% of malpractice cases are lost because of poor documentation (Zamboni, 2016).

Although the EMR/EHR system promises many benefits, it also has potentially “serious unintended consequences” (Bowman, 2013, p. 1). Its advantages, for example, are that typed notes are much easier to read, prompts remind providers to deliver medications and care on time, information can be rapidly retrieved for team-based care coordination, confidentiality of patient information is more protected, information is provided for third-party billing, and, in the long run, healthcare costs are expected to decrease. However, digital recording also has its disadvantages, such as drop-down menus that do not allow for as much detail as handwritten notes; if no new information has surfaced, it is easy to be tempted not to record anything; all it takes is the click of a mouse on a wrong choice in the electronic system to lead to the wrong medication being prescribed; and digital entries are not as robust as personal handwritten entries to trigger a clear memory of events in the provider.

Poor documentation, regardless of whether it be paper or digital recordings, carries the same weight in the court of law (Gamble, 2012; Hoyt, 2014; Zamboni, 2016). With the relatively recent adoption and use of EHRs, legal and ethical dilemmas as well as financial questions remain with respect to the extent to which digital records can reform health care (Gamble, 2012; Sittig & Singh, 2011; Zamboni, 2016). Information integrity—that is, data being lost or incorrectly entered, displayed, and transmitted (known as e-iatrogenesis), and reduced provider–patient focus—that is, the consumer perceiving the nurse is not listening or making sufficient eye contact because of attention being given instead to navigating the screens and making entries—are still serious issues that need to be resolved (Bowman, 2013; Hoyt, 2014; Zamboni, 2016).

Even in today’s current practice environment, an invaluable interdisciplinary method proposed by Snyder (1996) to document patient education is still pertinent. This method relies on a flow sheet that used to be included in the patient’s paper chart but now can be incorporated into electronic medical records. The flow sheet includes

identification of patient and family educational needs based on the following important variables:

- Readiness to learn (based on admission assessment of the patient)
- Obstacles to learning, which might include language, sensory deficits such as lack of vision or hearing, low literacy, cognitive deficits, or other challenges
- Referrals, which might include a patient advocate or an ethics committee

The form also provides documentation space for who was taught (e.g., patient or family), what was taught (e.g., medication administration), when it was taught, which strategies of teaching were used (teaching methods and instructional materials), and how the patient responded to instruction (which outcomes were achieved).

Informed consent has become the primary standard of protecting patients' rights and assists in guiding ethical and legal healthcare practice. Although nurses are not responsible for completing the process of informed consent, they do have the duty to verify and document that consent has been given. Consent must be granted by the patient or legal guardian before a patient undergoes a procedure. The nurse also acts as a resource to patients who may ask for clarification or information to be repeated in terms they can understand. Patient education for this reason also must be documented. Simplistically, informed consent is a patient's right to establish what should or should not be done to their body (Menendez, 2013).

Brenner et al. (2009) examined informed consent and proposed returning to an educational model to increase patients' sense of control and thereby improve healthcare outcomes, such as compliance, disease prevention, and health promotion. These authors state that the current process of informed consent has discouraged patients from taking an active part in making their own healthcare decisions, by turning this process into essentially one of

signing a liability waiver. However, to return to an educational model, the consent forms must be reviewed and revised for comprehensibility and educational value.

First and foremost, health literacy plays a significant role in a patient's ability to actively and effectively take part in their care. For example, Eltorai et al. (2015) found that invasive procedure consent forms were written on average at the 15th-grade level, yet the average U.S. adult reads at the 8th-grade level. Therefore, these forms make comprehension difficult if not impossible for many patients. See Chapter 7 for more information on tools to assess the literacy level of patients and the readability of materials, such as consent forms.

Second, the informed consent process must change the way physicians deliver information. Brenner et al. (2009) explain that patients may have the fantasy misconception that the physician is a "great healer," which creates a false perception of the outcome. A positive perception is developed when the physician shows empathy toward patients, acknowledging their fears and concerns, and reassuring them that their fears and concerns are expected and respected. The physician must recognize that negative outcomes can develop, as with any procedure, but continued support of the patient, regardless of the outcomes, is a necessity.

Because patient education and patient engagement are critical elements to meaningful consent, healthcare providers must be sure that patients understand their consent options and the impact of their decisions in choosing to consent. In the electronic age, informed consent involves educating patients about the sharing of their health information via the electronic health information exchange (eHIE)—the way healthcare providers access and share patient health information with one another by way of their computers. Patient education must include full transparency about such factors as privacy and security regarding who has access to information, why information might be shared, and how information is protected so

that patients can make informed consent decisions (HealthIT.gov, 2014).

Economic Factors in Healthcare Education: Justice and Duty Revisited

Some might consider the parameters of healthcare economics and finances as objective information that can be used for any number of purposes. Fiscal solvency and forecasting of economic growth of an organization are good examples of such purposes. Others would agree that in addition to the legal mandates for patient education and the importance of documentation, another ethical principle speaks to both quality of care and justice, which refers to the equitable distribution of goods and services. In the interest of patient care, the patient as a human being has a right to good-quality care regardless of their economic status, national origin, race, and the like. Furthermore, health professionals have a duty to ensure that such services are provided, and the healthcare organization has the right to expect that it will receive its fair share of reimbursable revenues for services rendered.

Thus, as an employee of a healthcare institution or agency, the nurse has a duty to carry out organizational policies and mandates by acting in an accountable and responsible manner. In an environment characterized by shrinking healthcare dollars, continuous shortages of staff, and dramatically shortened lengths of stay yielding rapid patient turnover, organizations are challenged to ensure that their professional staff are competent to provide educational services, while at the same time doing so in the most efficient and cost-effective manner possible. This is an interesting dilemma considering that patient education is identified as a legal responsibility of nurses in their state practice acts. Prelicensure education programs are challenged to prepare nursing students adequately for this critical function.

The principle of justice is a critical consideration in patient education. The rapid changes and trends in contemporary health care are, for the most part, economically driven. On the one hand, the managed

care approach results in shrinking revenues. This trend, in turn, dictates shorter patient stays in hospitals and doing more with less. Consequently, health facilities are continuing to expand their clinical offerings into satellite types of ambulatory and home care services in an effort to increase their revenues. At the same time, however, healthcare organizations are held to regulatory standards dictated by *A Patient's Bill of Rights*, to the regulations required to receive Medicare and Medicaid reimbursement, and to the eligibility standards to maintain agency accreditation (AHA, 1992). Described as chaotic by some, the U.S. healthcare system in many ways is challenged to maintain its humanistic and charitable origins that have characterized healthcare services in this country across the decades. Indeed, organizations that provide health care are caught between the need to allocate scarce resources and the necessity to provide just yet economically feasible services, including the regulated right and corresponding duty to provide health education to clients.

Financial Terminology

Given the fact that the role of the nurse as educator is an essential aspect of care delivery, this section provides an overview of financial terms that directly affects both staff and patient education. Such educational services are not provided without an accompanying cost of human and material resources. Thus, it is important to know that expenses are essentially classified into two categories: direct costs and indirect costs (Gift, 1994; Hughes, 2011; Spielman, 2020). The sources of revenue (profit) that an institution or agency can accumulate from patient education efforts are known as cost savings, cost benefit, and cost recovery (Abruzzese, 1992; Ghebrehiwet, 2005; Mitton & Donaldson, 2004).

Direct Costs and Indirect Costs

Direct costs are tangible, predictable expenses, a substantial portion of which include personnel salaries, employment benefits, and equipment (Spielman 2020; Gift, 1994; Hughes, 2011). This share of an organization's budget is almost always the largest percentage of the total costs to operate any healthcare facility. Because of the labor-intensive function of nursing care delivery, the costs of nurses' salaries and benefits usually account for at least 50%—if not more—of the total facility budget. Of course, the higher the educational level of nursing staff, the higher the salaries and benefits, and, therefore, the higher the institution's total direct costs.

Time also is considered a direct cost, but it is often difficult to predict how long it will take nurses to plan, implement, and evaluate the individual patient teaching encounters and the educational programs being offered. If the time it takes to prepare and offer patient or staff education programs is greater than the financial gain to the institution, the facility may seek other ways of providing this service, such as computerized programmed instruction or a patient television channel.

Also, equipment is classified as a direct cost. No organization can function without proper materials and tools, which also means there is the need to replace them when necessary. Teaching requires written materials, audiovisual tools, and other equipment for the delivery of instruction, such as handouts and brochures, models, closed-circuit televisions, computers, and copy machines. Although renting or leasing equipment may sometimes be less expensive than purchasing it, rental and leasing costs are still categorized as direct costs.

Direct costs may be *fixed* or *variable.* **Fixed costs**, such as the salary of the nurse delivering a service or program, remain stable regardless of the volume (number of people) using that service or attending that program. **Variable costs**, such as supplies, change with an increase or decrease in the volume of services or programs delivered (Gift, 1994). Variable costs can become fixed costs when volume remains consistently high or low over time. From an educational perspective, the needs and demands for patient teaching depend in the number and diagnostic type of patients, such as the more costly intensive one-to-one instruction versus the less expensive standardized group teaching sessions.

Indirect costs are those costs not directly related to the actual delivery of an educational program but are the result of services shared by other departments in the facility (Spielman 2020; Gift, 1994; Hughes, 2011). They include, but are not limited to, institutional overhead such as heating and air conditioning, lighting, space, and support services of maintenance, housekeeping, and security. Such services are necessary and ongoing whether a teaching session is in progress or not. **Hidden costs**, which are a type of indirect cost, cannot be anticipated or accounted for until after the fact. For example, low productivity of one or more nursing personnel can have a significant impact on the workload of other nurses, which can result in employee turnover that increases recruitment and employee orientation costs.

In a classic description of understanding costs, Gift (1994) makes a point of distinguishing between costs—direct or indirect—and charges. As just described, direct and indirect costs are those expenses incurred by the facility. Charges are set by the provider, but they are billed to the recipient of the services. There may or may not be equivalence between costs and charges. In the retail business, for example, if costs of raw materials are low, and charges for the items, goods, or services are high, the retailer realizes a profit. In the healthcare arena, not-for-profit organizations are limited by federal law as to the amount they can charge in relation to the actual cost of a service. In many instances, particularly as it relates to pharmaceutical goods, the actual cost to the facility is what is charged. As such, the facility provides a service but realizes no financial profit (Kaiser Family Foundation, 2005). Gift explains the different types of costs incurred by healthcare institutions and Cosgrove et al. (2013) outlines strategies to lower costs, improve quality of care, and engage patients in self-management of their own care.

Cost Savings, Cost Benefit, and Cost Recovery

Patient teaching is mandated by state laws, professional and institutional standards, accrediting body protocols, and regulations for participation in Medicare and Medicaid reimbursement programs. However, unless education is ordered by a physician, patient education costs are generally not recoverable as a separate entity under third-party reimbursement. Even though the costs of educational programs, for both patients and nursing staff, are legitimate expenses to the facility, these costs usually are subsumed under hospital room rates and, therefore, are technically absorbed by the healthcare organization. In addition to incurring costs, the institution may also generate revenue from the programs and services it offers. Gift (1994) describes three ways as follows for healthcare institutions to make a profit based on the ratio between costs to charges.

Cost savings are realized when patient lengths of stay in a hospital are shortened or fall within the allotted diagnosis-related group (DRG) time frames (CMS, 2016). Patients who have fewer complications and use less expensive services will yield a cost savings for the institution. In both hospital and ambulatory care settings, cost savings may occur when patient education keeps people healthy and independent for a longer time, thereby preventing high use of staff and expensive diagnostic testing when a patient requires frequent outpatient visits or hospital readmissions. If patients, for example, are readmitted too soon for inpatient services, hospitals can be penalized by HCFA/CMS through citation or loss of payment, in which case any cost savings may be offset by the amount of revenue lost. Thus, efficient and effective patient education is an essential measure that can contribute to reducing overutilization of resources and helping hospitals generate a profit.

Cost benefit occurs when there is increased patient satisfaction with the services an institution provides, including educational programs such as childbirth classes, weight- and stress-reduction sessions, and cardiac fitness and rehabilitation programs. Patient satisfaction is critical to the individual's return for future healthcare services. Such programs may represent an opportunity for an institution to capture a patient population for lifetime coverage.

Cost recovery results when either the patient or the insurer pays a fee for educational services that are provided. Cost recovery may be captured by offering health education programs for a fee. Also, under Medicare and Medicaid guidelines, reimbursement may be made for programs and services if they are deemed reasonable, appropriate, and necessary to treat a person's illness or injury (Kaiser Family Foundation, 2005). The key to success in obtaining third-party reimbursement is the ability to demonstrate that, due to education, patients can manage self-care at home and consequently experience fewer hospitalizations.

To take advantage of cost recovery, hospitals and other healthcare agencies develop and market a number of health education

programs that are open to all members of a community. If well attended, these fee-for-service programs can result in revenues for the institution. The critical element, of course, is not just the recovery of costs but also the generation of revenue. **Revenue generation** (i.e., profit) refers to income earned that is over and above the costs of the programs offered.

To offset the dilemma of striving for cost containment and solvency in an environment of shrinking fiscal resources, healthcare organizations have developed alternative strategies for patient education to realize cost savings, cost benefit, cost recovery, or revenue generation. For example, Cosgrove et al. (2013) outlined 10 key strategies, including patient-centered communication and advanced patient education, that were found to be associated with not only improved clinical outcomes, patient engagement, and higher patient satisfaction rates, but also a reduction in the cost of delivering care, which is quickly becoming a business imperative.

Program Planning and Implementation

The key elements to consider when planning a patient education offering intended for generation of revenue include an accurate assessment of direct costs such as paper supplies, printing of program brochures, publicity, rental space, and professional time (based on an hourly rate) required of nurses to prepare and offer the service. If an hourly rate is unknown, a simple rule of thumb is to divide the annual base salary by 2080, which is the standard number of hours for which people working full time are paid during one year.

If the program is to be offered at the facility, there may be no need to plan for a rental fee for space. However, indirect costs such as housekeeping, lighting, and security should be factored in as an expense. Such a practice not only is good fiscal management but also provides an accounting of the contributions of other departments to the educational efforts of the facility.

Fees for a program should be set at a level high enough to cover the aggregate costs of program preparation and delivery. If an education program is intended to result in cost savings for the facility, such as education classes for patients with diabetes to reduce the number of costly hospital admissions, then the aim may be to break even on costs. In such a case, the price is set by dividing the calculated cost of the program by the number of anticipated attendees. If the goal is for the institution to improve cost benefits, then success can be measured by increased patient satisfaction (as determined by questionnaires or evaluation forms) or by increased use of the facility's services (as determined by recordkeeping). If the intent is to offer a series of classes for smoking cessation or childbirth preparation to improve the wellness of the community and to generate income for the facility, then the fee is set higher than cost to make a profit (cost recovery). An annual report to administration of the time and money spent on education efforts in outpatient and

inpatient care units may be required to determine if the institution made a profit in terms of cost savings, cost benefit, or cost recovery (Demeere et al., 2009).

Cost-Benefit Analysis and Cost-Effectiveness Analysis

In most healthcare organizations, the education department bears the major responsibility for staff development, for inservice employee training, and for patient education programs that exceed the boundaries of bedside instruction. Total budget preparation for these departments is best explained by the experts in the field. Demeere et al. (2009), for example, address the need for patient care units to engage in responsibility-centered budgeting, which also is referred to as activity-based costing. Given the shift away from providing at-will services and toward greater demand for cost accountability for services performed, these authors propose a model for costing out programs that allows patient care units to identify and recoup their true costs while responding to increased market competition.

There is no single best method for measuring the effectiveness of patient education programs. Most experts in the field tend to rely on determining actual costs or actual impact of programs in relationship to outcomes by employing one of two concepts: cost-benefit analysis (CBA) or cost-effectiveness analysis (CEA) (Abruzzese, 1992). These are two economic evaluation techniques that can be used by healthcare programs that examine the costs and consequences of two or more interventions (Adhikari, 2018).

Cost-benefit analysis measures the relationship between costs and outcomes (Russell, 2015). Outcomes can be the actual amount of revenue generated resulting from an educational offering, or they can be expressed in terms of shorter patient stays or reduced hospitalizations for specific diagnostic groups of patients. If, under DRGs or capitation methods of reimbursement, the facility makes a profit, this outcome can be expressed in monetary terms. If an analysis reveals that an educational program costs less than the revenue it generates, that expense can be recovered by third-party reimbursement. When savings exceed costs, then the program is

considered a cost benefit for the facility. The measurement of costs against monetary gains is commonly referred to as the **cost-benefit ratio**, which is the cost of education per patient divided by the total savings per patient (EuroMed Info, 2017).

Cost-effectiveness analysis measures the impact of an educational offering on patient behavior. If program objectives are achieved, as evidenced by positive and sustained changes in the behavior of the participants over time, the program is said to be cost effective (Russell, 2015). Although behavioral changes are highly desirable, in many instances they are less observable, less tangible, and not easily measurable. For example, reduction in patient anxiety cannot be converted into a gain in real dollars. Consequently, it is wise to analyze the outcome of teaching interventions by comparing behavioral outcomes between two or more programs to identify the one that is most effective and efficient when actual costs cannot be determined.

A nurse as educator may be called upon to interpret the costs of behavioral changes (outcomes) to the institution by conducting a cost-effectiveness analysis between programs. This can be accomplished by first identifying and itemizing for each program all direct and indirect costs, including any identifiable hidden costs. Second, it is necessary to identify and itemize any benefits derived from the program offering, such as revenue gained or decreased readmission rates that can be expressed in monetary values. Results of these findings can then be recorded on a grid so that each program's cost-effectiveness is visually apparent (**Exhibit 2-1**).

Exhibit 2-1 Cost-Effectiveness Grid

Program	**I**	**II**
Costs		

Program	I	II
Direct	$	$
Indirect	$	$
Hidden	$	$
Benefits		
Decreased readmissions	$	$
Revenue generated	$	$
Total	$	$

State of the Evidence

Practice driven by evidence is defined as practice “based on research, clinical expertise, and patient preferences that guide decisions about the healthcare of individual patients” (Hospice and Palliative Nursing Association, 2004, p. 66). Much evidence suggests that ethical principles and theories play a highly significant role in shaping contemporary healthcare delivery practices and decision making. Whereas complex and technological advances in health care have given rise to numerous questions about what is right or wrong—or morally or ethically defensible—few situations yield clear-cut or perfectly right answers to solving a problem or need. Numerous case studies, books, and articles have addressed the challenge of dealing with ethical dilemmas in health care. They attempt to provide evidence for how to deliver health care, including patient education, in the most equitable and beneficial manner possible. Our increasingly multicultural and pluralistic society is being asked to address the vast array of biomedical ethical issues confronting healthcare practitioners daily in a way that preserves an individual’s rights but also protects the well-being of other persons, groups, and communities.

Laws and standards governing the role of the nurse as educator are firmly established and provide both the legal foundations and the professional expectations for the delivery of high-quality patient care. Also, the importance of documenting patient education interventions is well established. More research must be conducted to provide evidence of the frequency and amount of informal patient education that nurses provide but that never gets recorded in the chart. In addition, although strategies exist for analyzing the cost-effectiveness and cost benefit of educational programming offered by health professionals, more research evidence is needed to substantiate the value of the educator’s role in influencing overall costs of care.

Further comparative analysis research needs to be conducted to determine which types of patient education programs are the most equitable, beneficial, and cost effective for patients, nursing staff, the institution, and the communities served. Evidence is scarce on the economics associated with various approaches to education and the value of the nurse educator's role as it affects behavioral outcomes related to cost savings, cost benefit, and cost recovery.

Summary

Ethical and legal dimensions of human rights provide the justification for patient education, particularly as it relates to issues of self-determination and informed consent. These rights are enforced through federal and state regulations and through performance standards promulgated by accrediting bodies and professional organizations for implementation at the local level. The nurse's role as educator is legitimized through the definition of nursing practice as set forth by the prevailing nurse practice act in the state where the nurse is licensed and employed and by codes of ethics governing professional conduct in various employment settings. In this respect, patient education is a nursing duty that is grounded in justice; that is, the nurse has a legal responsibility to provide education to all patients, regardless of their age, gender, culture, race, ethnicity, literacy level, religious affiliation, or other defining attributes. All patients have a right to receive health education relevant to their physical and psychosocial needs. Justice also dictates that education programs be designed not only to be consistent with organizational goals but most important to meet the needs of patients to be informed, self-directed, and in control of their own health, and ultimately of their own destiny.

Review Questions

1. What are the definitions of the terms *ethical*, *moral*, and *legal*, and how do they differ from one another?
2. Which national, state, professional, and private-sector organizations legislate, regulate, and provide standards to ensure the protection of human rights in matters of health care?
3. Which ethical viewpoint, deontological or teleological, refers to the decision-making approach that choices should be made for the common good of people?
4. How are the six ethical principles applied to the delivery of patient education?
5. What are four examples of direct costs and five examples of indirect costs in the provision of patient/staff education?
6. What are the definitions of the following terms: *fixed direct costs*, *variable direct costs*, *indirect costs*, *cost savings*, *cost benefit*, *cost recovery*, *revenue generation, cost-benefit analysis*, *cost-benefit ratio,* and *cost-effectiveness analysis*?

CASE STUDY

Katelyn is a new RN working the night shift on a medical/surgical unit. Mr. Williams, a patient in a room next to Katelyn's assigned area, has been setting off the bed alarm all night, and other patients are starting to complain about the disturbance. Katelyn goes in to assist the nurse, Arlene, who is in the room trying to control the situation. Mr. Williams is out of bed, clearly confused and disoriented, claiming that he is being held hostage and needs to get out of there. Katelyn helps Arlene get the patient back into bed safely, but it is clear he is not going to stay there for long. Arlene is clearly flustered and says, "I've had enough!" before hurrying out of the room and returning with four-point restraints. She turns to Katelyn and states, "The doctor won't give me any more medication to put this patient down, so I am putting these on him just to have time to get some charting done. I'll take them off in the morning

before anyone sees.” Katelyn knows that Arlene does not have an order for restraints and that they can cause harm to the patient, especially when not used appropriately.

1. What plausible actions should Katelyn take at this point?
2. Which legal and ethical reasons could Katelyn rely on to justify the actions she takes?
3. Which of Katelyn’s actions seem the most justified from a moral and ethical standpoint?

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CHAPTER 3

Applying Learning Theories to Healthcare Practice

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Chapter Highlights

- Psychological Learning Theories
  - *Behaviorist Learning Theory*
  - *Cognitive Learning Theory*
  - *Psychodynamic Learning Theory*
  - *Humanistic Learning Theory*
- Neuropsychology and Learning
- Comparison of Learning Theories
- Motor Learning
  - *Stages of Motor Learning*
  - *Motor Learning Variables*
- Common Principles of Learning
  - *How Does Learning Occur?*
  - *Which Kinds of Experiences Facilitate or Hinder the Learning Process?*
  - *What Helps Ensure That Learning Becomes Relatively Permanent?*
- State of the Evidence

KEY TERMS

attribution theory

avoidance conditioning

cognitive load

cognitive map (cognitive plan)

cognitive-emotional perspective

contextual interference effects

defense mechanisms

discovery learning

discrimination learning

distributed practice

emotional intelligence (EI)

escape conditioning

extrinsic feedback (augmented feedback/enhanced feedback)

hierarchy of needs

intrinsic feedback (inherent feedback)

learning

learning theory

massed practice

mental practice

metacognition

mnemonic devices

motor learning

motor performance

neuroethics

neuropsychology

operant conditioning

part-practice

plasticity

resistance

respondent conditioning

role modeling

schema

self-regulation

spontaneous recovery

stimulus generalization

systematic desensitization

transference

vicarious reinforcement

OBJECTIVES

After completing this chapter, the reader will be able to:

1. Define the principal constructs of each learning theory and the subtheories or perspectives within cognitive learning theory.
2. Differentiate among the basic approaches to learning for each of the four major psychological learning theories.
3. Give an example of how each psychological learning theory could be applied to changing the attitudes and behaviors of learners in a specific situation.
4. Outline alternative strategies for learning in a given situation using at least two different psychological learning theories.

5. Identify the differences and similarities in the psychological learning theories specific to (a) the basic procedures of learning, (b) the assumptions made about the learning, (c) the task of the educator, (d) the sources of motivation, and (e) the way in which the transfer of learning is facilitated.
6. Discuss how neuroscience research has contributed to a better understanding of learning and learning theories.
7. Contrast the specific teaching strategies used in each stage of Fitts and Posner's three stages of motor learning.
8. Apply learning practice and feedback variables to patient teaching.

Learning is defined in this chapter as a relatively permanent change in mental processing, emotional functioning, skill, and/or behavior as a result of exposure to different experiences. As the definition indicates, the gateway to learning is through experience and how that experience is processed by the learner. Learning is the lifelong, dynamic process by which individuals acquire new knowledge or skills and alter their thoughts, feelings, attitudes, and actions.

Learning enables individuals to adapt to demands and changing circumstances and is crucial in health care—whether for patients and families grappling with ways to improve their health and adjust to their medical conditions, for students acquiring the information and skills necessary to become a nurse, or for staff nurses devising more effective approaches to educating and treating patients and one another in partnership. There are times when what was learned needs to be unlearned. In health care, unlearning is often of special interest, as nurses and others attempt to replace faulty or outdated learning and behavior with more accurate information and healthier behavior.

Until the late 19th century, most of the discussions and debates about learning were grounded in philosophy, school administration, and conventional wisdom (Hilgard, 1996). Around the dawn of the 20th century, the new field of educational psychology emerged and became a defining force for the scientific study of learning, teaching, assessment, and evaluation (Ormrod, 2019; Slavin, 2018). As a science, educational psychology rests on the systematic gathering of evidence or data to test theories and hypotheses about learning. The more that is discovered about learning through research, the more the individuality, diversity, and complexity of learning are recognized and appreciated.

The foundation of educational psychology rests on the development and testing of learning theories using the principles of the scientific method. A **learning theory** is a coherent framework of integrated constructs and principles that describe, explain, or predict how people learn. Psychological learning theories and motor learning are discussed in this chapter, each of which has direct applicability to nursing practice. Rather than offering a single theory of learning, psychology provides alternative theories and perspectives on how learning occurs and what motivates people to learn and change (Snowman & McCown, 2015). Psychological learning theories are useful in acquiring information in situations involving human thought, emotions, and social interaction.

Motor learning is of particular interest to nurses as they try to help their patients and students acquire or relearn skills. Motor control and learning emerged from two isolated bodies of knowledge—the branch of neurophysiology primarily concerned with the neural processes that are associated with movement, and the branch of psychology primarily concerned with high-level skills. For nearly a hundred years, these two fields developed separately, and it was not until the 1970s that they began to come together (Schmidt et al., 2019). Motor learning, as a specialized area of study, is influenced by behavioral theory, cybernetics, and information processing (VanSant, 2003).

The construction and testing of learning theories over the past century contributed much to the understanding of how individuals acquire knowledge and change their ways of thinking, feeling, and behaving. Reflecting an evidence-based approach to learning, these theoretical explanations may sound reasonable, but need to be tested through solid research, then applied and evaluated. The accumulated body of research information can be used to guide the educational process and has challenged many popular notions and myths about learning (e.g., “Spare the rod and spoil the child,” “You can’t teach an old dog new tricks,” “The more practice and feedback, the better”). In addition, the major learning theories have wide applicability and form the foundation of not only the field of education but also psychological counseling, workplace organization and human resources management, and marketing and advertising.

Whether used singly or in combination, learning theories have much to offer the practice of health care. Increasingly, health professionals—

including nurses—must demonstrate that they regularly employ sound methods and a clear rationale in their education efforts, patient and family interactions, staff management and training, and continuing education and health promotion programs. Research demonstrates that using learning theories in health care and medicine—whether to design professional and patient education programs or to develop intervention programs to improve health and functioning—increases the likelihood of a program's success (Aliakbari et al., 2015).

Given the current structure of health care in the United States, nurses, in particular, are often responsible for designing and implementing plans and procedures for improving health education, teaching new skills, and encouraging wellness. Nurses can apply learning theories at the individual, group, and community levels to: (1) comprehend and teach new material and tasks; (2) solve problems and change unhealthy habits; and (3) build constructive relationships, manage emotions, and develop effective behavior. In other words, knowledge of the learning process relates to nearly every aspect of professional and personal life.

In this chapter, the principal psychological learning theories and motor learning theories that are reviewed and discussed are those that are especially useful to health education and clinical practice. Behaviorist and cognitive theories are applied most often to patient education as an aspect of professional nursing practice. However, it can be argued that emotions and feelings also need explicit focus in relation to learning in general (Goleman, 1995, 2017) and to health care in particular (Foster et al., 2015; Nightingale et al., 2018). Why? Emotional reactions are often learned as a result of experience. They play a significant role in the learning process and are a vital consideration when dealing with health, disease, prevention, wellness, medical treatment, recovery, healing, and relapse prevention. To address this concern, psychodynamic and humanistic perspectives in psychology are treated as learning theories because they encourage a patient-centered approach to care and add much to our understanding of human motivation and emotions in the learning process. The review provided here includes motor learning because it offers a framework for nurses teaching motor tasks to patients and students.

The chapter is organized as follows. First, the basic psychological principles of learning for the behaviorist, cognitive, psychodynamic, and

humanistic theories are summarized and illustrated with examples from psychology and healthcare research. With the upsurge of interest in neuroscience research, brief mention is made of some of the contributions of neuropsychology to understanding the dynamics of learning and sorting out the claims of learning theories.

Second, the psychological learning theories are compared with one another on the following aspects:

- The fundamental procedures for changing behavior
- The assumptions made about the learner
- The role of the educator in encouraging learning
- The sources of motivation for learning
- The ways in which learning is transferred to new situations and problems

Third, motor learning theories and variables are reviewed and discussed, including their application for teaching skills to patients and students. Finally, the theories are compared and then synthesized by identifying their common features and addressing three questions: (1) How does learning occur? (2) Which kinds of experiences facilitate or hinder the learning process? and (3) What helps ensure that learning becomes relatively permanent? While surveying this chapter, readers are encouraged to think of ways to apply the learning theories to both their professional and personal lives.

The goals of this chapter are to provide a conceptual framework for subsequent chapters in this text and to offer a toolbox of approaches that nurses can use to enhance learning, change, and growth in patients, students, staff, and themselves. Although there is a trend toward integrating learning theories in education, knowledge of each theory's basic principles, advantages, and shortcomings will enable nurses to select, combine, and apply the most useful components of learning theories to specific patient education needs and situations in health care. After completing the chapter, readers should be able to identify the essential principles of learning, describe various ways in which the learning process can be approached, and develop alternative strategies to inform, educate, or change the attitudes, behaviors, habits, and skills of learners in different settings.

Psychological Learning Theories

This section summarizes the basic concepts and principles of the behaviorist, cognitive, psychodynamic, and humanistic learning theories. While reviewing each theory, readers are asked to consider the following questions:

- How do the environment and the internal dynamics of the individual influence learning?
- Is the learner viewed as relatively passive or more active?
- What is the educator's task in the learning process?
- What motivates individuals to learn?
- What facilitates the transfer of learning to new situations?
- What are the contributions and criticisms of each learning theory?

Behaviorist Learning Theory

Focusing mainly on what is directly observable, behaviorists view learning as the product of the stimulus conditions (S) and the responses (R) that follow. Whether dealing with animals or people, the learning process is relatively simple. Generally ignoring what goes on inside the individual—which, of course, is always difficult to ascertain—behaviorists closely observe responses to a situation and then manipulate the environment in some way to bring about the intended change (Kazdin, 2013). Not as popular as it once was, the behaviorist approach is more likely to be used in combination with other learning theories, especially cognitive theory (Dai & Sternberg, 2004; Shanks, 2010). However, behaviorist theory can be particularly useful in nursing practice for the delivery of health care, because patients may not be in a physiological state to want to engage in much thought and reflection. The theory also directly addresses skill learning, how to break or unlearn bad habits as well as how to correct faulty learning. Behaviorist principles have been applied to people and animals. Pet training is an example of its use with animals.

The Basics of Behaviorist Learning Theory

To modify people's attitudes and responses, behaviorists either alter the stimulus conditions in the environment or change what happens after a response occurs. Motivation is explained as the desire to reduce some drive (drive reduction); hence, satisfied, complacent, or satiated individuals have little motivation to learn and change. Getting behavior to transfer from the initial learning situation to other settings is largely a matter of practice (strengthening habits). Transfer is aided by a similarity in the stimuli and responses in the learning situation and those encountered in future situations where the response is to be performed. Much of behaviorist learning is based on respondent conditioning and operant conditioning procedures, which are two somewhat different subtheories and approaches to learning within behaviorist theory.

Respondent conditioning (also termed association learning, classical conditioning, or Pavlovian conditioning*) is a subtheory of behaviorist learning that* emphasizes the importance of stimulus conditions and the associations formed in the learning process (Ormrod, 2019). In this basic model of learning, a neutral stimulus (NS)—a stimulus that has no special value or meaning to the learner—is paired with a naturally occurring unconditioned or an unlearned stimulus (UCS) and unconditioned response (UCR) (**Figure 3-1**). After a few such pairings, the neutral stimulus alone (i.e., without the unconditioned stimulus) elicits the same unconditioned response. Thus, learning takes place when the newly conditioned stimulus (CS) becomes associated with the conditioned response (CR)—a process that may well occur without conscious thought or awareness.

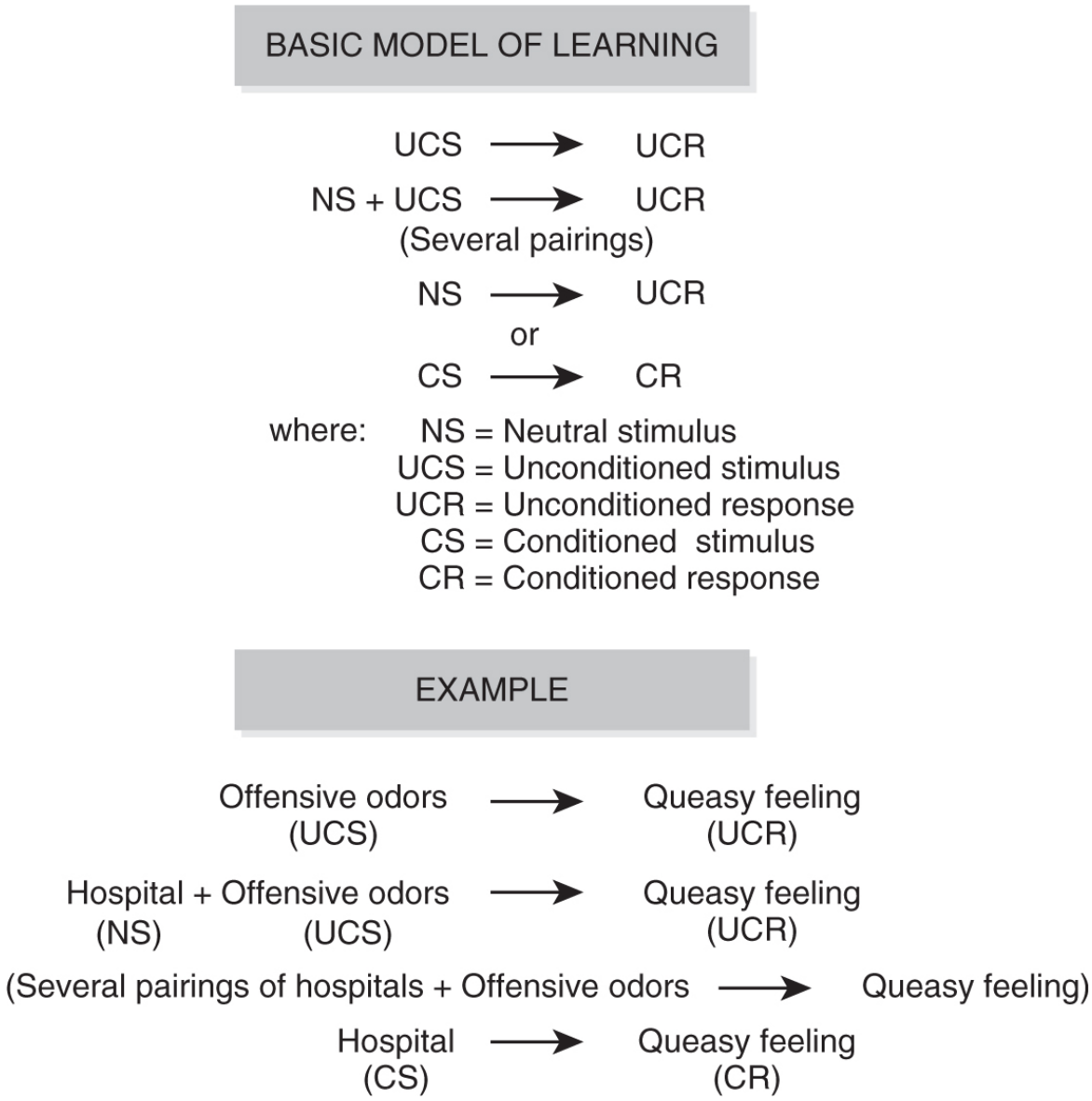

Figure 3-1 Respondent conditioning model of learning.

Description

Have you ever wondered why the sight of a certain animal, smell of a particular flower, or hearing a particular piece of music quickly conjures up all kinds of feelings and reactions; yet the same animal, flower, or song means nothing to other people? How were these very specific reactions to certain stimuli learned? Consider an example of respondent conditioning from health care. Someone without much experience with hospitals (NS) may visit a relative who is ill. While in the relative's room, the visitor may smell offensive odors (UCS) and feel queasy and light-headed (UCR).

After this initial visit and later repeated visits, hospitals (now the CS) may become associated with feeling anxious and nauseated (CR), especially if the visitor smells similar odors to those encountered during the first experience (see Figure 3-1).

In health care, respondent conditioning highlights the importance of a healthcare facility's environment and culture as it may affect patients, staff, and visitors. For example, often without thinking or reflection, patients and visitors formulate associations about health care based on their initial hospital experiences, providing the basis for long-lasting attitudes toward medicine, healthcare facilities, and health professionals. The same is true for classroom learning, with the important implication that learning will be encouraged with positive classroom and school experiences but discouraged or feared with negative or punishing experiences. In addition, these same respondent conditioning principles can be used to explain how consumers are conditioned or "learn" to prefer a specific prescription drug over the drug's competitors based on the direct-to-consumer advertisements that bombard them as they watch television. Note that the United States and New Zealand are the only two countries that allow prescription drugs to be advertised on the media directly to the public.

Certain respondent conditioning concepts are especially useful in the healthcare setting. **Stimulus generalization** is the tendency of initial learning experiences to be easily applied to other similar stimuli. For example, when listening to friends and relatives describe a hospital experience, it becomes apparent that a highly positive or negative personal encounter may color patients' evaluations of their hospital stays as well as their subsequent feelings about having to be hospitalized again. With more and varied experiences, individuals learn to differentiate among similar stimuli, at which point **discrimination learning** is said to have occurred. As an illustration, patients who have been hospitalized a number of times often have learned a lot about hospitalization. As a result of their experiences, they make sophisticated distinctions and can discriminate among stimuli (e.g., what the various noises mean and what the various health professionals do), which novice patients cannot. Much of professional education and clinical practice involves moving from being able to make generalizations to discrimination learning. It is worth contemplating how stimulus generalization and discrimination learning can

be used to understand and address feelings of prejudice and intolerance against particular groups of people.

In addition to influencing the acquisition of new responses to environmental stimuli, principles of respondent conditioning may be used to extinguish, or unlearn, a previously learned response. Responses decrease if the presentation of the conditioned stimulus is not accompanied by the unconditioned stimulus over time. Thus, if the visitor who became dizzy in one hospital subsequently goes to other hospitals to see relatives or friends without smelling offensive odors, then her discomfort and anxiety about hospitals may lessen after several such experiences.

A technique based on respondent conditioning that is used by psychologists to reduce fear and anxiety in their clients is known as **systematic desensitization** (Ankrom, 2020; Wolpe, 1982). The assumption is that fear of a certain stimulus or situation is learned; therefore, it also can be unlearned or extinguished. Because a person cannot be both anxious and relaxed at the same time, fearful individuals are first taught relaxation techniques. While they are in a state of relaxation, the fear-producing stimulus is gradually introduced at a nonthreatening level so that anxiety and emotions are not aroused. After repeated pairings of the stimulus under relaxed, nonfrightening conditions, the individual gradually learns that no harm will come to him from the once fear-inducing stimulus. Finally, the client is able to confront the stimulus without being anxious and afraid.

In healthcare research, respondent conditioning has been used to extinguish fears, treat addictions and phobias, reduce tension headaches, and a host of other anxieties associated with health, well-being, and functioning. Therefore, taking the time to help patients relax and reduce their stress or divert their attention when applying some medical intervention—even a painful procedure—lessens the likelihood that patients will build up negative and anxious associations about medicine and health care.

Another useful respondent conditioning concept that needs to be given careful consideration in relapse prevention programs is known as **spontaneous recovery**. The underlying principle operates as follows: Although a response may appear to be extinguished, it may recover and

reappear at any time (even years later), especially when stimulus conditions are similar to those in the initial learning experience. Spontaneous recovery helps us understand why it is so difficult to eliminate completely unhealthy habits and addictive behaviors such as smoking, alcoholism, gambling, and drug abuse. As this principle demonstrates, it is much easier to learn a behavior than to unlearn it.

Operant conditioning is the second subtheory of behaviorist learning that was developed largely by B. F. Skinner (1974, 1989). Operant conditioning focuses on the behavioral response of an organism and the reinforcement that occurs after the response occurs. A reinforcer is a stimulus or event applied after a response that strengthens the probability that the response will be performed again. When specific responses are reinforced on the proper schedule, behaviors can be either increased or decreased (Prichard, 2014).

Box 3-1 summarizes the principal ways to increase and decrease responses by applying the contingencies of operant conditioning. Understanding the dynamics of learning presented in this box can prove useful to nurses in assessing and identifying ways to change individuals' behaviors in the healthcare setting. The key is to carefully observe individuals' responses to specific stimuli and then select the best reinforcement procedures to change a behavior.

Box 3-1 Operant Conditioning Model: Contingencies to Increase and Decrease the Probability of an Organism's Response

To *increase* the probability of a response:

1. *Positive reinforcement:* application of a pleasant stimulus

   Reward conditioning: a pleasant stimulus is applied following an organism's response

2. *Negative reinforcement:* removal of an aversive or unpleasant stimulus

   Escape conditioning: as an aversive stimulus is applied, the organism makes a response that causes the unpleasant stimulus to cease

Avoidance conditioning: an aversive stimulus is anticipated by the organism, which makes a response to avoid the unpleasant event

To *decrease* or extinguish the probability of a response:

1. *Nonreinforcement:* an organism's conditioned response is not followed by any kind of reinforcement (positive, negative, or punishment)
2. *Punishment:* following a response, an aversive stimulus is applied that the organism cannot escape or avoid

Two methods to *increase* the probability of a response are to apply positive or negative reinforcement after a response occurs. According to Skinner (1974), giving positive reinforcement (i.e., reward) greatly enhances the likelihood that a response will be repeated in similar circumstances. As an illustration, although a patient moans and groans as he attempts to get up and walk for the first time after an operation, praise and encouragement (reward) for his efforts at walking (response) will improve the chances that he will continue struggling toward independence.

A second way to increase a behavior is by applying negative reinforcement after a response is made. This form of reinforcement involves the removal of an unpleasant stimulus through either escape conditioning or avoidance conditioning. The difference between the two types of negative reinforcement relates to timing.

In **escape conditioning**, as an unpleasant stimulus is being applied, the individual responds in some way that causes the uncomfortable stimulus to cease. For example, suppose a woman is being bullied, but she says something humorous that makes others laugh, and the bully stops aggravating her. She escaped the negative behavior of the bully by using humor. The chances are in the future she might well use humor to escape punishing and uncomfortable situations.

In **avoidance conditioning**, the unpleasant stimulus is anticipated rather than being applied directly. Avoidance conditioning has been used to explain some people's tendency to become ill to avoid doing something they do not want to do. For example, a child fearing a teacher or test may tell his mother that he has a stomachache. If allowed to stay home from school, the child increasingly may complain of sickness to avoid

unpleasant or scary situations. Thus, when fearful events are anticipated, sickness, in this case, is the behavior that has been increased through negative reinforcement.

According to operant conditioning principles, behaviors also may be *decreased* through either nonreinforcement or punishment. Skinner (1974) maintained that the simplest way to extinguish a response is not to provide any kind of reinforcement for some action. For example, offensive jokes in the workplace may be handled by showing no reaction; after several such experiences, the joke teller, who more than likely wants attention—and negative attention is preferable to no attention—may curtail their use of offensive humor. Keep in mind, too, that desirable behavior that is ignored may lessen as well, if positive reinforcement is continually withheld. This is a useful principle to apply to loving relationships, raising children, or supervising staff.

If nonreinforcement proves ineffective, then punishment may be employed as a way to decrease responses, although this approach carries many risks. Under punishment conditions, the individual cannot escape or avoid an unpleasant stimulus. However, employing punishment to change behavior is risky. One problem is that the learner may become highly emotional and may well divert attention away from the behavior that needs to be changed. Some people who are being punished become so emotional (sad or angry) that they do not remember the behavior for which they are being punished. One of the cardinal rules of operant conditioning is to “punish the behavior, not the person.” However, there are situations when punishment may be used as a last resort, such as stopping repeated dangerous behavior in health care. Hospital committees and state disciplinary boards deal with unethical, irresponsible, harmful behavior by members of the health professions. Such behavior may be punished by putting doctors and other health professionals on probation or suspending their license to practice. Typically, however, alternative ways to change behavior are tried first, such as counseling, remedial education, or mentoring, before resorting to professional penalties.

If punishment is employed, it should be administered immediately after the response with no distractions or means of escape. Punishment also must be consistent and at the highest reasonable level (e.g., nurses who apologize and smile as they admonish the behavior of a staff member or

patient are sending mixed messages and are not likely to be taken seriously or to decrease the behavior they intend). Moreover, punishment should not be prolonged (bringing up old grievances or complaining about a misbehavior at every opportunity), but there should be a time-out following punishment to eliminate the opportunity for positive reinforcement. The purpose of punishment is not to do harm or to serve as a release for anger; rather, the goal is to decrease a specific behavior and to instill self-discipline.

The use of reinforcement is central to the success of operant conditioning procedures. For operant conditioning to be effective, it is necessary to assess which kinds of reinforcement are likely to increase or decrease behaviors in an individual. Not every patient, for example, finds health practitioners' terms of endearment rewarding. Comments such as "Very nice job, dear," may be presumptuous or offensive to some clients. A second issue involves the timing of reinforcement. Through experimentation with animals and humans, researchers have demonstrated that the success of operant conditioning procedures partially depends on the schedule of reinforcement. Initial learning requires a continuous schedule, reinforcing the behavior quickly every time it occurs. If the desired behavior does not occur, then responses that approximate or resemble it can be reinforced, gradually shaping behavior in the direction of the goal for learning. As an illustration, for geriatric patients who appear lethargic and unresponsive, nurses might begin by rewarding small gestures such as eye contact or a hand that reaches out and then build on these friendly behaviors toward greater human contact and connection with reality. Once a response is well established, however, it becomes ineffective and inefficient to continually reinforce the behavior. Reinforcement then can be administered on a fixed (predictable) or variable (unpredictable) schedule after a given number of responses have been emitted or after the passage of time.

Operant conditioning techniques provide relatively quick and effective ways to change behavior. Carefully planned programs using behavior modification procedures can readily be applied to health care. For example, computerized instruction and tutorials for patients and staff rely heavily on operant conditioning principles in structuring learning programs. In the clinical setting, the families of patients with chronic back pain have been taught to minimize their attention to the patients whenever they complain and behave in dependent, helpless ways, but to pay a lot of

attention when the patients attempt to function independently, express a positive attitude, and try to live as normal a life as possible. Some patients respond so well to operant conditioning that they report experiencing less pain as they become more active and involved. A systematic review of physiotherapist-provided operant conditioning (POC) found moderate evidence showing that POC is more effective than a placebo intervention in reducing short-term pain in patients with subacute low back pain (Bunzli et al., 2011). Operant conditioning and behavior modification techniques also have been found to work well with some nursing home and long-term care residents, especially those who are losing their cognitive skills (Spira & Edelstein, 2007). Horvath et al. (2016) discussed the effects of operant conditioning on people who are addicted to substances or activities and found that positive behavior is maintained much longer when people expect a reward rather than a punishment.

Critique

The behaviorist theory is simple and easy to use, and it encourages clear, objective analysis of observable environmental stimulus conditions, learner responses, and the effects of reinforcements on people's actions. There are, however, some criticisms and cautions to consider when relying on this theory. First, behaviorist theory is a teacher-centered model in which learners are assumed to be relatively passive and easily manipulated, which raises a crucial ethical question: Who is to decide what the desirable behavior should be? Too often, the desired response is conformity and cooperation to make someone's job easier or more profitable. Second, the theory's emphasis on extrinsic rewards and external incentives reinforces and promotes materialism rather than self-initiative, a love of learning, and intrinsic satisfaction. Third, research evidence supporting behaviorist theory is often based on animal studies, the results of which may not be applicable to human behavior. A fourth shortcoming of behavior modification programs is that learners' changed behavior may deteriorate over time, especially once they return to their former environment—an environment with a system of rewards and punishments that may have fostered their problems in the first place.

Shifting from focusing on observable stimuli and responses in the environment, the next section on cognitive learning theory emphasizes the role of mental processes in learning.

Cognitive Learning Theory

Cognitive theory is composed of several subtheories and is widely used in education and counseling. According to this perspective, the key to learning and changing is the individual's cognition (perception, thought, memory, and ways of processing and structuring information). Cognitive learning is viewed as a highly active process largely directed by the individual. It involves perceiving the information, interpreting it based on what is already known, and then reorganizing the information into new insights or understanding (Farmer & Matlin, 2019; Goldstein, 2019).

The Basics of Cognitive Learning Theory

Unlike behaviorists, cognitive theorists maintain that reward is not necessary for learning to take place. More important are learners' goals and expectations, which create disequilibrium, imbalance, and tension that motivate learners to act. Educators trying to influence the learning process must recognize the variety of past experiences, perceptions, and ways of incorporating and thinking about information. They also need to consider the diverse aspirations, expectations, and social influences that affect any learning situation. The process of learning is affected by the learner's **metacognition**, or their understanding of their way of learning. To promote transfer of learning, the learner must mediate or act on the information in some way. Similar patterns in the initial learning situation and subsequent situations facilitate this transfer.

Cognitive learning theory includes several well-known conceptual and theoretical perspectives, such as gestalt, information processing, cognitive development, social learning, social constructivism, and social cognition. More recently, attempts have been made to incorporate considerations related to emotions within cognitive theory. Each of these approaches to learning emphasizes a particular feature of cognition and, as such, represents a certain perspective within cognitive theory. When pieced together, these various subtheories in cognitive learning indicate much about what goes on inside the learner. These cognitive perspectives are summarized briefly, and readers are encouraged to imagine their potential applications in the healthcare setting. In keeping with cognitive principles of learning, being mentally active when processing information encourages its retention in long-term memory.

Gestalt

This is one of the oldest cognitive subtheories in psychology. It emphasizes the importance of perception in learning and lays the groundwork for various other cognitive perspectives that followed (Hilgard & Bower, 1966). Rather than focusing on discrete stimuli, gestalt refers to the configuration or patterned organization of cognitive elements, reflecting the maxim that "the whole is greater than the sum of its parts." A core assumption is that each person perceives, interprets, and responds to any situation in their own way. Although many gestalt principles are worth knowing, the discussion here focuses on those that are particularly useful to health care.

- *People orient or pay attention to certain information while habituating or screening out competing information at any one time*. For example, when a nurse is providing instruction to a patient, the patient may be orienting to other information, such as what is on the television in the room, noise in the hallway, or worries about her pain, her finances, or how to find a ride home.
- *Psychological organization is directed toward simplicity, equilibrium, and regularity*. For example, study the bewildered faces of some patients listening to a complex, detailed explanation about their disease; instead, what they desire most is a simple, clear explanation that settles their uncertainty and relates directly to them and their familiar experiences.
- *Perception is selective*, which has several ramifications. For example, what individuals pay attention to and what they ignore are influenced by a host of factors: past experiences, needs, personal motives and attitudes, reference groups, and the actual structure of the stimulus or situation. Moreover, because individuals vary widely regarding these and other characteristics, they will perceive, interpret, and respond to the same event in different ways, perhaps distorting reality to fit their goals and expectations.
- *Perception is influenced by how an event is structured and is directed toward organization and closure within each learner*. Some configurations or structures are more appealing than others (called the "good figure" or the "good gestalt"), which is strongly influenced by culture. Some structures may be uncomfortable and tension-producing. However, this disequilibrium or tension can work as a motivator for the learner to reduce the tension by taking a desired

action. The fact that perception strives for organization is likely to be unique to each individual, depending on their need for structure. And it is important to recognize that some people have a much greater desire than others to achieve closure or obtain an immediate answer or solution. This principle explains why different patients have varying reactions and behavior toward the same diagnosis, illness, or injury.

Assessing these internal and external perceptual dynamics has a direct bearing on how a health educator approaches any learning situation with an individual or group. Therefore, an approach that is effective with one client may not work with another client.

The next cognitive perspective gives explicit focus to the organization and structure of the learning situation and how that structure can aid learning and memory—or not.

Information Processing

This second cognitive subtheory emphasizes thinking processes: thought, reasoning, the way information is encountered and stored, and memory functioning (Gagné, 1985; Sternberg & Sternberg, 2017). How information is incorporated and retrieved is useful for nurses to know, especially in relation to learning by older adults (Park et al., 2014).

Figure 3-2 illustrates an information-processing model of memory functioning. Tracking learning through the various stages of this model is helpful in assessing what happens to information as each learner perceives, interprets, and remembers it. Undertaking this analysis may suggest ways to improve the structure of the learning situation as well as ways to correct misconceptions, distortions, and errors in learning.

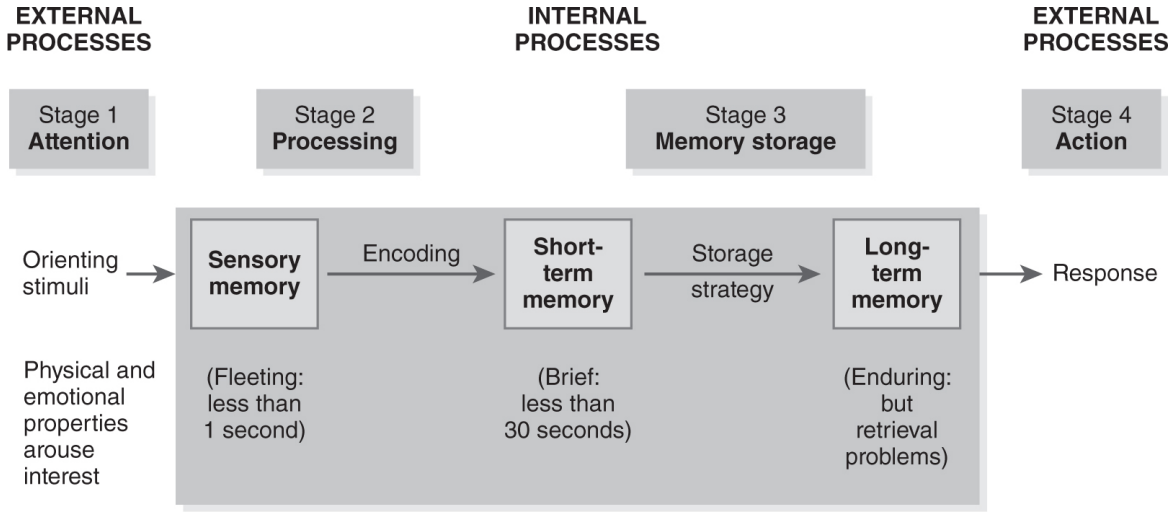

Figure 3-2 Information-processing model of memory.

Description

The first stage in the memory process involves paying attention to environmental stimuli; attention, then, is the key to learning. Thus, if a patient is not attending to what a nurse educator is saying, perhaps because the patient is weary or distracted, it would be prudent for the educator to try the explanation at another time when the individual is more receptive and attentive.

In the second stage, the information is processed by the senses. Here it becomes important to consider the client's preferred mode of sensory processing (visual, auditory, or motor manipulation) and to ascertain whether they have any sensory deficits. For a variety of reasons, presenting material using multiple sensory modes aids learning as well (Collins, 2019).

In the third stage of the memory process, the information is transformed and incorporated (encoded) briefly into short-term memory, after which it suffers one of two fates: The information is disregarded and forgotten, or it is stored in long-term memory. Long-term memory involves the organization of information by using a preferred strategy for storage (e.g., imagery, association, rehearsal, or breaking the information into units). Although long-term memories are enduring, a central problem is retrieving the stored information in the future.

The last stage in the memory-processing model involves the action or response that the individual undertakes based on how information was processed and stored. Education requires assessing how a learner attends to, processes, and stores the information that is presented as well as finding ways to encourage the retention and retrieval processes. Errors are corrected by helping learners reprocess what needs to be learned. Therefore, feedback may be an important aspect of the learning process. However, it matters how feedback is given: Negative feedback results in less learning than does positive feedback, and people receiving negative feedback have been reported to remember less if they feel their ego has been threatened (Eskreis-Winkler & Frishbach, 2019).

In general, cognitive psychologists note that memory processing and the retrieval of information are enhanced by organizing that information and making it meaningful. A useful, descriptive model has been provided by Robert Gagné (1985). Subsequently, Gagné and his colleagues outlined nine events and their corresponding cognitive processes that activate effective learning (Gagné et al., 1992):

- Gain the learner's attention (reception).
- Inform the learner of the objectives and expectations (expectancy).
- Stimulate the learner's recall of prior learning (retrieval).
- Present information (selective perception).
- Provide guidance to facilitate the learner's understanding (semantic encoding).
- Have the learner demonstrate the information or skill (responding).
- Give feedback to the learner (reinforcement).
- Assess the learner's performance (retrieval).
- Work to enhance retention and transfer through application and varied practice (generalization).

In employing this model, teachers must carefully analyze the requirements of the activity, design and sequence the instructional events, and select appropriate media to achieve the outcomes. Other similar cognitive models for learning exist (Prichard, 2014). Nurses familiar with cognitive theory may want to design their own cognitive models and assess how well they work with patients, staff, and students.

Within the information-processing perspective, Sternberg (1996) reminded educators to consider styles of thinking, which he defines as "a preference

for using abilities in certain ways" (p. 347). In education, the instructor's task is to get in touch with the learner's way of processing information and thinking. Differences in learning style is one reason an educational theory or model may not work for everyone. (See the review of learning styles in Chapter 4.) Some implications for health care include the need to carefully match jobs with styles of thinking, to recognize that people may shift from preferring one style of thinking to another, and, most important, to appreciate and respect the different styles of thinking reflected among the many players in the healthcare setting. Hughes (2016) discussed how learning styles apply to nursing education. Mangold and colleagues (2018) examined the preferred learning styles of nursing staff, which they found were related to satisfaction and experience and can be used to plan and deliver professional education as well as to promote retention in learning.

The information-processing perspective is particularly helpful for assessing problems in acquiring, remembering, and recalling information. Some strategies include the following:

1. Have learners indicate how they believe they learn (metacognition).
2. Ask them to describe what they are thinking as they are learning.
3. Evaluate learners' mistakes.
4. Give close attention to learners' inability to remember or demonstrate information.

For example, forgetting or having difficulty in retrieving information from long-term memory is a major stumbling block in learning. This problem may occur at the input end, such as a failure to pace the amount of information (**cognitive load**) and/or the timing of the presentation of information (Sweller et al., 2011). To aid learning at the input stage, some suggestions are to break the material into small parts or chunks, use memory tricks and techniques (**mnemonic devices**), relate the new material to something familiar, and put it into context for learners (Collins, 2019). At the output end, it may be a retrieval problem. For example, the information has faded from lack of use, other information interferes with its retrieval (what comes before or after a learning session may well confound storage and retrieval), or individuals are motivated to forget for a variety of conscious and unconscious reasons.

This material on memory processing and functioning is highly pertinent to healthcare practice—whether in developing health education brochures, engaging in one-to-one patient education, delivering a staff development workshop, preparing community health lectures, or helping students to study for courses and examinations. Focusing on attention, storage, and memory is essential in the education of older adult patients, including the identification of fatigue, medications, and anxieties that may interfere with learning and remembering (Park et al., 2014). A common issue with older adults is they may recognize they should know the information, but they have trouble recalling names, dates, and other specifics. And, for everyone, the issue of competence versus performance is always a factor: although learners may truly know information or a skill (competence), they fail to produce it at a specific moment (performance).

Cognitive Development

This third cognitive subtheory on learning focuses on qualitative changes in perceiving, thinking, and reasoning as individuals grow and mature (Goswami, 2020; Newman & Newman, 2018). Cognitions are based on how external events are conceptualized, organized, and represented within each person's mental framework or **schema**, which is partially dependent on the individual's stage of development in perception, reasoning, and readiness to learn. In other words, age and stage of life can affect learning.

Much of the theory and research in this area has been concerned with identifying the characteristics and advances in the thought processes of children and adolescents. A principal assumption is that learning is a developmental, sequential, and active process that transpires as the child interacts with the environment, makes discoveries about how the world operates, and interprets these discoveries in keeping with what the child knows (schema).

Jean Piaget is the best known of the cognitive developmental theorists. His observations of children's perceptions and reasoning at different ages have contributed much to our recognition of the unique, changing abilities of youngsters to think, conceptualize, communicate, and perform (Piaget & Inhelder, 1969). By watching, asking questions, and listening to children, Piaget identified and described four sequential stages of cognitive development: sensorimotor, preoperational, concrete operations,

and formal operations. For details about the stages of cognitive development, see Chapter 5. These changes in perception and reasoning in children become evident over the course of infancy, early childhood, middle childhood, and adolescence, respectively.

According to Piaget's theory of cognitive learning, children take in or incorporate information as they interact with people and the environment. In this way, they build a schema of what they know. When they encounter new information or have an experience, they either make it fit with what they already know (assimilation) or change their perceptions and interpretations in keeping with the new information (accommodation). It is important to recognize that perception is the key to learning, and developmentally, there are limitations to children's reasoning at each stage. Nurses and family members need to determine what children are perceiving and how they are incorporating what they perceive into their schema in a particular situation. As an illustration, young children perceive the world from their own perspective (known as egocentricism), which can explain their sometimes magical thinking. For example, small children often believe that the moon follows them around. They also are not likely to comprehend fully that death is final and will respond to the death of a loved one in their own way. Perhaps they may ask God to give back the dead person or believe that if they act like a good person, the loved one will return to them (Gardner, 1978).

Proponents of the cognitive development perspective manifest some differences in their views that are worth considering by nurse educators. For example, while Piaget stresses the importance of perception in learning and views children as little scientists exploring, interacting, and discovering the world in a relatively solitary manner, Russian psychologist Lev Vygotsky (1986) emphasizes the significance of language, social interaction, and adult guidance in the learning process (Kurt, 2020). When teaching children, the job of adults is to interpret, respond, and give meaning to children's actions. Rather than the discovery method favored by Piaget, Vygotsky advocates clear, well-designed instruction that is carefully structured to advance each child's thinking and learning.

In practice, some children may learn more effectively by discovering and putting pieces together on their own, whereas other children benefit from a more social and directive approach. It is the health educator's responsibility to identify the child's or teenager's stage of thinking and to

provide experiences at an appropriate level for youngsters so they can actively discover and participate in the learning process. Educators need to determine whether a child learns best through language and social interaction or through perceiving and experimenting in their own way. Research suggests that young children's learning is often more solitary, whereas older children may learn more readily through social interaction (Palincsar, 1998).

What do cognitive developmental theorists say about adult learning (Merriam & Baumgartner, 2020)? First, although the cognitive stages outlined by Piaget develop sequentially, some adults never reach the formal operations stage. These adults may learn better from explicitly concrete approaches to health education. Second, developmental psychologists and gerontologists have proposed advanced stages of reasoning in adulthood that go beyond formal operations. For example, it is not until the adult years that people become better able to deal with contradictions, synthesize information, and more effectively integrate what they have learned—characteristics that differentiate adult thought from adolescent thinking (Kramer, 1983). Third, older adults may demonstrate an advanced level of reasoning derived from their wisdom and life experiences, or they may reflect lower stages of thinking resulting from lack of education, disease, depression, extraordinary stress, or medications (Quadagno, 2018; Robbett et al., 2020).

Research indicates that adults generally do better when offered opportunities for self-directed learning (emphasizing learner control, autonomy, and initiative), and they have an explicit rationale for learning. They also may do better with a problem-oriented rather than subject-oriented approach and when they have opportunities to use their experiences and skills to help others (Tennant, 2006). Educators must keep in mind too that anxiety, the demands of adult life, and past childhood experiences may interfere with learning in adulthood.

Cognitive theory has been criticized for neglecting the social context. To address this omission, the effects of social factors on perception, thought, and motivation require attention. Social learning theory, social constructivism, and social cognition are three perspectives within cognitive theory that take the social milieu into account and indicate how it affects learning, especially at the individual level.

The next perspective within the cognitive theory camp identifies some important considerations within any learner that are likely to affect learning outcomes.

Social Learning Theory

This fourth cognitive subtheory, which focuses on how people observe and learn from others, is largely based on the work of Albert Bandura (1977, 2001). His theory initially focused on role modeling (based on behaviorist principles), but then he expanded his focus on the personal characteristics of the learner (based on cognitive principles) and the influence of the environment, setting, and situation (based on social factors)—all of which affect how individuals learn. His model is briefly described as follows.

One of Bandura's early observations was that individuals do not need to have direct experiences to learn. Considerable learning occurs by taking note of other people's behavior and what happens to them, which is termed **role modeling**. Thus, learning is often a social process whereby other individuals, especially significant others, provide compelling examples or role models for how to think, feel, and act. When role models behave in a specific way, learners watch what the role models do and then copy that behavior. Baldwin et al. (2014) explored the significance of role modeling by nurse clinicians and nurse academics in influencing undergraduate nursing students' development of professional identity.

An important consideration is whether learners perceive role models as being rewarded for their actions, which is termed **vicarious reinforcement**. However, reward is not always necessary, and learners may imitate the behavior of a role model even when no reward is available to either the role model or to the learners. It is worth noting that role modeling explains how a number of positive behaviors and skills are learned. Yet, it also explains how negative behaviors may be learned.

Armstrong (2008) emphasizes that to facilitate positive learning behaviors, role models need to be enthusiastic, professionally organized, caring, and self-confident, as well as knowledgeable, skilled, and good communicators. Research indicates that nurse managers' attitudes and actions—ensuring safety, integrating knowledge with practice, sharing feelings, challenging staff nurses and students, and demonstrating

competence and willingness to provide guidance to others—influence the outcomes of the clinical supervision process (Berggren & Severinsson, 2006). How nurse mentors perceive their role is an important consideration in the leadership selection process (Coombs-Ephraim, 2016; Neary, 2000). On the other hand, negative behavior may be learned or copied when a role model displays undesirable behavior but is perceived by observers as being rewarded for it. Negative behavior that is perceived to be rewarded or is believed to receive some kind of gain may be contagious, thereby increasing negative behavior among those learning from this role model. This is one explanation for how organizational behavior may deteriorate quickly in any setting—classrooms, hospitals, corporations, government, friendship groups, and families.

Social learning theory has been popular in health care and nursing. Mentoring is one example. In nursing education, a more experienced nurse may demonstrate desirable professional attitudes, skills, and behaviors, which serves as a mentor for a less experienced colleague or student. Mentoring also is used in medical treatment. For example, patients in an early stage of an illness or injury may be paired with another patient who is further along or recovered from the problem and can serve as a role model by demonstrating to the novice patient how to cope. This kind of mentoring has been helpful for patients with addictions, cancer, heart disease, and the loss of a loved one.

Subsequently, cognitive principles were incorporated into social learning theory, which stressed the self-regulation and control that the individual exerts in the process of acquiring knowledge and changing behavior. Bandura (1977) outlined a four-step, largely internal process that directs social learning:

- Attentional phase: a necessary condition for any learning to occur. Research indicates that role models with high status and competence are more likely to be observed, although the learner's own characteristics (e.g., needs, self-esteem, competence) may be the more significant determiner of attention.
- Retention phase: the storage and retrieval of what was observed.
- Reproduction phase: the learner copies the observed behavior. Mental rehearsal, immediate enactment, and corrective feedback strengthen the reproduction of behavior.

- Motivational phase: whether the learner is motivated to perform a certain type of behavior, which is influenced by reinforcement or punishment for a role model's behavior; the learning situation; and the appropriateness of subsequent situations where the behavior is to be displayed.

Well suited to nursing education and to conducting patient education and staff development training, this organized approach to learning requires paying attention to the social environment, the behavior to be performed, and the individual learner (Aliakbari et al., 2015; Baldwin et al., 2014; Horsburgh & Ippolito, 2018).

In health care, social learning theory has been applied to nursing education, to community mental health settings, to addressing psychosocial problems, and to maximizing the use of support groups. For example, research indicates that those nurse managers who are aware of their roles and responsibilities in promoting a positive work environment are likely to enhance learning, competence, and satisfaction. Dissatisfaction, in contrast, has a detrimental effect and is a significant cause of staff turnover (Kane-Urrabazo, 2006). A major difficulty with applying social learning theory in practice is that this theory is complex and not easily operationalized, measured, and assessed.

Social Constructivism

This fifth cognitive subtheory draws heavily from gestalt psychology and developmental psychology, takes issue with some of the highly rational assumptions of the information-processing view, and builds on the work of Jean Piaget and Lev Vygotsky. According to this perspective, individuals formulate or construct their own versions of reality, which means that learning and human development are richly colored by the social and cultural context in which people find themselves. A central tenet of the social constructivist approach is that ethnicity, social class, gender, family life, self-concept, life history, and the learning situation itself all influence an individual's perceptions, thoughts, emotions, interpretations, and responses to information and experiences. A second principle is that effective learning occurs through social interaction, collaboration, and negotiation (Shapiro, 2002).

The implication is that the players in any healthcare setting may have differing perspectives on external reality, including distorted perceptions and interpretations. Every person operates on the basis of their own unique representations and interpretations of a situation, all of which have been heavily influenced by that individual's social and cultural beliefs and experiences. The impact of culture cannot be ignored, and learning is facilitated by sharing beliefs, by acknowledging and challenging differing conceptions, and by negotiating new levels of understanding (Marshall, 1998). Cooperative learning and self-help groups are examples of social constructivism in action. Given the rapidly changing age and ethnic composition in the United States, the social constructivism perspective has much to contribute to health education and health promotion efforts.

Social Cognition

This sixth cognitive subtheory highlights the influence of social factors on perception, thought, and motivation (Carlston, 2013; Fiske & Taylor, 2013), which, when applied to learning, emphasize the need for instructors to consider the dynamics of the social environment and social groups on both interpersonal and intrapersonal behavior.

As an illustration, **attribution theory** focuses on the cause-and-effect relationships and explanations that individuals formulate to account for their own and others' behavior and the way in which the world operates. Many of these explanations are unique to the individual and tend to be strongly influenced by cultural values and beliefs. For example, patients with certain religious views or a type of parental upbringing may believe that their disease is a punishment for their sins (internalizing blame); other patients may attribute their disease to the actions of others (externalizing blame). From this perspective, patients' attributions may or may not promote wellness and well-being. The route to changing health behaviors is to change distorted attributions. Nurses' prejudices, biases (positive and negative), and attributions need to be considered as well in the healing process.

Cognitive theory has been criticized for neglecting emotions, and efforts have been made to incorporate considerations related to emotions within a cognitive framework, an approach known as the **cognitive-emotional perspective**. As Eccles and Wigfield (2002) comment, "'Cold' cognitive models cannot adequately capture conceptual change; there is a need to

consider affect as well" (p. 127). Several slightly different cognitive orientations to emotions have been proposed and are briefly summarized as follows:

- Empathy and the moral emotions (e.g., guilt, shame, distress, moral outrage) play a significant role in influencing children's moral development and in motivating people's prosocial behavior, activism, and ethical responses in general (Braungart & Braungart, 2006). Increasingly it is considered an important part of health care and nursing education (Petrucci et al., 2016). Research indicates that health professionals with high levels of empathy and competence are more therapeutic in bringing about change (Moudatsou et al., 2020). Unfortunately, the organizational values and culture as well as the clinical environment in health care often work against many of the behaviors associated with empathy and compassion (Tehranineshat et al., 2019).
- Memory storage and retrieval, as well as moral decision making, involve both cognitive and emotional brain processing, especially in response to situations that directly involve the self and are stressful (Collins, 2019; Greene et al., 2001). Correcting errors and providing feedback is an important aspect of learning, memory, and performance, so people can learn from their mistakes and failures. But, as mentioned earlier, it matters how feedback is given, especially when it is negative feedback.
- **Emotional intelligence (EI)** stresses the importance of managing one's emotions, motivating oneself, reading the emotions of others, and working effectively in interpersonal relationships. Some argue EI is more crucial to leadership, social judgment, and moral behavior than is cognitive intelligence (Goleman, 1995, 2017; Mayer et al., 2008). Principles of EI have been incorporated effectively into nursing education programs (Foster et al., 2015; Sharon & Grinberg, 2018). When applied to clinical health care, emotional intelligence has proven useful in predicting nurses' well-being and satisfaction (Zeidner & Hadar, 2014), in reducing workplace stress and violence for nurses (Littlejohn, 2012), and in understanding health professionals' attitudes toward the behavior of patients in clinical and long-term care settings (Nightingale et al., 2018).
- **Self-regulation** involves learners monitoring their own cognitive processes, emotions, and surroundings to achieve goals. The ability to self-regulate has been found to be a key factor in learning and

studying (Bjork et al., 2013) and for successful living and effective social behavior (Baumeister & Vohs, 2007). Self-regulation is emphasized in social learning theory, cognitive development, and emotional intelligence.

These cognitive subtheories within the cognitive learning theory highlight the wide variation in how learners actively structure their perceptions; confront a learning situation; encode, process, store, and retrieve information; and manage their emotions—all of which are influenced by social and cultural forces. The challenge for educators is to identify each learner's level of cognitive development and the social-emotional factors that affect learning. This information can be used to find ways to encourage insight, creativity, and problem solving.

Critique

Difficulties arise, however, in ascertaining exactly what is transpiring inside the mind of each individual and in designing learning activities that encourage people to restructure their perceptions, reorganize their thinking, regulate their emotions, change their attributions and behavior, and create workable solutions. This is no small challenge. People often have a "faulty mental model of how they learn and remember" (Bjork et al., 2013, p. 417). Another factor to consider is how society contributes assumptions and attitudes that "can be counterproductive in individuals becoming maximally effective learners" (Bjork et al., 2013, p. 417). Teaching people to learn how to learn and to monitor and regulate their own learning is now considered part of the educator's job.

The next learning theory emphasizes personality and emotional development, the conflicts and tension within individuals, and the more irrational aspects of human thought, feelings, and behavior.

Psychodynamic Learning Theory

Although not typically treated as a learning theory, some of the constructs from psychodynamic theory (based on the work of Sigmund Freud and his followers) have significant implications for learning and changing behavior (Hilgard & Bower, 1966). It is largely a theory of motivation that stresses emotions rather than cognition or responses. The psychodynamic

perspective emphasizes the importance of conscious and unconscious forces in guiding behavior, personality conflicts, and the enduring effects of childhood experiences on adult behavior. This theory may be especially useful to healthcare professionals and those working in social services (Bower & Solomon, 2018; O'Loughlin, 2013). As Pullen (2002) points out, negative emotions are important to recognize and assess in nurse–patient–physician–family interactions, and psychodynamic theory can be helpful in this regard.

The Basics of Psychodynamic Learning Theory

A central principle of the theory is the idea that behavior may be conscious or unconscious—that is, individuals may or may not be aware of their motivations and why they feel, think, and act as they do. According to the psychodynamic view, the most primitive source of motivation comes from the id and is based on libidinal energy (the basic instincts, impulses, and desires humans are born with). The id includes two components: *eros* (the desire for pleasure and sex, sometimes called the life force) and *thanatos* (aggressive and destructive impulses, or the death wish). Patients who survive or die despite all predictions to the contrary provide illustrations of such primitive motivations. The id, according to Freud, operates on the pleasure principle—to seek pleasure and avoid pain. For example, dry, dull lectures given by nurse educators who go through the motions of the presentation without much enthusiasm or emotion inspire few people (patients, staff, or students) to listen to the information or heed the advice being given. This does not mean, however, that only pleasurable presentations are acceptable.

Countering the id (primitive drives) is the superego, which involves the internalized societal values and standards, or the conscience. Mediating these two opposing forces in the personality is the ego, which operates based on the reality principle. Rather than insisting on immediate gratification, people learn to take the long road to pleasure and to weigh the choices or dilemmas in the conflict between the id and the superego. Healthy ego (self) development was emphasized by Freud's followers and is an important consideration in healthcare fields. For example, patients with ego strength can cope with painful medical treatments because they recognize the long-term value of enduring discomfort and pain to achieve a positive outcome. Patients with weak ego development, in contrast, may miss their appointments and treatments or engage in short-term

pleasurable activities that work against their healing and recovery. A significant aspect of the learning and healing process involves helping patients develop ego strength and adjust realistically to a changed body image or lifestyle brought about by disease and medical interventions.

Nurses and other health professionals also require personal ego strength to cope with the numerous predicaments in the everyday practice of delivering care as they face conflicting values, ethics, and demands. Professional burnout, for example, is rooted in an overly idealized concept of the healthcare role and unrealistic expectations for the self in performing the role and may stem from nurses' childhood experiences with lack of control (Behdin et al., 2015).

When the ego is threatened, as can easily occur in the healthcare setting, **defense mechanisms** may be employed to protect the self from anxiety. The short-term use of defense mechanisms is a way of coming to grips with reality. The danger arises from the overuse or long-term reliance on defense mechanisms, which allows individuals to avoid reality and may act as a barrier to learning and transfer. **Box 3-2** describes some of the more commonly used defense mechanisms. Because of the stresses involved in health care, knowledge of defense mechanisms is useful, whether for nursing students who are grappling with the challenges of nursing education, staff nurses who are dealing with the strains of working in hospitals and long-term care facilities, or patients and their families who are learning to cope with illnesses and injuries.

Box 3-2 Ego Defense Mechanisms: Ways of Protecting the Self From a Perceived Threat

Denial: Ignoring or refusing to acknowledge the reality of a threat

Rationalization: Excusing or explaining away a threat

Displacement: Taking out hostility and aggression on other individuals rather than directing anger at the source of the threat

Repression: Keeping unacceptable thoughts, feelings, or actions from conscious awareness

Regression: Returning to an earlier (less mature, more primitive) stage of behavior as a way of coping with a threat

Intellectualization: Minimizing anxiety by responding to a threat in a detached, abstract manner without feeling or emotion

Projection: Seeing one's own unacceptable characteristics or desires in other people

Reaction formation: Expressing or behaving the opposite of what is really felt

Sublimation: Converting repressed feelings into socially acceptable action

Compensation: Making up for weaknesses by excelling in other areas

As an example of defense mechanisms in health care, Kübler-Ross (1969) points out that many terminally ill patients' initial reaction to being told they have a serious threat to their health and well-being is to employ the defense mechanism of denial. Patients typically find it too overwhelming to process the information that they are very ill or likely to die. Although most patients gradually accept the reality of their illness, the dangers are that if they remain in a state of denial, they may not seek treatment and care, and if their illness is contagious, they may not protect others against infection. Consider the varied reactions to the realities of the COVID-19 pandemic in the United States in 2020, with some people refusing to follow medical guidelines and clearly in denial that the virus could infect them and that they could infect others (Marples, 2020).

On the healthcare side, a common defense mechanism employed by medical staff is to intellectualize the significance of disease and death rather than to deal with these issues realistically at an emotional level. This defense mechanism may contribute to the reported tendency of oncologists to ignore, rather than address, the emotions that patients express during communication (Pollak et al., 2007). One study found that in responding to patients expressing fear, oncologists more often addressed the topic causing the fear rather than addressing the emotion itself (Kennifer et al., 2009). Telford and colleagues (2006) reported that nurses may strive to categorize terminally ill patients within a Kübler-Ross denial–acceptance framework too quickly and, as a result, may not listen to patients as they attempt to tell their stories and interpret their illness experiences. Protecting the self (ego) by dehumanizing patients and treating them as diseases and body parts rather than as whole individuals

(with spiritual, emotional, and physical needs) is an occupational hazard for nurses and other health professionals.

Another central assumption of psychodynamic theory is that personality development occurs in stages, with much of adult behavior derived from earlier childhood experiences and conflicts. One of the most widely used models of personality development is Erikson's (1968) eight stages of life, with the model organized around a psychosocial crisis to be resolved at each stage (Cherry, 2020). Including considerations of the patient's stage of personality development is essential in health care when designing and carrying out treatment regimens, communication, and health education. For example, an adolescent's developmental need to have friends and to find an identity requires special attention in health care. Adolescent patients may benefit from help and support in adjusting to a changed body image and in addressing their fears of weakness, lack of activity, and social isolation. One danger is that young people may treat their illness or impairment as a significant dimension of their identity and self-concept—a perspective well described in poet Lucy Grealy's (1994) personal account in *Anatomy of a Face*.

According to the psychodynamic view, difficulties arise and learning is limited when individuals become fixated or stuck at an earlier stage of personality development. They then must work through their previously unresolved crises to develop and mature emotionally. For example, some staff members and patients feel an inordinate need to control the self, other people, and certain social situations. This behavior may be rooted in their inability to resolve the crisis of trust versus mistrust at the earliest stage of life. In working with these individuals, it is important to build a trusting relationship and to encourage them to gradually relinquish some control.

In some cases, past conflicts, especially during childhood, may interfere with the ability to learn or to transfer learning. What people resist talking about or learning—a process termed **resistance**—is an indicator of underlying emotional difficulties, which must be dealt with for them to move ahead emotionally and behaviorally. For instance, if a pregnant teenager refuses to engage in a serious conversation about sexuality (e.g., changes the subject, giggles, looks out into space, expresses anger), this behavior indicates that she has underlying emotional conflicts that need to be addressed. One study explored psychodynamic sources

of resistance among nursing students and examined how they engaged with or resisted the learning process. A number of factors requiring consideration surfaced in this research, including childhood struggles, a history of overadaptation, self-image, and learning climate (Gilmartin, 2000).

Emotional conflicts are not always caused by internal forces, however; society exerts pressures on individuals that promote emotional difficulties as well. The reluctance of health professionals to be open and honest with terminally ill patients may be derived to some extent from American culture, which encourages medical personnel to “fix” their patients and extend life. Staff members may or may not be conscious of these pressures, but either way they may feel guilty and perceive themselves as failures when dealing with a patient who is dying.

The concept of transfer has special meaning to psychodynamic theorists. **Transference** occurs when individuals project their feelings, conflicts, and reactions—especially those developed during childhood with significant others such as parents—onto authority figures and other individuals in their lives. The danger is that the relationship between the health professional and the patient may become distorted and unrealistic because of the biases inherent in the transference reaction. For example, because patients are sick, they may feel helpless and dependent and then regress to an earlier stage in life when they relied on their parents for help and support. Their childhood feelings and relationship with a parent—for better or worse—may be transferred to a nurse or physician taking care of them. Although sometimes flattering, the love and dependency that patients feel may operate against the autonomy and independence they need to get back on their feet. A particular patient also may remind a staff member of someone from their past, creating a situation of countertransference.

Critique

The psychodynamic approach reminds nurses to pay attention to emotions, unconscious motivations, and the psychological growth and development of all those involved in health care and learning. The success of health care rests on both interpersonal and intrapersonal processes integral to the therapeutic use of the self in carrying out patient care (Gallop & O’Brien, 2003). Psychodynamic theory can be applied to

nursing education (Allen, 2011), trauma and resilience across generations (Lehrner & Yehuda, 2018), patient and family noncompliance (Menahern & Halasz, 2000), trauma and loss (Duberstein & Masling, 2000), and a host of other emotionally charged situations nurses experience in health care.

The psychodynamic approach has been criticized because much of the analysis is speculative and subjective, and the theory is difficult to operationalize and measure. Psychodynamic theory also can be used inappropriately; it is not the job of nurses with little clinical psychology or psychiatric training to probe into the private lives and feelings of patients to uncover deep, unconscious conflicts. Another danger is that nurses and other health professionals may use the many psychodynamic constructs as a way of intellectualizing or explaining away, rather than dealing with, people as individuals who need emotional care.

Nonetheless, the psychodynamic perspective is helpful in more fully understanding learning and teaching because it highlights a number of underlying considerations and subtleties in the process, such as motivations, emotional development, and internal conflicts related to learning. It also gives focus to problems with learning or with the teacher–learner relationship as well as the difficulties involved in unlearning destructive behaviors, reactions, and responses. Keep in mind that conflict—whether internal or external or both—is a sign something is wrong that needs to be addressed, for according to psychodynamic theory, it is by dealing with and working through conflicts that true psychological change, learning, and growth occur.

Compared to psychodynamic theory, the next theory reflects more positive assumptions about people's motivations, but also focuses on the controlling influence of emotions in learning behavior, growth, and creativity.

Humanistic Learning Theory

Underlying the humanistic perspective on learning is the assumption that every individual is unique and that all individuals have a desire to grow in a positive way. Unfortunately, positive psychological growth may be damaged by some of society's values and expectations (e.g., males are less emotional than females, some ethnic groups are inferior to others,

making money is more important than caring for people) and by adults' mistreatment of their children and one another (e.g., inconsistent or harsh discipline, humiliation and belittling, abuse and neglect). Spontaneity, the importance of emotions and feelings, the right of individuals to make their own choices, and human creativity are the cornerstones of a humanistic approach to learning (Rogers, 1994; Snowman & McCown, 2015). Humanistic theory is especially compatible with nursing's focus on caring and patient centeredness—an orientation that is increasingly being challenged by an emphasis in medicine and health care on "impersonal" science, technology, cost efficiency, for-profit medicine, bureaucratic organization, and time pressures.

The Basics of Humanist Learning Theory

Like the psychodynamic theory, the humanistic perspective is largely a motivational theory directed toward learning and socio-emotional growth as a human being. From a humanistic perspective, motivation is derived from each person's needs, subjective feelings about the self, and the desire to grow. The transfer of learning is facilitated by curiosity, a positive self-concept, and open situations in which people respect individuality and promote freedom of choice. Under such conditions, transfer is likely to be widespread, enhancing flexibility and creativity.

Abraham Maslow (1954, 1987), a major contributor to humanistic theory, is perhaps best known for identifying the **hierarchy of needs**, which he says plays an important role in human motivation and self-development. The hierarchy of needs is organized from lowest-level needs to highest-level needs:

- Physiological needs: basic survival needs of food and water, warmth, sleep
- Safety needs: security, protection, freedom from fear
- Belonging and love needs: intimacy, friendships, giving and receiving affection or love
- Self-esteem needs: the desire for recognition, self-esteem, respect, power
- Self-actualization needs: the drive for creativity, originality, maximizing one's potential

Maslow posited that there are additional needs for some people, which may include cognitive needs (the desire to know and understand) or aesthetic needs (the desire for beauty).

Within this model, it is assumed that basic-level needs must be met before individuals can be concerned with learning and self-actualizing. Thus, clients who are hungry, tired, and in pain are motivated to get these biological needs met before they will be open to learning about their illness, rules for self-care, and health education. Although this model is intuitively appealing, research findings in support of Maslow's hierarchy of needs have been inconsistent. For example, although some people's basic needs may not be met, they may nonetheless engage in creative activities, extend themselves to other people, feel a subjective sense of well-being, and enjoy learning (Tay & Diener, 2011).

Besides personal needs, humanists contend that self-concept and self-esteem are necessary considerations in any learning situation. The therapist Carl Rogers (1961, 1994) argues that what people want is unconditional positive self-regard (the feeling of being loved without strings attached). Experiences that are threatening, coercive, and judgmental undermine the ability and enthusiasm of individuals to learn. Therefore, those in positions of authority need to convey a fundamental respect for the people with whom they work. If a nurse is prejudiced against patients with AIDS, for example, then little will be healing or therapeutic in that nurse's relationship with these patients until the nurse genuinely is able to feel respect for each patient as an individual.

Rather than acting as an authority, say humanists, the role of any educator or leader is to serve as a facilitator (Rogers, 1994). Listening—rather than talking—is the skill needed. Because the uniqueness of the individual is fundamental to the humanistic perspective, much of the learning experience requires a direct relationship between the educator and the learner, with instruction being tailored to the needs, self-esteem, and positive growth of each learner. Learners—not educators—choose what is to be learned. Within this framework, educators serve as resource persons whose job is to encourage learners to make wise choices. Because the central focus is on learners' perceptions, desires, and decision making, the humanistic orientation is referred to as a learner-directed approach, which is slightly different from a learner-centered or student-centered approach.

In contrast to behaviorist and cognitive theories, mastering information and facts is not the central purpose of the humanistic model of learning. Instead, fostering curiosity, enthusiasm, initiative, and responsibility is considered more important and enduring and should be the primary goal of any educator. For example, rather than playing health education videos for hospitalized patients to view or routinely distributing lots of pamphlets and pages of small-print instructions, the humanistic perspective would suggest establishing rapport and becoming emotionally attuned to patients and their family members. In professional education, the goal is to provide psychologically safe classrooms and clinical environments, where humanistic principles can be taught through caring, role modeling, small-group interactions, and case discussions. Attention to self-awareness and feelings are crucial. Helpful techniques include role-play, listening exercises, and filming students in the clinical setting (Biderman, 2003). Providing time for student reflection is essential, and instructor feedback must be given sensitively and thoughtfully (Fryer-Edwards et al., 2006).

Feelings and emotions are the keys to learning, communication, and understanding in humanistic psychology. Humanists worry that in today's stressful society, people can easily lose touch with their feelings, which sets the stage for emotional problems and difficulties in learning (Rogers, 1961). To humanists, "Tell me how you feel" is a much more important instruction than "Tell me what you think" because thoughts and admonitions (the latter of which Rogers calls "the shoulds") may be at odds with true feelings. Consider the implications of the following statement made by a young person who says, "I know I should go to medical school and become a doctor because I am smart and that is what my parents want, but I don't feel comfortable with people who are sick—I don't even like them!"

It also has been argued that the current structure of medicine and health care works against the basic principles of humanist learning theory. For example, the practice of medicine today is not patient-centered; it is business-centered (Khademi et al., 2017). Patients and staff may be dehumanized in the bureaucratic structure of health care. Should and can this culture of medicine be changed, and, if so, how? Gillman and colleagues (2015) reviewed a number of studies of nurses caring for cancer patients. They offered suggestions to promote coping and resilience in these nurses and concluded that the organizational culture

and support are integral to fostering these goals and in reducing nursing stress and burnout.

The humanistic learning theory has modified the approach to education, clinical treatment, and changing behavior by giving primary focus to the subjective needs and feelings of the learner and by redefining the role of the educator. Humanistic principles have become a cornerstone of healing and holistic health, self-help groups, wellness programs, and palliative care. As in psychodynamic theory, a principal emphasis is on the healing nature of the therapeutic relationship (Pearson, 2006) and the need for nursing students and staff to grow emotionally from their healthcare experiences (Block & Billings, 1998; UKEssays, 2018).

Critique

The theory has its weaknesses as well. Research has not been able to substantiate some of its strongest claims, and the theory has been criticized for promoting self-centered learners who cannot take criticism or compromise their deeply felt positions. Charged with being more of a philosophy—or a cult—than a science, humanism has a touchy-feely aspect that makes some learners and educators feel truly uncomfortable. Moreover, information, facts, memorization, drill, practice, and the tedious work sometimes required to master knowledge—which humanists minimize and sometimes disdain—have been found to contribute to significant learning and skill development (Gage & Berliner, 1992).

Following in the tradition of humanistic theory is positive psychology, which is more oriented to health and well-being than to learning per se (Lopez et al., 2019). The emphasis is on positive emotions and optimism, which appears to make it well suited to health care. However, while some family members and medical professionals may earnestly encourage patients to be positive and “think themselves well,” this pressure can overburden some patients. Why? If they do not improve and their illness or injury worsens, patients may blame themselves (or be blamed by others) for failing to think positively.

Neuropsychology and Learning

A rapidly growing area of psychology research involves investigations into the physiological and neurological foundations of thinking, learning, and behavior. **Neuropsychology** is the scientific study of psychological behavior based on neurological assessments of the brain and central nervous system. Neuropsychology is not a theory but a body of research that may be applied to psychological aspects of behavior, including learning (Banich et al., 2021; Kolb & Whishaw, 2021; Sousa, 2012).

Neuropsychology is a branch of psychology that contributes to the neurosciences, which draws researchers from medicine, chemistry, physiology, engineering, physics, and other disciplines. Neuroscientists are concerned with studying the brain and central nervous system's structures, anatomy, chemistry, electrical activity, hormones, and neurotransmitters as these affect functioning and behavior. From this perspective, learning is viewed as involving changes in the brain and central nervous system that affect responses and behavior. To these researchers, learning occurs at the cellular level and produces changes in brain structure, wiring patterns, and chemistry (Collins, 2019). For example, neuropsychologists have used neuroimaging to reveal the influence of emotions on learning (Tyng et al., 2017) and on moral decisions (Greene et al., 2001), and to assess how effective people are at reading the emotions of others (Spunt & Adolphs, 2017).

Much of the information in neuropsychology has been gained through advances in neuroimaging techniques, such as functional magnetic resonance imaging (fMRI) and positron emission tomography (PET). Other methodologies employed include animal studies based on surgery, electrical recordings such as electroencephalograms (EEG) and event-related potentials (ERP), and case studies of children and adults with head trauma, brain lesions, and neurological abnormalities (Byrnes, 2001). The resulting

findings highlight the underlying biological mechanisms of learning and provide evidence to support some of the principal constructs and dynamics of existing learning theories.

In synthesizing neuropsychology research, many generalizations about learning can be made (Collins, 2019; Gazzaniga, 2000; Page, 2006; Phelps, 2006; Prichard, 2014; Shors, 2006; Silverstein & Uhlhaas, 2004). Each of the following generalizations has implications for health education in the clinical setting, and readers are encouraged to formulate applications to nursing and health care:

- Emotions have been found to play a key role in Pavlovian conditioning, information processing, memory, and motivation. Emotions are considered to interact with cognitive factors in any learning situation, suggesting that they cannot be ignored when teaching, learning, reasoning, or making decisions.
- Neuropsychology research has confirmed the validity of many learning theories and constructs, including gestalt principles, constructivism, Piaget's notions of assimilation and accommodation, and Freud's conceptualization of conscious and unconscious processes.
- In studying the dynamics of brain and central nervous system processing of information, this research has documented the role of physiological arousal and has tracked attention, perception, and the organization of experience while learning.
- Learning is a function of physiological and neurological developmental changes that are ongoing and dynamic; the brain is now viewed as less fixed than once thought, and it changes with learning and experience (a phenomenon called **plasticity**).
- Brain processing is different for each learner; thus, methods of gaining the learner's attention, controlling the amount and pace of learning, and identifying the specific mechanisms for enhancing learning are unique for each person.
- Meaningful practice strengthens learning connections, which may fade from lack of use; therefore, one-shot patient education efforts are not likely to be effective in permanently changing behavior.

- Stress can interfere with or stimulate learning, although the responses to stress may change with age and differ for males and females and for those who have experienced traumatic events.
- Neuropsychology research has confirmed that learning is an active, multifaceted, complex process that involves preferred and interacting sensory modes. It is colored by the past and present social context and is regulated largely by the learner based on their development, physiological state, experiences, and sense of self.

Think for a moment about the implications of these neuropsychology findings for healthcare education and practice.

Neurophysiological aspects of learning become even more germane for children and adults with physiological disorders; for individuals with mental, emotional, and behavioral problems; and for persons facing the stresses of trauma, disease, disability, and socioeconomic hardship. The following are some implications for teaching, learning, and memory (Collins, 2019; Prichard, 2014). These recommendations also confirm psychological and motor learning theories discussed in this chapter. Readers may want to identify which learning theories pertain to each recommendation.

- Consider the physiological, mental, and emotional condition of the learner, such as nutrition, hydration, the need for stimulation or rest, novelty, and adequate time to process, store, and relate information.
- Gaining the individual's attention is the first and perhaps most essential step in learning.
- Organize and pace learning; be playful and explore.
- Anchor new learning to something already known or familiar; put the learning into context.
- Take breaks, including the opportunity to exercise or shift focus, to allow the learning to "sink in" or incubate.
- The individual exerts control over whether learning occurs, what is learned, and whether it is learned accurately and transferred

to other settings.
- And yes, we can teach old dogs new tricks—thanks to brain plasticity. But there are physiological and developmental limits regarding what is reasonable and possible for every individual, with special considerations related to learning in children, older adults, and people with disabilities.

Critique

A few cautions: Despite numerous neuroscientific studies related to learning, this line of research remains fragmented, scattered, and lacking in integration. In addition, neuropsychological studies may be based on animal research or involve highly specialized and restricted human samples. As a result, few broad generalizations can be made based on such limited samples. And as Murphy (2016) points out, there are issues with the various equipment and techniques used to measure and assess neuropsychological activity along with the challenge of inferring what it all means for human behavior and learning in real-world settings.

Although addressing the various biological connections to learning and behavior is currently a popular and relatively well-funded area of research, there is a risk of reducing human behavior to mere biology. Critics charge that this narrow focus ignores the individual as a person and neglects the significance and complexity of psychological and social processes in any learning situation. As Prichard (2014) argues, “brain-based learning” oversimplifies learning (p. 116). Another of his criticisms is that this physiological explanation for learning has produced a “commercial bandwagon” for companies to exploit to make money, such as computer games and costly workshops to “train the brain.” With so much emphasis on the brain and physiology in learning, considerations related to the learner as a person and the effects of culture and the social environment on learning easily can be forgotten. It is worth noting that **neuroethics** is a relatively new field that is concerned with the ethical, legal, and social effects of neuroscience and neuropsychology (Farah, 2012). Criticisms aside, the research and concepts derived from

neuropsychology have aided in better understanding the process of learning and are especially useful to nurses who are educating patients dealing with medical and health problems.

Comparison of Learning Theories

Table 3-1 provides a comparative summary of the four psychological learning theories outlined in this chapter. Nurse educators can make generalizations about both the differences and the similarities in what the theories say about acquiring knowledge and changing feelings, attitudes, and behavior. With respect to some of the differences among the theories, each theory has its own assumptions, vocabulary, and way of conceptualizing the learning process. The theories differ in their emphasis on the relative influence of external or internal factors in learning, the view of the learner as more passive or active, the task of the educator, the explanation for motivation, and the way in which the transfer of learning is accomplished.

Table 3-1 Summary of Learning Theories

Learning Procedures	Assumptions About the Learner	Educator's Task	Sources of Motivation	Transfer of Learning
Behaviorist				
Environmental stimulus conditions and reinforcement promote changes in responses. To change behavior, change the environment.	Passive, reactive learner responds to environmental conditions (stimuli and reinforcement).	Active educator manipulates stimuli and reinforcement to direct learning and change.	Drive reduction	Practice Similarity in stimulus conditions and responses between learning and new situations.
Cognitive				
Internal perception and thought processing within a context of human development promote learning and change. To change behavior, change cognitions.	Active learner determines patterning of experiences, which is strongly influenced by gestalt, learning style, development, role modeling, social factors, attributions, and emotional intelligence.	Active educator structures experiences (through organization and meaningfulness) to encourage the reorganization of cognitions.	Goals Expectations Disequilibrium	Mental and physical activity Common patterns Understanding Learning to learn
Psychodynamic				
Internal forces such as developmental stage, childhood experiences, emotional conflicts, and ego strength influence learning and change. To change behavior, change interpretations and make unconscious motivations conscious.	Active learner's personality development, past experiences, and current emotional conflicts influence what is learned and how it is remembered and performed.	Educator as a reflective interpreter makes sense of learner's personality and motivation by listening and posing questions to stimulate conscious awareness, insight, and ego strength.	Pleasure principle and reality principle Tension and imbalance Conscious and unconscious influence of conflict, development, and defense mechanisms.	Personality conflict, resistance, and transference associated with learning situations may act as barriers to transfer.
Humanistic				
Internal feelings about self, ability to make wise choices, and needs affect learning and change. To change behavior, change feelings, self-concept, and needs.	Active learner attempts to actualize potential for positive self-growth and confirm self-concept; learner is spontaneous, creative, and playful.	Facilitative educator encourages positive self-growth, listens empathetically, allows freedom of choice, and respects learner.	Needs, desire for positive self-growth, and confirmation of self-concept.	Positive or negative feelings about self and freedom to learn, promote, or inhibit transfer.

Description

A logical question is which of these four theories best describes or explains learning—which theory, in other words, would be the most helpful to nurses interested in increasing knowledge or changing the behavior of patients, staff, or themselves? The answer to this question is that each theory contributes to understanding various aspects of the learning process and can be used singly or in combination to help practitioners acquire new information and alter existing thoughts, feelings, and behavior.

Each theory highlights important considerations in any learning situation, involving the relative influence of external social factors and internal psychological processing. For example, behaviorists urge nurses in the role of teaching others to pay attention to and change stimulus conditions and to provide reinforcement to alter behavior. Although criticized for being reductionistic, behaviorism is admittedly simpler and easier to use than trying to undertake a massive overhaul of an individual's internal dynamics (perceptions, cognition, memory, feelings, and personality history and conflicts). Moreover, asking someone first to behave in a more appropriate way (abstaining from bad habits and engaging in healthy behavior) may not be as threatening or daunting to the learner as it is to suggest the need for internal personality changes. Desired responses are modified and strengthened through practice, and the new learned responses, in turn, may lead to more fundamental changes in attitudes and emotions. The behaviorist aspects of cognitive social learning subtheory are relatively straightforward as well, such as using effective role models, who, by their example, demonstrate exactly what behaviors are expected and are perceived as rewarded.

Cognitive, psychodynamic, and humanistic theories remind nurses to consider internal factors—perceptions, thoughts, ways of processing information, feelings, and emotions. When teaching others, nurses cannot afford to ignore these factors because, ultimately, the learner controls and regulates learning—or how information is perceived, interpreted, and remembered and whether the new knowledge is expressed or performed.

In practice, psychological learning theories should not be considered mutually exclusive but rather they operate together to change attitudes and behavior. As an illustration: highly anxious patients undergoing painful procedures are first taught systematic desensitization

(behaviorist), and while experiencing pain or discomfort are encouraged to employ imagery, such as thinking about a favorite, beautiful place or imagining the healthy cells gobbling up the unhealthy cells (cognitive). Staff members are respectful, upbeat, and emotionally supportive of each patient (humanistic) and create the time and opportunity to listen as patients discuss some of their deepest fears and concerns (psychodynamic). Waiting rooms and lounge areas for patients and their families are designed to be comfortable, friendly, and pleasant (gestalt) to facilitate conversation and interaction (humanist). Support groups may help patients and family members learn from one another about how to cope with illness or disability and how to regulate their emotions so that their health is not further compromised (cognitive). And it always needs to be kept in mind that learning requires attention and active brain processing, which are affected by the physiological state of the learner, often involve emotions, and depend on the organization, pace, and amount of material to be learned and practiced (neuropsychology, cognitive).

Another generalization from this discussion is that some psychological learning theories are better suited to certain kinds of individuals than to others. Theoretical assumptions about the learner range from passive to highly active. Passive individuals may learn more effectively from behaviorist techniques, whereas curious, highly active, and self-directed persons may do better with cognitive and humanistic approaches. Also, educators must keep in mind that some learners require external reinforcement and incentives, whereas other learners do not seem to need—and may even resent—attempts to manipulate and reinforce them. Individuals who are well educated, verbal, and reflective may be better candidates for cognitive and psychodynamic approaches, whereas behaviorist approaches may be more suitable for persons whose cognitive processes are impaired or who are uncomfortable dealing with abstractions or scrutinizing and communicating their thoughts and emotions.

In addition, an individual’s preferred modes of learning and processing (learning style) may help determine the selection of suitable theoretical approaches. That is, although some individuals learn by acting and responding (behaviorist), the route to learning for others may be through perceptions and thoughts (cognitive) or through feelings and emotions (humanistic and psychodynamic). When teaching a group, multiple

approaches and ways of processing information are needed. Most people appear to benefit from demonstration and example (social learning).

This next section discusses learning theories and research in the area of motor learning. Many detailed and excellent studies have contributed to better approaches to understanding and working with learning, unlearning, and relearning motor skills. Readers will recognize the use of psychological learning theory principles as applied to motor learning.

Motor Learning

Because nurses teach motor skills to patients, family members, staff, and students at one time or another, it is important for them to explore theories and applications of motor learning in addition to theories of psychological learning (Cano-de-la-Cuerda et al., 2015). Theories and variables of motor learning are useful when teaching skilled movement-related activities in a variety of settings, ranging from acute care to rehabilitation to home care. The patient learning to walk with crutches, the student learning to take a blood pressure, the nurse learning to irrigate an indwelling catheter, and the family member learning to assist with ostomy care can all benefit from the application of motor learning principles. The objective of this section is to summarize selected aspects of this topic that are relevant and applicable to a wide variety of teaching and learning situations involving nurses, patients, colleagues, and students. The discussion here is not intended to provide an exhaustive review of the vast topic of motor learning.

Nurses teach patients and family members an assortment of skills that can range from walking to putting on a colostomy bag, and they teach students and colleagues skills that range from simple procedures to operating sophisticated medical equipment. Using theory and evidence to support and guide them as they teach motor skills can help make nurses' instruction more effective and efficient. **Motor learning** is defined as "a set of processes associated with practice or experience leading to relatively permanent changes in the capability for movement" (Schmidt et al., 2019, p. 283). It differs from **motor performance**, which involves initial acquisition of a skill but not necessarily long-term retention of that skill (Schmidt & Lee, 2020).

All too often, nurses tend (erroneously) to equate *performance* of a skill with *learning*. For example, a nurse may demonstrate a skill to the patient, such as changing a sterile dressing, and then ask the

patient to “teach back” the skill. If the patient does it relatively accurately, it is assumed that the skill has been “learned.” Yet when the patient is asked to carry out the skill 2 days later during a home visit, the patient may not be able to perform the skill. They may struggle with the order of the steps of changing the dressing, or forget how to keep the field sterile, or not be able to manipulate the bandages. As this example suggests, performance in the moment is not always an accurate reflection of learning because the performance can be influenced by many variables, and the changes observed in the skill may be only temporary. Retention, which involves accurately demonstrating a skill over time and after a period of no practice, indicates that true learning has occurred (O’Sullivan et al., 2019).

Multiple theories of motor learning have been proposed (Adams, 1971; Newell, 1991; Schmidt, 1975; Wulf & Lewthwaite, 2016), as is true for theories related to stages of learning motor skills (Fitts & Posner, 1967; Gentile, 1972). Each theory has its own clinical implications and limitations. Applying different aspects of these theories to patient care and education is challenging because so many variables affect the desired outcome and because research in this area often yields contradictory results. Different individual characteristics, different types of tasks and skills, and different environments all affect a patient’s, student’s, or staff member’s ability to learn a motor skill.

Stages of Motor Learning

Similar to Cronbach’s concept of the learning curve (see Chapter 10), Fitts and Posner’s (1967) three-stage sequential model of motor learning is a classic model that provides a framework for nurses to use as they organize learning strategies for patients, students, and staff. It is important to note that the stages are not discrete and fixed, but have “fuzzy” borders (Schmidt et al., 2019, p. 376). Within this model, the three phases of skill learning are identified as follows:

1. The cognitive stage

2. The associative (fixation) stage
3. The autonomous stage

In the first (cognitive) stage, the learner works to develop an overall understanding of the skill, called the **cognitive map (cognitive plan)**—basically solving the problem of "what is to be done." Learners must consciously focus and pay attention in this stage. The use of instructions, models, augmented feedback, and various other training techniques is most effective in this stage because they assist the learner in the problem-solving process (Schmidt et al., 2019). Instructional strategies for the educator during this stage include:

- Emphasizing the purpose of the skill in a context that is functionally relevant to the learner
- Pointing out similarities to other learned motor skills
- Minimizing distractions
- Using clear and concise instructions
- Demonstrating ideal performance of the skill
- Breaking down complex movements into parts, where appropriate
- Encouraging the learner to verbalize the instructions and watch the movement
- Pointing out the distance and speed of the movement
- Emphasizing the importance of controlled movements
- Pointing out sensory cues (intrinsic feedback) to which the learner should attend
- Using a variety of forms of feedback (verbal, tactile, and visual) and varying the feedback
- Providing some manual guidance but also allowing for errors in performance (Kisner et al., 2018; O'Sullivan, 2019)

Initially, nurses can expect irregular performance with many errors. Eventually, however, learners become able to process sensory cues and organize their perceptual-motor system to carry out reasonable approximations of the skill (O'Sullivan, 2019). Rapid improvement but variable performance characterizes this stage.

The fixation (associative) stage of motor learning entails more consistent performance with fewer errors or extraneous movements and slower gains (Kisner et al., 2018; Schmidt et al., 2019). The patient, student, or staff nurse focuses on “how to do” the skill. The goal in this stage is to fine-tune the skill through continued practice. During this stage, better organization is evident, the movement becomes coordinated and more accurate, and the learner is able to detect and self-correct movement errors when they occur (Kisner et al., 2018; O’Sullivan, 2019). Dependence on visual cues decreases and movement feedback becomes more important. In this stage, nurses can continue to provide opportunities for practice, emphasizing how the movement feels and assisting learners in finding the safest and most efficient ways to carry out the skills. Helpful instructional strategies for this stage include the following:

- Increasing the complexity of the task
- Increasing the level of distraction in the environment
- Encouraging learners to practice independently, with emphasis on problem solving
- Practicing a greater number and variety of movements
- Decreasing the total amount of guidance and feedback but increasing the specificity of feedback
- Avoiding manual guidance but continuing to provide augmented feedback (Kisner et al., 2018)

Nurses should promote learner self-assessment by encouraging identification of both mistakes and success before providing feedback. They should intervene only when errors appear to be consistent (O’Sullivan, 2019).

The third and final (autonomous) stage of motor learning is the automatic stage, during which speed and efficiency of performance gradually improve and which requires little attention and conscious information processing (O’Sullivan, 2019). An advanced level of skill is achieved, and the learner can perform different tasks simultaneously and in changeable environments. In this stage, learners no longer must “think about” the skill. Nurses can set up

progressively more difficult activities in this stage that the learner can perform independently and provide more challenging environments (Kisner et al., 2018). Unfortunately, some patients with disabilities never reach this stage, and most patients are discharged from healthcare facilities before reaching this stage.

Motor Learning Variables

It is clear from a review of motor learning research that the variables of practice and feedback have widespread clinical applications for nurses. Gaining an understanding of these variables can assist nurses in optimizing their motor-skill teaching with patients, family members, students, and staff.

Prepractice

Certain variables can influence motor learning even before the learner begins to practice the skill. Nurse educators, for example, must be concerned with prepractice variables that include motivation, attention, goal setting, and an understanding of the task (Kisner et al., 2018). These variables are particularly important when nurses work with patients who have illnesses or disabilities that may impair their ability to focus on a task. Goals should be measurable and achievable and should focus on a functional task. Family members and patients should have input into the goals, and the task should be meaningful to the learner. In addition, the nurse must determine whether the learner understands the goals and the strategies for achieving a task and is able to pay attention to the task. Modeling and/or demonstration almost always should be part of any teaching task.

For example, a nurse working in the home care setting with a patient who is recovering from a stroke may believe the most important goal for the person is to be independent in self-monitoring his blood pressure. The patient, in contrast, might believe that being able to use the toilet independently is all he wants to work on, claiming that

he does not feel comfortable having his wife help him in the bathroom. For the nurse to take advantage of the patient's drive and enthusiasm, it makes sense to set this task as an initial goal and work at a later time on the self-monitoring of his blood pressure. Before teaching the patient how to safely use the toilet, the nurse makes sure the patient pays close attention as she explains the steps that are involved with safely getting on and off the toilet, and she confirms that he has a verbal understanding of those activities. The stage is now set for the nurse to demonstrate and then practice this task with him.

Practice

Practice is likely the single most important factor in developing and retaining motor skills (Kisner et al., 2018). The amount, type, and variability of practice all affect how well a target skill is acquired and retained. Because skill in performance generally increases as a direct function of time spent practicing, staff and family members need to continuously reinforce the skills taught by nurses and other health professionals. This emphasis on reinforcement reflects behaviorist theory, as discussed previously in this chapter.

Types of practice variables include massed versus distributed practice, variability of practice, whole versus part practice, random versus blocked practice, guidance versus discovery learning, and mental practice. Each type of practice has advantages and disadvantages and specific populations for which it is better suited.

Massed practice is a sequence of practice and rest times in which work periods are run very close together with either no rest at all or very brief rest periods between periods of work (Schmidt et al., 2019). For example, nurses may use massed practice when teaching students to take blood pressure readings. The nurse educator might ask the student to practice taking 15 blood pressure readings in sets of 3 with only a short period of rest between sets. Massed practice can lead to fatigue and possible injury, so it must be used with caution when treating at-risk populations. This type of

practice has been shown to markedly decrease motor performance in continuous tasks (such as walking, which involves repetitive, uninterrupted movements), but the decrease in performance that occurs with massed practice does not seem to negatively affect retention (Shumway-Cook & Woollacott, 2017). This finding likely reflects the effect of fatigue in masking the original learning outcomes during massed practice. Massed practice is useful when working with individuals with high levels of motivation and skill who exhibit good endurance, attention, and concentration (O'Sullivan, 2019).

In contrast, **distributed practice** consists of spacing the periods of work apart with longer intervals of rest (Schmidt et al., 2019). This format is more typical of the type of practice nurses might use in a hospital setting where, because of the severity of their conditions, patients need frequent rest periods as they learn to manipulate necessary medical equipment, walk, or perform self-care activities. Distributed practice results in the most learning in relation to training time, but the total training time is typically increased as compared to massed practice (Schmidt et al., 2019). It is the preferred mode of practice for individuals with limited endurance and for those who are at risk of injury—a description that applies to many of the patients seen in the healthcare environment (O'Sullivan, 2019).

An important goal for learning new motor skills is that patients, staff, and students are able to transfer their learning to new situations or new tasks. For example, nurses often teach patients how to get in and out of the chair next to their hospital bed. The goal is that patients can transfer the learning to the new situations they face at home when they try to get in and out of their own kitchen and living room chairs. Generally, the transfer of motor skills from one task to another is usually small but positive. Researchers have noted that the more closely the sensory, cognitive, and motor processing demands in the practice environment resemble those in the actual environment, the better the transfer of learning will be (Schmidt et al., 2019; Winstein, 1991a). For this reason, it is important to use a variety of chairs in the hospital that resemble chairs at home when

teaching this task and not to only limit practice to the chair next to the bed.

Variable practice conditions also appear to increase an individual's ability to generalize learning to new situations and seem to be particularly effective for children (Schmidt et al., 2019). According to Shumway-Cook and Woollacott (2017), using variable practice conditions may be most important when teaching tasks that the patient will perform in diverse conditions. For example, patients need to practice walking under as many different conditions as possible (e.g., in a busy corridor, in a narrow hallway, on different surfaces) to help them generalize the skill to the novel conditions and environments they will face when they return home. With regard to self-care tasks such as self-catheterization, patients need to practice these types of tasks in multiple settings, such as in bed, on a commode, and in a public restroom.

Nurses often break down tasks into component parts (**part-practice**) for easier learning. The effectiveness of this type of teaching depends on the type of task they are trying to teach the patient or other learner. Part-practice is appropriate for tasks that are high in complexity and low in organization (Magill & Anderson, 2021). Breaking tasks into smaller units is an effective way to teach tasks that can be naturally divided into segments that reflect the inherent goals of the task or that require information processing versus coordination (Kenyon & Nicholson, 2013; Winstein, 1991a). For example, the tasks of giving an injection or setting up a sterile field both have many components that need to be performed in an orderly fashion. Some components of these tasks, such as measuring out the dosage, drawing up the medication, or opening packages of bandages, are more difficult than others. Breaking these types of tasks into their component parts is an effective way to teach the tasks completely. Conversely, when the task to be learned is low in complexity and high in organization, such as in a continuous task like walking, practice should focus on the whole task rather than on component parts (Kenyon & Nicholson, 2013; Magill & Anderson, 2021).

An interesting and counterintuitive finding of motor learning research is that some factors that make the initial performance of a task more difficult may make learning more effective (Shumway-Cook & Woollacott, 2017; Sidaway et al., 2016). These factors, first identified by Battig (1966) in verbal learning studies, are called **contextual interference effects** (Brady, 2008). It is natural to assume that practicing several different tasks in blocked order (practicing one specific task repeatedly and uninterruptedly in a block, and then the next task in a block, and then the third task in a block) would make for more effective learning than practicing the tasks in random order (defined as high contextual interference). However, this is not necessarily the case. Although blocked practice makes initial acquisition of the skill easier, research shows that it is often not as effective as random practice for applying the motor skill in other environments, or for longer term retention (Bjork & Bjork, 2014; Jo et al., 2020; Kaipa & Kaipa, 2018; Kim et al., 2018; Prado et al., 2017; Schmidt et al., 2019; Shumway-Cook & Woollacott, 2017; Takazono et al., 2020; Wulf & Schmidt, 1997). In random practice, it is hypothesized that a greater depth of cognitive processing develops while the individual is retrieving information from memory stores (O'Sullivan, 2019).

As an illustration, the concept of contextual interference effect can be applied to the earlier example of the patient in the hospital learning how to get into the chair from the hospital bed. Once the patient has a basic understanding and some ability to perform the task, it may be better for the nurse to vary the practice routine and have the patient work on all the different skills the nurse would like her to achieve in random order. Rather than just practicing getting in the chair for a set number of trials, and then performing breathing exercises, and then walking, the nurse can vary the order of the activities in the training session: The patient can practice getting in and out of the chair and then perform breathing exercises, go back to the task of getting up from the chair again for several trials, walk for a while, do breathing exercises again, repeat getting in the chair, and continue the activities in random order.

When deciding whether to use blocked or random practice, the nurse must consider characteristics of both the task and the learner. Individual characteristics such as intellectual ability and experience levels may influence the outcome of random practice (Rose, 1997). Patients who need a high degree of consistency and structure for learning may benefit the most from blocked practice (O'Sullivan, 2019).

Nurses routinely give verbal and physical (manual) guidance to assist a patient or student in performing tasks. Such guidance seems to be most effective during the initial stages of teaching a task when the task is unfamiliar to the learner and for tasks that are slow in time (Schmidt et al., 2019). Too much guidance, however, can interfere with learning because it does not allow the learner to solve problems on their own. Therefore, it is important for nurses to resist the common urge to give continual direction and assistance to patients and students, especially once the learners are familiar with the task and demonstrate some degree of physical performance.

The opposite of guidance is trial and error or **discovery learning**—a cornerstone of cognitive and humanistic theories. This type of teaching presents learners with challenging, yet achievable problems and encourages them to discover their own solutions. Discovery learning seems to be less effective in terms of increasing the speed of initial skill acquisition but more effective for later transfer and retention of the skill (Chambers et al., 2013; Schmidt & Wulf, 1997). For example, a nurse might introduce students to an unfamiliar piece of equipment, tell them to figure out how the equipment works, and then leave the classroom for about 15 minutes. The instructor in this case contends that many students learn how to operate equipment more effectively by having time initially to discover for themselves before being formally taught how to use medical equipment. Discovery learning is important, the instructor maintains, because throughout their careers, nurses face the prospect of having to learn for themselves how to use new and updated equipment in a variety of practice settings.

Whereas physical practice is best for learning a motor skill, **mental practice** (imagining or visualizing the skill without body movement) can also have positive effects on the performance and learning of the skill (Dickstein & Deutsch, 2007; McGill & Anderson, 2021; Mulder, 2007; Schmidt et al., 2019; Sharif et al., 2015). When mental practice is used together with physical practice, motor skill acquisition is enhanced (Gentili et al., 2006; Hamel & Lajoie, 2005) and occurs at a faster rate than with physical practice alone (Malouin & Richards, 2010). Mental rehearsal of a motor task also may reinforce the cognitive component of motor learning (Kisner et al., 2018). In a systematic review of selected motor learning principles in medical education, Sattelmayer and colleagues (2016) found evidence to recommend the use of mental practice for procedural learning. Several studies and analyses show early promising results for the use of mental practice in rehabilitation to enhance gait performance and functional recovery in patients with total knee arthroplasty (Moukarzel et al., 2019), to increase gait speed in patients with Parkinson's disease (Silva et al., 2020), to enhance motor performance in the elderly (Altermann et al., 2014), and to increase functional recovery after stroke (Carrasco & Cantalapiedra, 2016; Guerra et al., 2017; Kho et al., 2014; Page & Peters, 2014).

Patients who cannot carry out the physical practice of motor skills as a result of fatigue, pain, or impairments are often good candidates for the technique of mental practice alone. Patients who are too ill to exercise or get out of bed can gain a head start on learning by mentally "practicing" these activities. They can do so by reviewing with the nurse the steps for getting out of bed and then imagining themselves carrying out those steps, one after the other. Mental practice also can help to increase self-efficacy (Deutsch & O'Sullivan, 2019) and can decrease anxiety in patients who are apprehensive about making the initial movement, perhaps because of fear of falling or pain (O'Sullivan, 2019). When possible, mental practice should be combined with physical practice to increase the rate and quality of skill learning (McGill & Anderson, 2021).

Feedback

The vast body of motor learning literature supports the critical role that feedback plays in promoting motor learning (O'Sullivan, 2019). Feedback can be either intrinsic or extrinsic. **Intrinsic feedback (inherent feedback)** is the sensory and perceptual information that arises when a movement is produced and can include both visual and somatosensory information. **Extrinsic feedback (augmented feedback/enhanced feedback)** is information provided to the learner from an outside source (Schmidt et al., 2019). The outside source can be the nurse, or it can be some type of instrumentation, such as biofeedback.

Extrinsic feedback supplements or augments intrinsic feedback (Magill & Anderson, 2021; Schmidt et al., 2019). It facilitates achievement of the task goal and it provides motivation for the learner. Variables to consider when giving extrinsic feedback include the type, timing, and frequency of feedback. Types of extrinsic feedback include knowledge of results (KR) and knowledge of performance (KP). KR is post movement feedback about the outcome of the movement relative to the movement's goal, whereas KP is feedback about the movement pattern/characteristics that led to the performance outcome (Magill & Anderson, 2021; Schmidt et al., 2019). For example, a nurse working with a patient who is learning to change an ostomy bag gives the patient KP feedback when she says, "You coordinated your hands really well when you were removing your old pouch from your skin." A little later in the session, the nurse gives KR feedback when she says, "You put your new pouch on with a nice, tight seal." Extrinsic feedback can be given at the same time as the task (concurrently) or immediately after the task, or it can be delayed for a specified amount of time. Also, it can be given continuously or intermittently.

Nurses also need to adjust the timing of feedback during the learning process. Initially, concurrent, continuous feedback may be necessary in the early stages of teaching a skill to ensure safety and understanding; however, continuous feedback can interfere with learning over time. For example, suppose the nurse seeks to teach a patient how to give herself an injection. Initially, the nurse must show

the patient how to hold the needle, often physically guiding the placement of the patient's hands on the needle. He also tells the patient step by step how to proceed with the injection, giving praise along the way when the patient is successful. If the nurse continues to give this level of extensive concurrent feedback each time the patient practices, it may retard the patient from learning the skill. For retention and longer-term learning, learners need to self-detect and self-correct errors, so educators should use the least amount of concurrent feedback for the shortest time possible (Gentile, 2000; O'Sullivan, 2019). Specific types of errors during practice actually enhance the learning process and thus errorless learning is not a goal (Lee et al., 2016).

Nurses often can find withholding feedback challenging because many view giving large amounts of concurrent feedback as a way of positively supporting the patient or student. Nevertheless, intermittent feedback during practice promotes learning more effectively than does continuous feedback. Immediate, post-response feedback, in which the nurse provides knowledge of the outcome of the task right after each trial, is often used in the early stages of learning. Although this type of feedback may enhance early skill performance, it also delays learning (Kisner et al., 2018).

Feedback that is not given after every trial (summary feedback) slows initial skill acquisition but improves performance on retention tests (Winstein & Schmidt, 1990). Winstein (1987, 1991b) demonstrated that progressively decreasing the rate at which feedback is given, called fading of feedback, appears to be most effective in promoting learning. Fading feedback and using summary feedback (allowing several repetitions of a task before providing feedback) are good ways of reducing the amount of feedback the nurse provides. For example, the nurse teaching a patient to use an incentive spirometer first explains and demonstrates its use. The nurse then allows the patient to practice using the spirometer two or three times (if no harmful errors occur) before giving feedback about how good a seal the patient made around the device, how deeply they inhaled, and how well the patient held their breath. Eventually,

the nurse “fades” the feedback and gives it after four or five trials rather than after two or three, hoping the patient will self-correct any errors.

The extensive use of any type of augmented feedback can create dependence on the feedback, so nurses need to develop a comfort level that balances safety and support with allowing patients and students to solve problems, self-monitor, and self-correct when learning new motor skills. **Box 3-3** reviews the practice variables and feedback variables in motor learning (Dickstein & Deutsch, 2007; Humphrey, & Colby, 2018; Kisner et al., 2018; O’Sullivan, 2019; O’Sullivan et al., 2019; Schmidt et al., 2019; Shumway-Cook & Woollacott, 2017).

Box 3-3 Practice and Feedback Variables in Motor Learning

Practice Variables in Motor Learning

- *Massed practice:* Work periods run very close together with no or brief rest.
- *Distributed practice:* Spacing work periods with longer intervals of rest.
- *Variability of practice:* The task is practiced under a variety of conditions.
- *Whole-task practice:* The entire task is practiced at once.
- *Part–task practice:* The task is divided into its component parts and each part is practiced. separately.
- *Random practice:* A variety of tasks are practiced in random order over different trials.
- *Blocked practice:* One task is practiced continuously without interruption before proceeding to the next task to be learned.
- *Guidance practice/learning:* Physical and verbal guidance is provided while practicing the task.
- *Discovery practice/learning:* While practicing a task the learner is encouraged to find a solution to a challenging yet surmountable problem.
- *Mental practice:* The learner cognitively rehearses a motor task without any body movement.

Feedback Variables in Motor Learning

- *Intrinsic (inherent) feedback:* Sensory and perceptual information originates from the learner when movement is produced.
- *Extrinsic (augmented or enhanced) feedback:* Supplemental information is provided from an outside source, such as the teacher or instrumentation, when movement is produced.
- *Knowledge of results (KR) feedback:* Immediate post-movement feedback is provided about the outcome of the movement relative to the movement goal.
- *Knowledge of performance (KP) feedback:* Feedback about the movement pattern/characteristics used to achieve the goal is given.
- *Continuous feedback:* Feedback is ongoing during performance of the movement.
- *Intermittent feedback:* Feedback occurs randomly and irregularly during performance of the movement.
- *Concurrent (real time) feedback:* Feedback occurs during performance of the movement.
- *Post-response (terminal) feedback:* Feedback occurs after completion or attempted completion of the movement:
    - Immediate: Occurs directly after the movement is completed
    - Delayed: Occurs after an amount of time to allow reflection by the learner
    - Summary: Occurs after several repetitions of the movement and describes average performance

Including a repertoire of motor learning principles adds depth and breadth to the teaching skills of nurses. Although different areas of the brain are involved in motor learning as compared to psychological learning, considerable overlap occurs, and the integration and application of both sets of principles are necessary for optimal teaching and learning of motor skills. Selective aspects of some psychological theories—such as reinforcement from behaviorist theory, the gestalt and information-processing

perspective from cognitive theory, modeling from the social learning subtheory, and focusing on subjective needs and feelings of the learner from humanistic theory—are seminal to the teaching of motor skills.

Although a large body of complex research has been published about motor learning, following several simple guidelines can help nurses be more effective when they teach motor skills to patients, students, or staff. Nurses should remember to do the following:

1. Practice motor skills with patients, students, or staff as much as possible, and encourage other colleagues and family members to practice skills with patients.
2. Encourage mental practice before or along with motor practice.
3. Make sure patients, students, or staff understand the purpose of the skill and are invested in learning the skill.
4. Give clear guidance and assistance in the initial stages of learning.
5. Vary the conditions of learning as much as possible.
6. Give choices where possible about various aspects of the practice and/or performance environment.
7. Within the limits of safety, decrease the amount of guidance and feedback to allow learners to solve problems, make mistakes, and self-correct errors.

Nurses who consistently apply knowledge of the three stages of motor learning and the variables of practice and feedback when teaching motor skills to patients, students, and colleagues give themselves the best chances for successful teaching outcomes. The next section discusses common principles of learning by integrating information from all the learning theories presented in this chapter.

Common Principles of Learning

Taken together, the theories discussed in this chapter indicate that learning is a more complicated and diverse process than any one theory implies. Besides the distinct considerations for learning suggested by each theory, the similarities among the perspectives point to some core features of learning. The following questions raised at the beginning of the chapter can be addressed by synthesizing the learning theories and identifying their common principles.

How Does Learning Occur?

Learning is an active process that takes place as individuals interact with their environment and incorporate new information or experiences with what they already know or have learned. Factors in the environment that affect learning include the society and culture, the structure or pattern of stimuli, the effectiveness of role models and reinforcements, thoughtful feedback for correct and incorrect responses, and opportunities to process and apply learning to new situations.

Furthermore, the individual exerts significant control over learning, with that control often reflecting their physiological state, developmental stage, history (habits, cultural conditioning, socialization, childhood experiences, and conflicts), cognitive style, dynamics of self-regulation, conscious and unconscious motivations, personality (stage, conflicts, and self-concept), and emotions. Although learners often have a preferred mode for taking in information (visual, motor, auditory, or symbolic), using multiple sensory modes often facilitates learning. Although some individuals may learn best on their own, others benefit from expert guidance, social interaction, and cooperative learning.

Learning is an individual matter. Neuropsychology research documents the uniqueness of each person's way of actively perceiving and processing information, as well as their flexibility and reactions to stress. Thanks to research, much more is known about the impact of culture and emotions on how and what is learned and remembered—especially compared to when people believed that humiliation and punishment were acceptable corrections to faulty learning and that endless repetition and lengthy practice sessions assured learning and transfer.

A critical influence on whether learning occurs is motivation. The learning theories reviewed here suggest that to learn, the individual must want to gain something (i.e., receive rewards and pleasure, meet goals and needs, master a new skill, confirm expectations, grow in positive ways, or resolve conflicts), which in turn arouses the learner by creating tension (i.e., drives to be reduced, disequilibrium, and imbalance) and the propensity to act or change behavior.

The relative success or failure of the learner's performance may affect subsequent learning experiences. In some cases, an inappropriate, maladaptive, or harmful previously learned behavior may need to be extinguished and then replaced with a more positive response. As noted earlier, it is easier to instill new learning than to correct faulty learning. That is why it is smart to invest time and care in the early stages of learning and make sure what is learned is accurate or correct. To prepare for better learning and an interest in future learning in the formal education of nurses and other health professionals, some suggestions are to develop these programs around learning theories, which is not often done (Mackintosh-Franklin, 2016); incorporate learning how to learn directly into students' curricula (Mylopoulos et al., 2016); and foster self-regulated learning and the spirit of life-long learning in professional programs (Lajoie & Gube, 2018).

Which Kinds of Experiences Facilitate or Hinder the Learning Process?

The educator exerts a critical influence on learning through role modeling, the selection of learning theories, and the way a learning experience is structured for each learner. To be effective, educators must have knowledge (of the material or skill to be learned, the learner, the social context, and educational psychology), and they must be competent (be imaginative, flexible, and able to employ teaching methods; display solid communication skills; and able to motivate others).

All the learning theories discussed in this chapter acknowledge the need to recognize and relate the new information to the learner's past experiences (old habits, previous skills, culture, familiar patterns, childhood memories, feelings about the self, and what is valued, normative, and perceived as successful or rewarded in society). The ultimate control over learning rests with the learner, but effective educators influence and guide the process so that learners advance in their knowledge, skills, perceptions, thoughts, emotional maturity, or behavior.

Ignoring these considerations, of course, may hinder learning. Other impediments to learning may involve a lack of clarity and meaningfulness in what is to be learned; fear, neglect, or harsh punishment; and negative or ineffective role models and threatening feedback. Providing inappropriate materials for an individual's ability, readiness to learn, or stage of life-cycle development creates another obstacle to learning. Moreover, individuals are unlikely to want to learn if they have had detrimental socialization experiences, are deprived of stimulating environments, or lack goals and realistic expectations for themselves. Can these barriers to learning be overcome, and, if so, how, especially when nurses are tasked with conducting education with patients who may have experienced a lifetime of barriers to learning?

What Helps Ensure That Learning Becomes Relatively Permanent?

Four considerations assist learning in becoming permanent. First, the likelihood of learning is enhanced by organizing the learning experience, making it meaningful and pleasurable, recognizing the role of emotions in learning, and pacing the teaching session in keeping with the learner's ability to process information. Second, practicing (mentally and physically) new knowledge or skills under varied conditions strengthens learning. The third issue concerns reinforcement: Although reinforcement may or may not be necessary, some theorists have argued that it may be helpful because it serves as a signal to the individual that learning has occurred and thereby acts as feedback for learners. This also means that rewarding individuals when they have not learned or providing rewards prior to a learning session works against the purpose of reinforcement in learning. A fourth consideration involves whether learning transfers beyond the initial educational setting.

Learning cannot be assumed to be relatively lasting or permanent; it must be assessed and evaluated by the educator soon after the learning experience has occurred as well as through follow-up measurements made at later times. Research skills, knowledge of evaluation procedures, and the willingness and resources to engage in assessment are now considered essential responsibilities of the educator in carrying out the teaching–learning process. Evaluation feedback can then be used by the nurse educator to revamp and revitalize learning experiences.

But here is a problem. Learning does become relatively permanent over time, particularly if it is expressed frequently. However, what if the learning was faulty, inaccurate, or harmful in the first place? Think of how many wrongheaded attitudes and inaccurate information about health, science, and medicine prevail in society along with unhealthy behaviors that weaken patients' overall well-being and recovery. Remediating faulty learning is frequently a significant part of the nurse educator's role. How might learning theories be used to accomplish this goal?

State of the Evidence

The study of learning in educational psychology is based on evidence from research—similar to research-based evidence that is advocated in nursing, medicine, and health care. Rather than assuming the instructor knows best, researchers gather evidence and test learning theories, teaching methods, and beliefs about learners, teachers, and the environment. The research results are then evaluated to determine if the theories, methods, applications, and assumptions about learning may need to be modified.

Ideally in health education, existing research in psychology, nursing, and medicine is used to design learning experiences for patients, families, and communities. The same is true for developing, implementing, and evaluating teaching and learning experiences for nursing students and staff. Based on research findings, what does not work is eliminated, modifications grounded in additional research are made, and new programs are attempted and assessed. Educational accountability is stressed, and decisions about how to educate must be justified based on data and research. Times change, settings change, and people change, which means that research must be an ongoing process of monitoring and updating what we know about learning and education.

The applications of the learning theories and principles discussed in this chapter are illustrated by many research studies in nursing, psychology, physical therapy, medicine, education, and health care. Because of this research, nurses can feel more confident about their ability to choose the most appropriate theories and principles for each educational experience and hone their approach to teaching and learning in the healthcare setting. Educational research has confirmed many of the constructs and principles from the various learning perspectives. It also provides evidence to dispute some of the conventional wisdom and myths about learning—for example, helping nurses as educators realize that punishment is not generally

effective and may inhibit learning, and that continual guidance, practice, and feedback are not always better. Also, when teaching people, keep in mind that strongly held beliefs—which may or may not be rational—will significantly influence each learner's processing of the educational experience. The research on learning in general and health care in particular demonstrates clearly that no one-size-fits-all approach works in educating patients, nursing students, or nursing staff. To be effective, educational experiences need to be refined and tailored to each individual learner.

Although many advancements have been made in understanding the learning process over the past century, much remains unknown and requires careful research, such as why some patients and nursing students are much more eager to learn than are others and what can be done to encourage reluctant learners to change their attitudes or behavior. More research is needed on how the various learning theories and principles can work together to benefit every learner and how the healthcare setting changes the teaching–learning situation. In the future, more interdisciplinary efforts between psychologists and nurses are needed to move toward a more sophisticated level of research and understanding that can be applied to the healthcare setting (Johnson, 2013).

Research is not a panacea, however. Critics charge that the widely promoted, research-based evidence approach to education and health care is peculiar to these professions and places the emphasis on outcomes rather than on the process of learning. The challenges of measurement are immense and require a highly sophisticated knowledge of research methods and their weaknesses—always keeping in mind that attempts to measure and evaluate learning can oversimplify the complexity and nuances of learning. No small challenge these days is the lack of resources, support, and well-trained personnel needed to truly implement and sustain a research-based approach to teaching and learning (Ferguson & Day, 2005). And what is to be done when science, the practice of medicine and health care, and public health are undermined by culture, politics, and the business of medicine?

Summary

This chapter demonstrates that learning is complex and diverse. Readers may feel overwhelmed by the different theories, sets of constructs and learning principles, and the specific cautions associated with employing the various approaches. Yet, like the blind men exploring the elephant, each theory highlights an important dimension that affects the overall learning process, and together the theories provide a wealth of complementary strategies and alternative options. There is, of course, no single best way to approach learning, although all the theories indicate the need to be sensitive to the unique characteristics and motivations of each learner. For additional sources of information about psychological theories of learning and health care, see **Box 3-4**.

Box 3-4 Psychological Theories of Learning and Healthcare Web Links

Graduate Student Instructor Teaching and Resource Center, University of California, Berkeley: http://gsi.berkeley.edu/gsi-guide-contents/learning-theory-research/learning-overview/

American Psychological Association (search for principles of learning): http://www.apa.org

Instructional Design, Learning Theories: http://www.instructionaldesign.org/theories/

National Institutes of Health (search for patient education topics): http://www.nih.gov

Mnemonic Devices: https://psychcentral.com/lib/memory-and-mnemonic-devices/

Gestalt Principles of Visual Perception: https://www.usertesting.com/blog/gestalt-principles

International Neuroethics Society:
https://www.neuroethicssociety.org/what-is-neuroethics

Educators in the health professions cannot be expected to know everything about the teaching and learning process. More important, perhaps, is that they can determine what needs to be known, where to find the necessary information, and how to help individuals, groups, and themselves benefit directly from a learning situation. Psychology and nursing work well together. Psychology has much to contribute to healthcare practice, and nursing is in a strategic position to apply and test psychological and motor learning principles, constructs, and theories in both educational and clinical settings.

Review Questions

1. What are the principal constructs and contributions of each of the four psychological learning theories?
2. According to the concept of operant conditioning, what are three techniques to increase the probability of a response, and what are two techniques to decrease or extinguish the probability of a response?
3. What are some ways the behaviorist theory (which focuses on the environment and responses to it) and the cognitive perspective (which emphasizes the individual's internal processing) could be combined to facilitate knowledge acquisition or change a health behavior?
4. What contribution does each of the subtheories of cognitive learning theory make to understanding the learning process? Indicate how these distinct cognitive perspectives could be used together in designing patient education programs.
5. Identify the commonalities in the psychological learning theories discussed in this chapter with regard to what they indicate about how learning can be maximized, and mention the unique contribution of each theory and subtheory to aiding the learning process.
6. How does motivation serve as a critical influence on whether learning occurs?
7. Which types of experiences can hinder the learning process?
8. Which factors help ensure that learning becomes relatively permanent?
9. What are some ways that emotions might be given more explicit consideration in designing both nursing programs and patient education programs?
10. Describe some of the implications of neuropsychology research for nurses conducting patient education.
11. In motor learning, how do the instructional strategies used during the associative stage of learning differ from those used during the autonomous stage?

12. What is the difference between motor performance and motor learning?
13. How do you strengthen retention and learning of a motor task?
14. Explain how you would adjust the type of feedback you give to a patient as they progress through the stages of learning a motor task.
15. Which of the learning theories and principles of learning do you think will be the most useful in conducting patient education? Briefly explain why for each of your choices.

CASE STUDY

In a variety of healthcare settings, it is not unusual for nurses and other health professionals to be faced with the challenge of caring for patients who demonstrate detrimental behaviors based on misconceptions, misinformation, and faulty learning. These incorrect beliefs and/or damaging behaviors are learned and can be difficult to change, even though they negatively affect the ability of patients to deal with their illness, injury, or recovery and to regain, maintain, or acquire a level of health and well-being.

A team of healthcare professionals at Rockville Medical University has been selected to tackle the problem of this lack of accurate understanding of health information by a significant number of patients in the hospital as well as in community-based facilities under the auspices of this institution. An internal grant has been allocated by the university to establish a committee for the development of teaching techniques and instructional materials that professionals in different healthcare fields can use to try to replace patients' faulty learning with more accurate learning.

As a nurse specialist in patient education, Anya Chou has been asked to serve as chair of the Patient Education for Behavioral Change committee to accomplish these goals. By consensus, the committee members have decided to explore theories, ideas, and strategies, grounded in psychological learning theories, principles of education, and the science of person-centered care, that can be employed to correct patients' misinformation and improve their

health literacy skills. Answers to the following questions will be explored:

1. Why does faulty learning occur, and why is it so persistent? Identify and describe two learning theories that could be particularly useful in explaining why patients may hold on to false beliefs about healthcare interventions and treatments, and what each theory (or its subtheories) reveals about why these beliefs and behaviors are so difficult to change.
2. How can each of the two previously noted learning theories contribute to an understanding of the learning process (influence of external or internal factors, learner's role as more active or passive, the task of the educator, the motivational incentives, and the way transfer of learning can occur).
3. Using these theories singly or in combination, what strategies can be employed to help patients alter faulty thoughts, feelings, and behaviors and acquire new information, and how can health professionals ensure that new learning is relatively permanent?

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CHAPTER 4

Determinants of Learning

Sharon Kitchie

Chapter Highlights

- The Educator’s Role in Learning
- Assessment of the Learner
- Learning Needs
- General Methods to Assess Learning Needs
  - *Informal Conversations*
  - *Structured Interviews*
  - *Focus Groups*
  - *Questionnaires*
  - *Tests*
  - *Observations*
  - *Documentation*
  - *Specific Methods to Assess Learning Needs of Nursing Staff*
  - *Gap Analysis and Delphi Technique*
- Readiness to Learn
  - *Physical Readiness*
  - *Emotional Readiness*
  - *Experiential Readiness*
  - *Knowledge Readiness*
- Learning Styles
  - *Determining Learning Styles*
- Learning Style Models and Instruments
  - *Right-Brain/Left-Brain and Whole-Brain Thinking*
  - *Field-Independent/Field-Dependent Perception*
  - *Dunn and Dunn Learning Styles*
  - *Jung and Myers–Briggs Typology*
  - *Kolb’s Experiential Learning Model*
  - *Gardner’s Eight Types of Intelligence*
  - *VARK Learning Styles*
- Interpretation of the Use of Learning Style Models and Instruments
- State of the Evidence

KEY TERMS

determinants of learning

health-seeking behavior

information-seeking behavior

learning needs

learning styles

reachable moment

readiness to learn

teachable moment

OBJECTIVES

After completing this chapter, the reader will be able to:

1. Explain the nurse educator's role in the learning process.
2. Identify the three components of the determinants of learning.
3. Describe the steps involved in the assessment of learning needs.
4. Explain methods that can be used to assess learner needs.
5. Discuss the factors that need to be assessed in each of the four types of readiness to learn.
6. Describe what is meant by learning styles.
7. Discriminate between the major learning style models and instruments identified.
8. Discuss ways to assess learning styles.
9. Identify the evidence that supports assessment of learning needs, readiness to learn, and learning styles.

In a variety of settings, nurses are responsible for the education of patients, families, staff, and students. Numerous factors make the nurse educator's role particularly challenging in meeting the information needs of these various groups of learners. For example, short lengths of stay compress the amount of contact time the nurse has with patients and families, making it difficult to capitalize on teachable moments. A

teachable moment is called a *T-moment* by Reynolds et al. (2020), which is an opportunistic time the nurse needs to take advantage of so that learning can occur and be meaningful. In the case of nursing staff, for example, educational and experiential levels differ widely, and time constraints are ever present in the practice setting. Various staffing patterns, part-time employment, and varied job functions can put the educator's ability to complete an accurate assessment of the staff's educational needs to the test.

Also, the nurse educator must consider many other factors in meeting information needs of learners. For example, the U.S. population is becoming more culturally and linguistically diverse because of the increased number of foreign-born individuals who have entered the country over the past decades. Notably, the percentage of baccalaureate nursing students from minority backgrounds rose from 26.4% in 2010 to 35.3% in 2019 (American Association of Colleges of Nursing, 2020). In addition, the age of the nation's population is changing, with the cohort of people 65 years and older growing rapidly. As another example, students are entering schools of nursing at an older age, bringing with them diverse life experiences and the demands of working and raising families while furthering their education. These factors all affect the nurse educator's assessment of information needs of nursing students, patients, and families (U.S. Census Bureau, 2020). Other changing healthcare trends and population demographics mean that nurse educators must constantly assess the determinants of learning for the varied audiences of learners they teach.

To meet these challenges, the nurse educator must be aware of the various factors that influence how well an individual learns. The three **determinants of learning** that require assessment are (1) the needs of the learner, (2) the state of readiness to learn, and (3) the preferred learning styles for processing information. (Haggard, 1989) This chapter addresses these three determinants of learning as they influence the effective and efficient delivery of patient/family, student, and staff education.

The Educator’s Role in Learning

The role of educating others is one of the most essential interventions that a nurse performs. To do it well, the nurse must both identify the information learners need and consider their readiness to learn and their styles of learning. The learner—not the teacher—is the single most important person in the education process.

Educators can greatly enhance learning when they serve as facilitators helping the learner become aware of what needs to be known, why knowing is valuable, and how to be actively involved in acquiring information (Araki, 2019; de Swardt, 2019; Froneman et al., 2016; Lindblad et al., 2017; Reynolds et al., 2020; Sykes et al., 2013; Warburton et al., 2015). Just providing information to the learner, however, does not ensure that learning will occur. There is no guarantee that the learner will acquire the information given, although there is a greater opportunity to learn if the educator assesses the determinants of learning.

Assessment permits the nurse educator to facilitate the process of learning by arranging experiences within the environment that assist the learner to find the purpose, the will, and the most suitable approaches for learning. An assessment of the three determinants of learning enables the educator to identify information and present it in a variety of ways, which a learner cannot do alone. Manipulating the environment allows learners to experience meaningful parts and wholes to reach their individual potentials.

The educator plays a crucial role in the learning process by doing the following:

- Assessing the learner’s problems, supports, deficits, and abilities

- Providing important best evidence information and presenting it in unique and appropriate ways
- Identifying progress being made
- Giving feedback and follow-up
- Reinforcing learning in the acquisition of new knowledge, skills, and attitudes
- Determining the effectiveness of education provided

The educator is vital in giving support, encouragement, and direction during the process of learning. Learners may make choices on their own without the assistance of an educator, but these choices may be limited or inappropriate. For example, the nurse facilitates necessary changes in the home environment, such as minimizing distractions by having family members turn off the television, to provide a quiet environment conducive for concentrating on a learning activity. The educator assists in identifying optimal learning approaches and activities that can both support and challenge the learner based on their individual learning needs, readiness to learn, and learning style.

Assessment of the Learner

Assessment of learners' needs, readiness, and styles of learning is the first and most important step in instructional design—but it is also the step most likely to be neglected. The importance of assessment of the learner may seem self-evident, yet often only lip service is given to this initial phase of the educational process. Frequently, the nurse dives into teaching before addressing all the determinants of learning. The result is that information given to the patient is neither individualized nor based on an adequate educational assessment. Evidence suggests, however, that individualizing teaching based on prior assessment improves patient outcomes (Frank-Bader et al., 2011; Kim et al., 2004; Smith & Zsohar, 2013) and satisfaction (Bakas et al., 2009; Wagner et al., 2011). For example, Owens (2014) reports that nurses providing individualized education to patients with autoimmune diseases significantly improves their overall quality of life and Skelton et al. (2015) found that patients with end-stage renal disease who received individualized education are better able to navigate complex healthcare processes to pursue a kidney transplant.

Nurses are taught that any nursing intervention should be preceded by an assessment. Few would deny that this is the correct approach, no matter whether planning for giving direct physical care, meeting the psychosocial needs of a patient, or teaching someone to be independent in self-care or in the delivery of care. The effectiveness of nursing care clearly depends on the scope, accuracy, and comprehensiveness of assessment prior to interventions.

What makes assessment so significant and fundamental to the educational process? This initial step in the process validates the need for learning and the approaches to be used in designing learning experiences. Patients who desire or require information to maintain optimal health, as well as nursing colleagues who must have a greater scope or depth of knowledge to deliver high-quality

care to patients, deserve to have an assessment done by the educator so that their needs as learners are appropriately addressed.

Assessments do more than simply identify and prioritize information for the purposes of setting behavioral goals and objectives, planning instructional interventions, and being able to evaluate in the long run whether the learner has achieved the desired goals and objectives. Good assessments ensure that optimal learning can occur with the least amount of stress and anxiety for the learner. Assessment prevents needless repetition of known material, saves time and energy on the part of both the learner and the educator, helps to establish positive communication between the patient and provider, and potentially improves outcomes (Ashton & Oermann, 2014; Kelley et al., 2014). Furthermore, the motivation to learn is increased if the educator focuses on what the patient or staff member feels is most important to know or to be able to do.

Why, then, is this first step in the education process so often overlooked or only partially carried out? Lack of time is the number one reason that nurse educators shortchange the assessment phase (Haddad, 2003; Lee & Lee, 2013; Livne et al., 2017; Marcum et al., 2002; Moonaghi et al., 2016). Such factors as shortened hospital stays and limited contact with patients and families in healthcare settings, combined with the tighter schedules of nursing staff as a result of increased practice demands, have reduced the amount of time available for instruction. In the United States, a shortage of registered nurses is projected, which will intensify the lack of time for the assessment phase (American Association of Colleges of Nursing, 2020). Because time constraints are a major concern when carrying out patient or staff education, nurses must become skilled in accurately conducting assessments of the three determinants of learning in order to have reserve time for actual teaching. In addition, many nurses, although expected and required by their nurse practice acts to instruct others, are unfamiliar with the principles of teaching and learning (Livne et al., 2017; Moonaghi et al., 2016). The nurse in the role of educator must become better acquainted and comfortable

with all the elements of instructional design, particularly with the assessment phase because it serves as the foundation for the rest of the educational process.

Assessment of the learner includes attending to the three determinants of learning (Haggard, 1989):

1. Learning needs—what the learner needs and wants to learn.
2. Readiness to learn—when the learner is receptive to learning.
3. Learning style—how the learner best learns or prefers to learn.

Learning Needs

Learning needs are defined as gaps in knowledge that exist between a desired level of performance and the actual level of performance (HealthCare Education Associates, 1989). In other words, a learning need is the gap between what someone knows and what someone needs or wants to know. Such gaps may arise because of a lack of knowledge, attitude, or skill. Learning needs also are known as information needs or education needs. Although the concepts can be defined differently by different authors, the concepts can be used interchangeably for health care, as the methods used in assessment are the same (Beydokhti et al., 2020).

Of the three determinants of learning, nurse educators must identify learning needs first so that they can design an instructional plan to address any deficits in the cognitive, affective, or psychomotor domains. Once the educator discovers what needs to be taught, then the next step is to determine when and how learning can optimally occur.

Of course, not every individual perceives a need for education. Often, learners are unaware of what they do not know or want to know. Consequently, it is up to the educator to assist learners in identifying, clarifying, and prioritizing their needs and interests. Once these aspects of the learner are determined, the information gathered can, in turn, be used to set objectives and plan appropriate and effective teaching and learning approaches for education to begin at a point suitable to the learner rather than stemming from an unknown or inappropriate place.

Differences often exist between the perception of needs identified by patients versus the needs identified by the health professionals caring for them. In one study of a convenience sample of 365 cardiac patients who had recent major coronary interventions performed, their preferences for learning after the intervention were

different from what 166 cardiac nurses perceived as important for the patient to learn (Mosleh et al., 2017). Other authors have also substantiated comparative incongruence in the perception of learning needs by patients and providers (Ançel, 2012; Kilonzo & O'Connell, 2011; Roy et al., 2015; Wu et al., 2014; Yonaty & Kitchie, 2012). Likewise, opinions differ between what staff nurses perceive as important knowledge and skills to meet their unique needs and what their managers and educators think is relevant and appropriate for learning (Dyson et al., 2009).

According to well-known experts in behavioral and social sciences (Bloom, 1968; Bruner, 1966; Carroll, 1963; Kessels, 2003; Ley, 1979; Skinner, 1954), most learners—up to 95% of them—can master a subject with a high degree of success if given sufficient time and appropriate support. The educator's task is to facilitate the determination of what exactly needs to be learned and to identify approaches for presenting information in a way that the learner will best understand. Recent evidence of success at mastery learning is illustrated by two systematic reviews that demonstrate positive benefits of clinical education of staff (Shamsi & Dori, 2018) and clinical education of students (Alavi et al., 2019).

The following are important steps in the assessment of learning needs:

1. *Identify the learner.* Who is the audience? If the audience is one individual, is there a single need or do many needs have to be fulfilled? Is there more than one learner? If so, are their needs congruent or diverse? The development of formal and informal education programs for patients and their families, nursing staff, or students must be based on accurate identification of the learner. For example, an educator may believe that all parents of children with asthma need a formal class on potential hazards in the home. This perception may be based on the educator's interaction with a few patients and may not be true of all families. Similarly, the manager of a healthcare agency might request an inservice workshop for all staff on documentation of

infection control because of an isolated incident involving one staff member's failure to appropriately follow established infection control procedures. This break in protocol may or may not indicate that everyone needs to have an update on policies and procedures.

2. *Choose the right setting.* Establishing a trusting environment helps learners feel a sense of security in confiding information, believe their concerns are taken seriously and are considered important, and feel respected. Ensuring privacy and confidentiality is recognized as essential to establishing a trusting relationship.
3. *Collect data about the learner.* A literature search for systematic reviews offers an excellent way to become aware of the published research about learning needs of specific populations. For example, Nightingale et al. (2015) reviewed 23 studies that identified parents' learning needs about managing their child's chronic long-term health condition. Moore et al. (2013) reviewed studies about the palliative and supportive care needs of patients diagnosed with high-grade glioma and their caregivers. These systematic reviews identified key themes related to patient education, such as the type and extent of content to be included in teaching sessions as well as the educational strategies for teaching a specific population based on the analysis of needs.
4. *Collect data from the learner.* Learners are usually the most important source of needs assessment data about themselves. As noted previously, the educator may not always perceive the same learning needs as the learner. Allow patients and/or family members to identify what is important to them, what they perceive their needs to be, which types of social support systems are available, and which type of assistance these supports can provide (Chou et al., 2018). If the audience for teaching consists of staff members or students, solicit information from them as to those areas of practice in which they feel they need new or additional information (Cannon et al., 2014; Winslow et al., 2016). Actively engaging learners in defining their own problems and needs motivates them to learn

because they are invested in planning for a program specifically tailored to their unique circumstances.

5. *Involve members of the healthcare team.* Other health professionals likely have insight into patient or family needs or the educational needs of the nursing staff or students resulting from their frequent contacts with both consumers and caregivers. Nurses are not the sole educators of these individuals. Thus, nurses must remember to collaborate with other members of the healthcare team for a richer assessment of learning needs and for saving precious time in conducting a thorough assessment. In addition, organizations such as the American Heart Association, the American Diabetes Association, and the American Cancer Society are excellent sources of health information needs.
6. *Prioritize needs.* A list of identified needs can become endless and seemingly impossible to accomplish. Maslow's (1970) hierarchy of human needs can help the educator prioritize so that the learner's basic needs are attended to first and foremost before higher needs are addressed. For example, learning about a low-sodium diet likely cannot occur if a patient faces problems with basic physiological needs such as pain and discomfort; the latter needs should be addressed before any other higher-order learning is expected to occur.

   Setting priorities for learning is often difficult when the nurse educator is faced with many learning needs in several areas. Prioritizing identified needs helps the educator to assist the patient, student, or staff member in setting important, realistic, and achievable learning goals. Learning needs can be prioritized to foster maximum learning based on the criteria, which is dated but still relevant, in **Box 4-1**.

   Box 4-1 Criteria for Prioritizing Learning Needs

   - *Mandatory:* Needs that must be learned for survival or situations in which the learner's life, safety, or ability to

function at an expected level is threatened. Learning needs in this category must be met immediately.
    - *Desirable:* Needs that are useful and worthwhile but not essential but that are related to learner satisfaction or further growth and development for personal or professional advancement.
    - *Possible:* Needs for information that is nice to know but not required or not directly related to being able to function in daily activities.

Data from HealthCare Education Associates. (1989). *Managing hospital education*. Author.

Another approach to identifying learning needs of students is the Educational Triage Model, which is similar to the previously mentioned criteria but based on generic medical triage classifications—immediate, delay, minor, and expectant (Laing, 2020). This model is an important guide for assessing learning needs in an effort to retain students in higher education, but it also can be applied more broadly to a world that is facing rapidly changing technology, extreme natural disasters, and regional and global pandemics.

7. *Provide only need- or want-to-know information*: Without good assessment, a common mistake is to provide more information than the patient wants or needs. To avoid this problem, the nurse must discriminate between information that patients need to know versus information that is nice for them to know. Often, highly technical information merely serves to confuse and distract patients from the essential information they need to carry out their regimen (Centers for Disease Control and Prevention [CDC], 2019; Kessels, 2003; Klerings et al., 2015; Rozenblit, 2016).

   Also, it is important to recognize that education in and of itself is not always the answer to a problem. Often, healthcare providers believe that more education is necessary when something goes wrong, when something is not being done, when a patient is not

following a prescribed regimen, or when a staff member does not adhere to a protocol. In such instances, always look for other reasons for these types of behaviors. For example, the nurse may discover that the patient is not taking his medication and may begin a teaching plan without adequate assessment. The patient may already understand the importance of taking a prescribed medication, know how to administer it, and be willing to follow the regimen, but his financial resources may not be sufficient to purchase the medication. In this case, the patient does not have a learning need but rather a nonlearning need that requires social or financial support to obtain the medication.

8. *Determine availability of educational resources.* The educator may identify a need, but it may be useless to proceed with interventions if the proper educational resources are not available, are unrealistic to obtain, or do not match the learner's needs. In this case, it may be better to focus on other identified needs until the necessary equipment and materials for instruction are available for future teaching encounters.
9. *Assess the demands of the organization.* What are the organization's philosophy, mission, strategic plan, and goals? The educator should be familiar with standards of performance required in various employee categories, along with job descriptions and hospital, professional, and agency regulations that dictate the educational focus to satisfy the learning needs of both consumers and employees.
10. *Take time-management issues into account.* Because time constraints are a major impediment to the assessment process, the educator should emphasize the following important points with respect to time-management issues (Brandenburg, 2017; Cooke & Thackray, 2012; Doolan-Noble et al., 2015; European Patients Forum, 2017):
    - Although close observation and active listening take time, it is much more efficient and effective to take the time to do a good initial assessment upfront than to waste time by having to go back and uncover information that should have been obtained before beginning instruction.

- Learners must be given time to offer their own perceptions of their learning needs, preferences, and values if the educator expects them to take charge and become actively involved in the learning process. Learners should be asked what they want to learn first, because this step allays their fears and makes it easier for them to move on to other necessary content (McNeill, 2012). Depending on the audience, this patient-centered or student-centered approach also shows that the nurse cares about what the learner believes is important and, in the case of an adult, meets their need to be self-directed (Disch, 2012; Inott & Kennedy, 2011).
- Assessment can be conducted anytime and anywhere the educator has formal or informal contact with learners. Data collection does not have to be restricted to a specific, predetermined schedule. With patients, many potential opportunities for assessment arise, such as when giving a bath, making rounds, or distributing medications. For staff, assessments can be made when stopping to talk in the hallway, responding to a question, or while having break time together.
- Informing patients and their families, nursing staff, or nursing students ahead of time that the educator wishes to spend time discussing problems or needs gives learners advance notice to sort out their thoughts, feelings, and concerns. This approach allows them time to review the appropriate handouts and prepare questions prior to a teaching session (Frank-Bader et al., 2011).
- Minimizing interruptions and distractions during planned assessment interviews maximizes productivity. Thus, the educator might accomplish in 15 minutes what otherwise might have taken an hour in less directed, more frequently interrupted circumstances.

General Methods to Assess Learning Needs

No matter who the target audience is for teaching, the nurse in the role of educator must obtain objective data about the learner as well as subjective data from the learner. This section describes various methods that educators can use to assess learner needs. These educational needs assessment methods should be used in combination to yield the most reliable and valid information about the learner (EuroMed Info, n.d.; Haggard, 1989; McCawley, 2009; McKimm & Swanwick, 2009).

Informal Conversations

Often learning needs are discovered during impromptu conversations that take place with other healthcare team members involved in the care of the client and between the nurse and the patient or their family or significant other. Nursing staff and students can provide valuable input about their learning needs by responding to open-ended questions posed by the educator. The nurse educator must rely on active listening to pick up cues and information regarding learning needs

Structured Interviews

The structured interview is perhaps the form of needs assessment most commonly used to solicit the learner's point of view. The nurse educator asks the learner direct and often predetermined questions to gather information about learning needs. As with the gathering of any information from a learner in the assessment phase, the nurse should strive to establish a trusting environment, use open-ended questions, choose a setting that is free of distractions, and allow the learner to state what are believed to be the learning needs.

It is important to remain nonjudgmental when collecting information via an interview about the learner's strengths, beliefs, and motivations. The nurse educator can take notes with the learner's permission so that important information is not lost. For patients and their family caregivers, the telephone is a good tool to use for an interview if it is impossible to ask questions in person. The major drawback of a telephone interview is the inability on the part of the nurse educator to perceive nonverbal cues from the respondents.

In person or over the telephone interviews yield answers that may reveal uncertainties, conflicts, inconsistencies, unexpected problems, anxieties, fears, and present knowledge base. The following are examples of interview questions that nurse educators can ask:

If the learner is a patient, the following questions might be:

- What do you think caused your problem?
- How severe is your illness?
- What does your illness/health mean to you?
- What do you do to stay healthy?
- Which results do you hope to obtain from treatments?
- What are your strengths and limitations as a learner?
- How do you learn best?

If the learner is a staff member or student, the following questions might be:

- What do you think are your biggest challenges to learning?
- Which skill(s) do you need help in performing?
- Which obstacles have you encountered in the past when you were learning new information?
- What do you see as your strengths and limitations as a learner?
- How do you learn best?

These types of questions help to determine the needs of the learner and serve as a foundation for planning an educational intervention.

Focus Groups

Focus groups involve getting together a small number (4 to 12) of potential learners, including the facilitator (Breitrose, 1988; Duke University, 2005, Tang & Davis, 1995), to determine areas of educational need by using group discussion to identify points of view or knowledge about a certain topic. With this approach, a facilitator leads the discussion by asking open-ended questions intended to encourage detailed discussion (McCawley, 2009). It is important for facilitators to create a safe environment so that participants feel free to share sensitive information in the group setting (Shaha et al., 2011). Having a facilitator who is not known to members of the group can help allay concerns that sharing information about their areas of weakness may be held against them in the future. Focus groups are ideal during the initial stage of information gathering to provide qualitative data on learning needs. For example, Samia et al. (2012) conducted five focus groups to explore the learning needs of 26 family caregivers who took care of individuals diagnosed with dementia. Andrews and Ford (2013) used focus groups of clinical facilitators to ascertain what their learning needs were in relation to their professional development.

Questionnaires

Nurse educators can obtain learners' written responses to questions about learning needs by using questionnaires. Checklists are one of the most common forms of questionnaires. They are easy to administer, provide more privacy compared to interviews, and yield easy-to-tabulate data. The educator's role is to clarify what is being assessed and to encourage learners to make as honest a self-assessment as possible. Because checklists usually reflect what the nurse educator perceives as needs, a space should be provided for the learner to add any other items of interest or concern.

One example of a highly reliable and valid self-assessment tool is the Patient Learning Needs Scale (Redman, 2003). This instrument

is designed to measure patients' perceptions of learning needs to manage their health care at home following hospital discharge (Bubela et al., 1990.; Bubela & Galloway, 1990). This scale also has been tested internationally for reliability, validity, and cultural appropriateness (Eshah, 2011; Temiz el al., 2016).

Tests

Giving written pretests prior to instruction can help identify the knowledge levels of learners about certain subjects to ascertain their specific learning needs. This approach prevents the educator from repeating already known material in the teaching plan. Furthermore, pretest results are useful to the educator after the completion of teaching if pretest scores are compared with posttest scores (using the same pretest instrument) to determine to what extent learning has taken place.

The Diabetes Knowledge Test is an example of a tool used to assess learning needs for self-management of diabetes (Fitzgerald et al., 2016). When investigating this tool, researchers compared patients' diabetes knowledge with their glycemic control. The findings demonstrated an inverse linear relationship between performance on this diabetes test and HbA1c values. This test is available from the Michigan Diabetes Research and Training Center (http://diabetesresearch.med.umich.edu/Tools.php).

In specifically identifying the learning needs of hospitalized patients and family caregivers based on their individual characteristics (age, gender, educational level, career type, work status, etc.), Bubela and Galloway (1990) developed the Patient Learning Needs Scale (PLNS). PLNS facilitates the educational roles of nurses in delivering patient education that is systematic and problem solving to prevent complications, enhance self-sufficiency, and improve quality of life after discharge to the community (Bubela & Galloway, 1990; Bubela et al., 2000; Polat, 2014).

The educator must always consider the reported characteristics of a self-administered test before using it. Questions about the test's specific criteria must be asked: (1) Is the tool relevant to what the nurse educator plans to assess? (2) Will the results be meaningful? (3) Are the constructs to be measured well defined? (4) Has the instrument been adequately tested? (5) Has the instrument been used in a similar setting and with a population equivalent to the audience being tested by the educator? Thus, the educator needs to consider the purpose, conceptual basis, development, and psychometric properties when evaluating the appropriateness of any questionnaire or test (Waltz et al., 2017). Two recent systematic reviews found that many learning needs tools did not include all the necessary components of reliability and validity (Christalle et al., 2019; Tian et al., 2019).

Observations

Observing health behaviors in several different time periods can help the educator draw conclusions about established patterns of behavior that cannot and should not be drawn from a single observation. For example, watching the learner perform a skill more than once is an excellent way of assessing a psychomotor need. Are all steps performed correctly? Does the learner have any difficulty manipulating various pieces of equipment? Does the learner require prompting?

Learners may believe they can accurately perform a skill or task (e.g., walking with crutches, changing a dressing, giving an injection) or they may actually happen to perform it well at one moment in time, but asking the learner to repeat the skill performance a few times best determines whether they have mastered the skill with competence or if additional practice is needed. Videotaping learners (with permission) so that they can observe themselves performing a skill can help them more easily identify their learning needs. This approach, known as *reflection on action* (Grant, 2002), allows the learner to see what was done well and what could have been done better in actual performance (Landry et al., 2006).

Documentation

Nurse educators need to follow a consistent format for reviewing medical records by looking at initial assessments, progress notes, nursing care plans, staff notes, and discharge planning forms that can provide valuable information about the learning needs of patients. Taking into account documented findings by other members of the healthcare team, such as physical therapists, social workers, respiratory therapists, and nutritionists, can yield important insights with respect to the needs of the learner.

Specific Methods to Assess Learning Needs of Nursing Staff

The following are additional methods specific to nursing staff that can be used to further assess their learning needs. Some of these methods also can be used to collect data on nursing students (Dyson et al., 2009; Lockhart, 2006; McCawley, 2009; McKimm & Swanwick, 2009; Williams, 1998).

Written Job Descriptions

A written description of what is required to effectively carry out job responsibilities can reflect the potential learning needs of staff. Such information forms the basis for establishing content in an orientation program for new staff, for example, or for designing continuing education opportunities for experienced staff members.

Formal and Informal Requests

Often staff are informally asked for ideas for educational programs, and responses to these requests reflect what they perceive as needs. When conducting a formal educational program, the educator must verify that the input received is congruent with the needs of other staff members. For example, Mickan et al. (2019) investigated

the educational needs of future healthcare workers by formally requesting academic and clinical health professionals to share their perceptions based on changing workforce demands and expectations.

Quality Assurance Reports

Trends found in incident reports indicating safety violations or errors in procedures are a source of information in establishing learning needs of staff that inservice continuing education can address.

Chart Audits

Educators can identify trends in practice through chart auditing. Does the staff have a learning need in terms of the actual charting? Is a new intervention being implemented? Does the record indicate some inconsistency with implementation of an intervention? For example, Yasan et al. (2020) conducted a retrospective chart audit to determine nursing documentation of risk fall assessment and implementation of the prevention plan for patients. The findings of the audit revealed a significant gap in identifying patients with high falls risk and documenting and implementing strategies to prevent falls.

Rules and Regulations

A thorough knowledge of hospital, professional, and healthcare requirements helps to identify possible learning needs of staff and students. The educator should monitor new standards of practice arising from changes occurring within an institution or from external sources, such as professional organizations and accrediting bodies, that may have implications for the delivery of care.

Self-Assessment

Self-assessment is a technique that can be used by staff nurses to identify their learning needs so the data yielded can assist educators in planning for continuing education and professional development programs. Also, self-assessment by nursing students is an important method to consider because it stimulates reflection on practice and critical thinking as a means to identify their learning needs (Siles-González & Solano-Ruiz, 2016). In academic settings, this approach represents an educational paradigm shift from the traditional faculty assessment of what students need to learn. Fuqua (2020) supports student self-assessment in the clinical setting that enhances students' self-reflection to identify areas of weakness and empowers them to take control over their own learning. In addition, another useful method for self-assessment of nursing students' learning needs via professional self-reflection is the strengths, limitations, opportunities, threats/barriers (SLOT/B) tool or similarly the strengths, weaknesses, opportunities, and threats (SWOT) analysis (Sherwin & Stevenson, 2011).

Gap Analysis and Delphi Technique

The gap analysis and the Delphi technique are two other methods to identify the learning needs of staff and students. A gap analysis is an organized method of collecting data to identify differences between desired and actual knowledge (Jannetti, 2012). Nurse educators can then plan educational interventions to satisfy the needs of the learner, which is more likely to result in a change in behavior (DeSilets et al., 2013). The Delphi technique, which is another way to identify gaps in knowledge, is a structured process using a series of questionnaires that are given to subject experts chosen as experienced professionals who can provide an informed view or opinion on an issue (Bentley et al., 2016; Nworie, 2011), in this case the educational needs of students or staff. The process of anonymously responding to questionnaires continues until group consensus is reached. Although Delphi is a useful method for assessing learning needs, as with any tool the nurse educator must consider the reliability and validity of the questionnaire instrument (Keeney et al., 2001).

In planning for educational activities for patients, staff, and students, it is essential to consider the data that can be collected by way of these various methods of assessing learning needs as well as taking into consideration participants' personal preferences, mandates from administration, expectations of accrediting agencies, and/or trends in the profession. For inservice programs at an institution, for example, educators can use one or more assessment methods to collect data on staff at multiple levels, from registered nurses to nursing assistants, who are typically the target audiences. It is important to remember that the focus must be on the needs of learners, whoever they may be, not the individual or entity who organizes the education activity. These various approaches to needs assessment that were previously described are useful because if applied correctly they are valid measures, benefit all involved, and justify the resources required for the assessment process.

Readiness to Learn

Once the educator has identified learning needs, the next step is to determine the learner's readiness to receive information. **Readiness to learn** can be defined as the time when the learner demonstrates an interest in learning the information necessary to maintain optimal health or to become more skillful in a job. Often, educators have noted that *when a patient, staff member, or student asks a question, the time is prime for learning*. Readiness to learn occurs when the learner is receptive, willing, and able to participate in the learning process. It is the responsibility of the educator to discover through assessment exactly when patients, staff, or students are ready to learn, what they need or want to learn, and how to adapt the content to fit each learner.

To assess readiness to learn, the educator must first understand what needs to be taught, collect and validate that information, and then apply the same methods used previously to assess learning needs, including making observations, conducting interviews, gathering information from the learner as well as from other healthcare team members, and reviewing documentation. The educator must perform these tasks prior to the time when actual learning is to occur.

No matter how important the information is or how much the educator feels the recipient of teaching needs the information, if the learner is not ready, then the information will not be absorbed. The educator, in conjunction with the learner, must determine what needs to be learned and what the learning objectives should be to establish in which domain and at which level these objectives should be classified (refer to Chapter 10). Otherwise, both the educator's and the learner's time could very well be wasted because the established objectives may be beyond the readiness of the learner.

Timing—that is, the point at which teaching should take place—is very important. Anything that affects physical or psychological comfort can affect a learner's ability and willingness to learn. Consequently, a learner who is not receptive to information at one time may be more receptive to the same information at another time. Because the nurse often has limited contact with patients and family members as a result of short hospital

stays or short visits in the outpatient setting, teaching must be brief and basic. Timing also becomes an important factor when working with nursing staff and nursing students. Readiness to learn is based on the current demands of practice and must correspond to the constant changes in health care. Adults—whether they are patients, family, nursing staff, or students—are eager to learn when the subject of teaching is relevant and applicable to their everyday concerns.

Before teaching can begin, the educator must find the time to first take a PEEK (Lichtenthal, 1990) at the four types of readiness to learn—physical readiness, emotional readiness, experiential readiness, and knowledge readiness. These four types may either be obstacles or enhancers to learning (**Box 4-2**).

Box 4-2 Take Time to Take a PEEK at the Four Types of Readiness to Learn

P = Physical Readiness

- Measures of ability
- Complexity of task
- Environmental effects
- Health status
- Gender

E = Emotional Readiness

- Anxiety level
- Support system
- Motivation
- Risk-taking behavior
- Frame of mind
- Developmental stage

E = Experiential Readiness

- Level of aspiration
- Past coping mechanisms
- Cultural background
- Locus of control

K = Knowledge Readiness

- Present knowledge base
- Cognitive ability
- Learning disabilities
- Learning styles

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Physical Readiness

The educator needs to consider five major components of physical readiness—measures of ability, complexity of task, environmental effects, health status, and gender—because they affect the degree or extent to which learning will occur. See Chapters 8, 9, and 10 for elaboration on these elements.

Measures of Ability

Ability to perform a task requires fine and/or gross motor movements, sensory acuity, adequate strength, flexibility, coordination, and endurance. Each developmental stage in life is characterized by physical and sensory abilities or may be affected by individual disabilities. For example, walking on crutches is a psychomotor skill for which a patient must have the physical ability to be ready to learn. If a person has a visual deficit, the educator can make available eyeglasses or a magnifying glass so that the patient can, for example, see the lines on a piece of equipment such as a spirometer. If the educator is conducting an inservice workshop on lifting and transfer activities, staff must have the endurance required to return demonstrate this skill. Creating a stimulating and accepting environment by using instructional tools to match learners' physical and sensory abilities encourages readiness to learn.

Complexity of Task

Variations in the complexity of the task affect the extent to which the learner can master the behavioral changes in the cognitive, affective, and

psychomotor domains. The more complex a psychomotor task, for instance, the more difficult it is to achieve (Jarus & Gutman, 2001; Noble & Cratty, 2016). Psychomotor skills, once acquired, are usually retained better and longer than learning in the other domains (Greer et al., 1972). Once ingrained, psychomotor, cognitive, and affective behaviors become habitual and may be difficult to alter. For example, if the learner has been performing a psychomotor skill over a long period of time and then the procedural steps of the task change, the learner must unlearn those steps and learn the new way. This requirement may increase the complexity of the task and put additional physical demands on the learner by lengthening the time the learner needs to adjust to doing something in a new way. Older adults, in particular, develop elaborate cognitive schemas over the years; when they are faced with information contrary to their preexisting knowledge and beliefs, they find the effort to change difficult, confusing, and time consuming (Kessels, 2003).

Environmental Effects

An environment conducive to learning helps to hold the learner's attention and stimulate interest in learning. Unfavorable conditions, such as extremely high levels of noise or frequent interruptions, can interfere with a learner's accuracy and precision in performing cognitive and manual dexterity tasks. Intermittent noise tends to have greater disruptive effects on learning than the more rapidly habituated steady-state noise. McDonald et al. (2004) examined background noise and interruption to determine their effects on college students learning health information. The results of their research suggest that distraction during health teaching, including noise, adversely affects readiness to learn. Congruent with these findings, Hohmann et al. (2016) determined that visual and auditory disturbances negatively impacted motor learning.

Older adults, in particular, need more time to react and respond to stimuli. Increased inability to receive, process, and transmit information is a characteristic of aging. Environmental demands that make older persons feel rushed to perform tasks in a short time frame can overwhelm them. When an activity is self-paced, older learners respond more favorably (Earles et al., 2004; Brustio et al., 2017).

Health Status

The amounts of energy available and the individual's present comfort level are factors that significantly influence that individual's readiness to learn. Energy-reducing demands associated with the body's response to illness require the learner to expend large amounts of physical and psychic energy, leaving little reserve for actual learning. Nurse educators must seriously consider a person's health status, whether well, acutely ill, or chronically ill, when assessing for readiness.

Healthy learners have energy available for learning. In such a case, readiness to learn about health-promoting behaviors is based on their perception of self-responsibility. The extent to which an individual perceives illness to potentially affect future well-being influences that person's desire to learn preventive and promotion measures. If learners perceive a threat to their quality of life, they likely will seek more information to try to control the negative effects of an illness (Bubela & Galloway, 1990).

Learners who are acutely ill tend to focus their energies on the physiological and psychological demands of their illness. Learning is minimal in such persons because most of these individuals' energy is needed for the demands of the illness and gaining immediate relief. Any learning that may occur should be related to treatments, tests, and minimizing pain or other discomforts. As these patients improve and the acute phase of illness diminishes, they can then focus on learning follow-up management and the avoidance of complications.

Educators must assess the readiness to learn of acutely ill patients by observing their energy levels, anxiety, and comfort status. Physical and emotional stress affects a person's ability to learn (Faraji et al., 2014; Gross, 2013; Sandi & Pinelo-Nava, 2007). Improvement in physical status usually results in more receptivity to learning. Medications may be supportive or counterproductive to the ability to learn. Medications that reduce symptoms, such as pain and tremors that affect movement, can favorably influence motor learning experiences. Conversely, medications that induce side effects such as drowsiness, mental depression, impaired depth perception, decreased ability to concentrate, and learner fatigue also reduce task-handling capacity. For example, giving a patient a sedative prior to a learning experience may result in less apprehension, but cognitive and psychomotor abilities may be impaired (Parker, 2012).

In contrast to acute illness, chronic illness has no time limits and is of long-term duration. Models of how people deal with chronic illness also are useful as frameworks for understanding readiness to learn (Larsen, 2021). The physiological and psychological demands vary in chronic illness and are not always predictable. Shiu (2010) addressed the educational needs of students with chronic illness, which can impact their academic performance, social relationships, and self-esteem.

People with chronic illness, whether they be patients, nursing staff, or nursing students, may go through different stages in dealing with their disease, which is similar to the adjustment stages in coping with grief experienced by those facing a loss (Kubler-Ross, 1969). Based on the five stages of grieving, Martin (2015) developed seven psychological stages of chronic pain and illness (denial; pleading, bargaining, and desperation; anger; anxiety and depression; loss of self and confusion; re-evaluation of life, roles, and goals; and acceptance).

If the learner is in the denial stage, readiness to learn likely will be limited to simple explanations because the patient's energy is concentrated on avoidance. Over time, energy levels stabilize and become redirected as awareness of the realities of the situation increase. Readiness to learn may be indicated by the questions the patient asks. Exploring another perspective, Telford et al. (2006) encourage health professionals to listen carefully to their patients' stories of how they experience the illness rather than attempt to categorize patients into specific stages. Listening to patient stories may provide clues as to individuals' readiness to learn.

From another viewpoint, Burton (2000) describes the Corbin and Strauss (1991) chronic illness trajectory framework. This framework reflects the continual nature of adaptation required in living with chronic illness. In contrast to the Corbin and Strauss model, Patterson (2001) describes a shifting perspectives model that suggests living with chronic illness is an ongoing and continually dynamic process. This model provides an explanation of variations in attention to symptoms over time. Individuals' perspectives shift in the degree to which illness is in the foreground or background of their world. It is important for nurse educators to understand this cycle when assessing readiness to learn, because they cannot assume that an approach that worked at one time will be just as effective at another time. The receptivity to learning and practicing self-

care measures of a person who is chronically ill is not static but rather fluctuates over time.

Gender

Research conducted in multiple countries suggests that women are generally more receptive to medical care for both physical and mental health concerns (Bertakis et al., 2000; Ek, 2015; Thompson et al., 2016; Wang et al., 2013) and take fewer risks with their health (Harris et al., 2006; Harvard Men's Health Watch, 2019; Rosen et al., 2003; Sundheim, 2013) than do men. It has been speculated that this gender difference in receptivity to health care may arise because women traditionally have taken on the role of caregivers and, therefore, are more open to health promotion teaching. In addition, women traditionally have more frequent contacts with health providers while bearing and raising children. However, Wang et al. (2013) found that even when reproductive-related consultations were taken into account, women seek primary care consultations more often than men between ages 16 to 60 years. Interestingly, though, these researchers also discovered that gender differences were significantly less when comparing men and women seeking care for similar underlying morbidities. Hunt et al. (2011), too, found consultation rates to be about the same between genders when seeking care for headaches and back pain. From another perspective, Ek (2015) studied the gender gap in health information behavior and found that women, compared to men, demonstrate a greater interest in and more actively seek health-related information that affects the health of them and their families, which has implications for success in public health promotion and disease prevention efforts. Overall, research conclusions indicate that men, by comparison, tend to be less receptive to healthcare interventions. They also are more likely to be risk takers. Men are more likely to take more risks when under stress and women tend to be more risk adverse when stressed, which may be due to gender differences in brain activity. This is an important finding given the level of stress in our daily lives (Sundheim, 2013). Whether male hormones, daredevil role models, and cultural norms are the root causes, it is a fact that males take more risks than females (Harvard Men's Health Watch, 2019). A good deal of health-seeking and risk-taking behaviors are thought to be socially induced. Therefore, changes may begin to be seen in these types of behavior in men and women as a result of an increasing focus on

healthier lifestyles and the blending of gender roles in the home and workplace.

Emotional Readiness

Learners must be emotionally ready to learn. Like physical readiness, emotional readiness includes several factors that need to be assessed. These factors include anxiety level, support system, motivation, risk-taking behavior, frame of mind, and developmental stage. See Chapters 5 and 6 for elaboration on these elements.

Anxiety Level

Anxiety influences a person's ability to perform at cognitive, affective, and psychomotor levels. In particular, it affects patients' ability to concentrate and retain information (Kessels, 2003; Robinson et al., 2019; Sandi & Pinelo-Nava, 2007; Stephenson, 2006). Anxiety may or may not be a hindrance to the learning of new skills depending on the level; some degree of anxiety is a motivator to learn, but anxiety that is too low or too high interferes with readiness to learn. On either end of the continuum, mild or severe anxiety may lead to inaction on the part of the learner. If anxiety is low, the individual is not driven to take steps to promote their health or prevent diseases. Moderate anxiety, however, drives someone to undertake action. As the level of anxiety increases, emotional readiness peaks and then begins to decrease in an inversely U-shaped curvilinear manner based on the Yerkes–Dodson law (Ley, 1979), as shown in **Figure 4-1**. A moderate level of anxiety is best for success in learning and also is considered the optimal time for teaching.

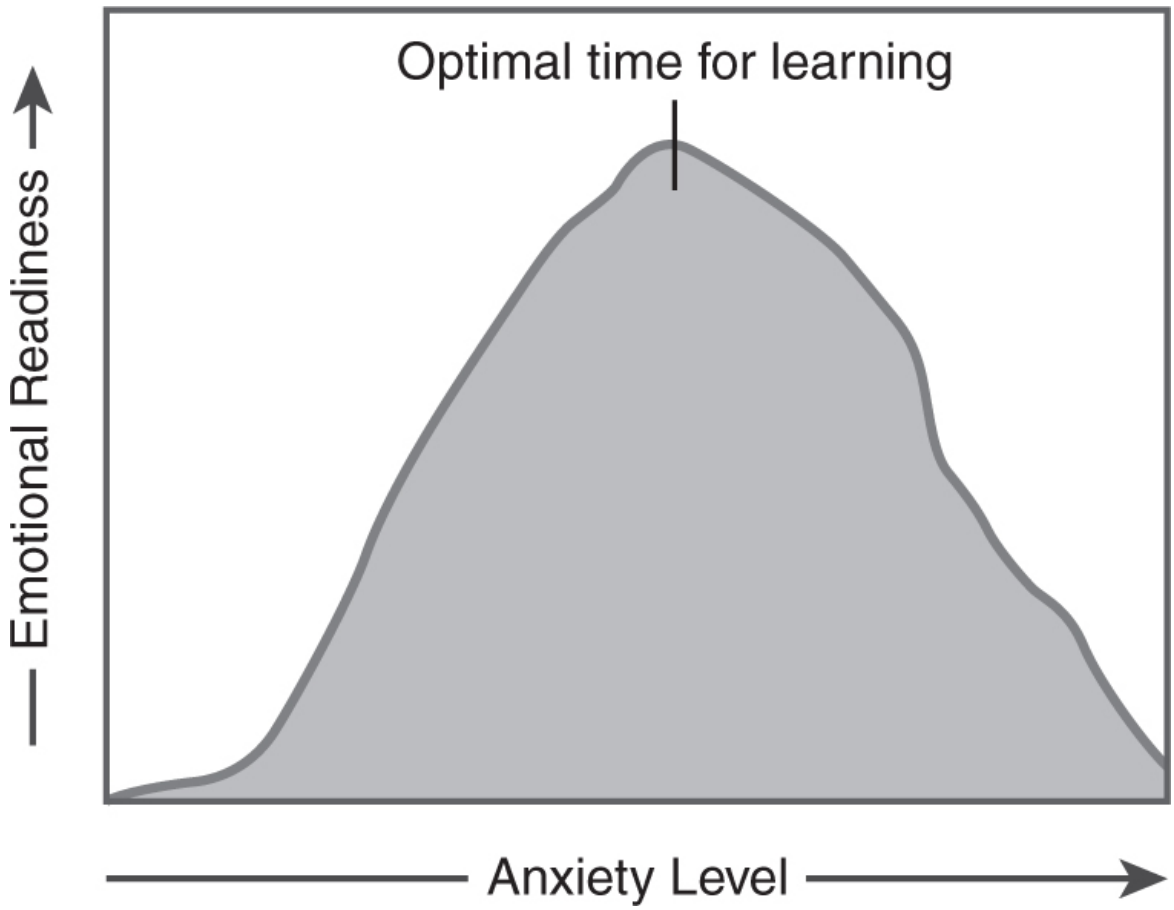

Figure 4-1 Effect of anxiety on emotional readiness to learn.

Data from Ley, P. (1979). Memory for medical information. *British Journal of Social & Clinical Psychology, 18*(2), 245–255. https://doi.org/10.1111/j.2044-8260.1979.tb00333.x

Description

Fear is a major contributor to anxiety and, therefore, negatively affects readiness to learn in any of the learning domains. The performance of a task in and of itself may be fear-inducing to a patient because of its very nature or meaning. For example, learning self-administration of a medication by injection may produce fear for the patient because of the necessity of self-inflicted pain and the perceived danger of the needle breaking off into the skin. A staff member or nursing student, in contrast, may have real difficulty mastering a skill because of the fear of harming a patient or of failing to do a procedure correctly.

Fear also may lead patients to deny their illness or disability or to delay seeking help for a perceived problem, which interferes with their ability to learn as well as decreasing their opportunities for teaching interventions to minimize health risks and disease mortality, respectively (Dubayova et al., 2010). If a situation is life threatening or overwhelming, anxiety will be high and readiness to learn will be diminished. Although teaching may be imperative for survival, learning usually can take place only if instructions are simple and are repeated over and over again. In such circumstances, families and support persons also should be educated to reinforce information and assist with caregiving responsibilities. In later stages of adaptation, acceptance of illness or disability allows the individual to be more receptive to learning because anxiety levels are less acute.

Discovering which stressful events or major life changes the learner is experiencing gives the educator clues about that person's emotional readiness to learn. The nurse must first identify the source and level of anxiety. High stress levels can be moderated by encouraging the person to participate in activities such as support groups and the use of relaxation techniques such as imagery and yoga (Stephenson, 2006). After anxiety levels have been moderated and anxiety has been lessened, education is an excellent intervention to spur someone to take action when dealing with a stressful life event.

Support System

The availability and strength of a support system also influence emotional readiness and are closely tied to how anxious an individual might feel. Nurses should encourage one or more members of the patient's support system who are willing and able to assist with self-care activities at home to be present during at least some of the teaching sessions so that they can learn how to help the patient if the need arises (Farahani et al., 2013). Kitchie's (2003) descriptive correlational study suggests that families and friends are important for medication adherence among older adults who experience chronic illness. Although the educator should not draw any conclusions about causal relationships from this type of study, the educator's assessment benefits from incorporating questions about the learner's social network. Social support is important in buffering the effects of stressful events and occupational stress (Gavan, 2003; Kitchie, 2003; McQuaid et al., 2016; Pow et al., 2017). A strong positive support

system can decrease anxiety, whereas the lack of one can increase anxiety levels.

In addition, the nurse needs to assess the availability of religious and spiritual support. Research by Park and Lee (2020) found that higher levels of religious/spiritual peace and social support each uniquely predicted an increase in positive states of mind when patients had to deal with serious chronic health conditions, such as congestive heart failure. Other health research literature also has demonstrated that religious/spiritual connections are associated with increased quality of life in wellness and terminal illness. Educating nurses on the assessment of a patient's religious/spiritual distress in relation to their current health issues is important when assessing educational needs and readiness to learn. The FICA (Faith and Belief, Importance, Community, Address in Care) spiritual assessment tool serves as a guide for nurses so they can incorporate open-ended questions when exploring these needs (Puchalski et al., 2019; Puchalski et al., 2018; Zumstein-Shaha et al., 2020).

Health professionals often act as sources of social and emotional support to clients. Epstein and Street (2007) describe the significance of fostering healing relationships with patients and responding to patients' emotions as fundamental functions of patient–clinician communication in cancer care. Street, Makoul, Arora, and Epstein (2009) identify the importance of clinicians in enhancing patients' abilities to manage emotions as one of their several recommended pathways to improved health outcomes. Beddoe (1999) describes the unique opportunity that nurses have in providing emotional support to patients. She labels this opportunity as the **reachable moment**—the time when a nurse truly connects with the client by directly meeting the individual on mutual terms. The reachable moment allows for the mutual exchange of concerns and a sharing of possible intervention options without the nurse being inhibited by prejudice or bias. When the client feels emotionally supported, the stage is set for the teachable moment because it is then that the person is most receptive to learning.

Motivation

Emotional readiness is strongly associated with motivation, which is a willingness to take action. Knowing the motivational level of the learner assists the educator in determining when that person is ready to learn.

The nurse educator must be cognizant of the fact that motivation to learn is based on many varied theories of motivation. Thus, it is important to be careful in linking a specific theory's concepts or constructs to the appropriate method of assessment and subsequent educational interventions (Cook & Artino, 2016).

Assessment of emotional readiness involves ascertaining the level of motivation, not necessarily the reasons for the motivation. A learner may be motivated to learn for many reasons, and almost any reason to learn is a valid one. The level of motivation reflects what learners perceive as an expectation of themselves or others.

A learner's interest in informal or formal teacher–learner interactions is a cue to motivation. The learner who is ready to learn shows an interest in what the nurse educator is doing by demonstrating a willingness to participate or to ask questions. Prior learning experiences, whether they be past accomplishments or failures, are reflected in the current level of motivation demonstrated by the learner for accomplishing the task at hand.

The Transtheoretical Model (Prochaska & DiClemente, 1984) identifies six levels of motivation for behavioral change (see Chapter 6). This tool assists providers in assessing patients' readiness to cease unhealthy habits and adopt healthier behaviors. It also provides strategies to facilitate a learner's progression through these stages (Singer, 2007).

Risk-Taking Behavior

Taking risks is intrinsic in the activities people perform daily. Indeed, many activities are done without thinking about the outcome. Some patients, by the very nature of their personalities, take more risks than others do (Harvard Men's Health Watch, 2019). For example, Lau et al. (2019) examined the relationship between habitual sleep behaviors and risk-related decision making in young adults. The findings suggest that those who have perceived high sleep need but demonstrate short sleep duration are more likely prone to risk-taking behaviors. As another example, individuals may choose to identify with groups based on their cognitive and emotional reactions toward others. Nurses need to understand the social determinants of health risk perception and health risk behavior for understanding the needs of learners who may associate with a group's

risky behavior. This has especially been evident during the COVID-19 pandemic (Cruwy et al., 2020).

It is the educator's role to assist patients in developing strategies that help reduce the level of risk associated with their choices. Some patients choose to participate in activities that may worsen their illness or shorten their life span rather than complying with a recommended treatment plan. In such instances, the educator must be willing to teach these patients how to recognize certain body symptoms and then what to do if they have them.

As for risk-taking by staff in the practice setting, the nurse educator must understand why some learners may be hesitant to try new approaches to delivering care while others are eager for innovation. Taking risks can be threatening when the outcomes are not guaranteed. Educators as leaders can, however, help individuals learn how to take risks to enhance their practice, improve the delivery of health care, and positively impact the short- and long-term goals of an organization. Change is difficult in that it requires people to learn something new or to alter their behavior while also letting go of old habits, past routines, and things that have meaning to them. As French-Bravo and Crow (2015) stated, "In the uncertainty and ambiguity of today's healthcare system, we must try new ways of providing care, and in doing so, we must take risks" (p. 1).

Frame of Mind

Frame of mind involves concern about the here and now versus the future. If survival is of primary concern, readiness to learn will be focused on the present to meet basic human needs. According to Maslow (1970), physical needs such as food, warmth, comfort, and safety as well as psychosocial needs of feeling accepted and secure must be met before someone can focus on higher order learning. People from lower socioeconomic levels, for example, tend to concentrate on immediate, current concerns because they are trying to satisfy everyday needs.

Children, for instance, regard life in the here and now because they are developmentally focused on what makes them happy and satisfied. This perspective affects their willingness to learn health information. Adults who have reached self-actualization and those whose basic needs are

met are most ready to learn health promotion and disease prevention tasks and are said to have a more futuristic orientation.

Recently, multiple research studies from around the world have examined both health-seeking behaviors and information-seeking behaviors of young, middle aged, and older adults. **Health-seeking behavior** is defined as one or more activities taken by an individual with a perceived health problem or who feels ill to find medical attention to get an immediate and appropriate remedy (Zhang et al., 2020). **Information-seeking behavior** focuses on understanding how people obtain information about their health, illness, or risks to health, how reliable the information is, and the difficulties they face in getting health-related information (Chaudhuri et al., 2013).

Appropriate health-seeking behavior is important to minimize complications, promote better health outcomes, and improve the patient's overall quality of life (Abidin, 2014; Tran & Silvestri-Elmore, 2020). Key determinants of such behavior are socioeconomic status, costs of health care, understanding disease symptoms and health risks, distance to a health facility, perceived support and knowledge of healthcare providers, and quality of service (Habibullah & Afsar, 2013; Ndarukwa et al., 2020; Tran & Silvestri-Elmore, 2020). Behavior is considered good if patients sought care at a health facility or private provider office and considered poor if they sought no treatment, self-treated, or depended on nonprofessional healers for care (Ndarukwa et al., 2020). Readiness to learn depends on frame of mind and education is key in helping patients understand the importance of taking action at the onset of symptoms and pursuing regular health monitoring to meet their immediate needs and to avoid complications and risks in the future. Certainly, it is essential for health service providers to recognize patterns in health-seeking behavior for the planning and allocation of healthcare resources to meet the present and future needs of the population (Khajeh et al., 2019; Zhang et al., 2020).

As for information-seeking behaviors, nonseeker patients compared to seekers of health information are more likely to come from the lowest income and education groups and are less likely and less able to get health information from the media. Also, older individuals, although they gather information from a variety of sources, tend to make health decisions primarily based on information provided by healthcare providers

(Agyemang-Duah et al., 2020; Chaudhuri et al., 2013). A significant number of older adults still have limited proficiency in using computers and searching the internet so that online sources of information only play a minor role for them in obtaining health information (Chaudhuri et al., 2013; Weber et al., 2020). These findings have implications for educators in assessing an individual's frame of mind for readiness to learn and in designing and improving communication strategies to best reach various segments of the population to meet their immediate needs as well as for future health promotion and disease prevention efforts.

Developmental Stage

Each task associated with human development produces a peak time for readiness to learn, known as a **teachable moment** (Bluethmann et al., 2015; Dresler et al., 2018; Reynolds et al., 2020).

Erikson's (1963, 1968, 1997) well-accepted theory of the eight stages of psychosocial learning in relationship to the stages of human development is most relevant to an individual's emotional readiness. Children, for instance, desire to learn for learning's sake and actively seek out experiences that give them pleasure and comfort. Adults, on the other hand, already have meaningful past experiences they can build on and are strongly driven to learn information that helps them to cope better with real-life tasks. They see learning as relevant when they can apply new knowledge to help them solve immediate problems.

McCarthy and Grey (2018) discovered the importance of considering the developmental stage of patients along with the competing demands of that age group when health providers are choosing the best option for an educational intervention about self-management of type 1 diabetes. Also, the developmental stage of nursing students is important to assess because of the academic demands on them to learn higher-level thinking, such as reasoning, judgment, decision making, and prioritization needed in clinical practice (Timbrell & Relouw, 2019). Younger age students may not have reached the level of development as those students of an older age that is required for the mastery of these essential cognitive skills.

Experiential Readiness

Experiential readiness refers to the learner's past experiences with learning and includes four elements: level of aspiration, past coping mechanisms, cultural background, and locus of control. The educator should assess whether previous learning experiences have been positive or negative in overcoming problems or accomplishing new tasks. Someone who has had negative experiences with learning is not likely to be motivated or willing to take a risk to change behavior or acquire new behaviors. See Chapters 6, 7, and 8 for elaboration on these elements.

Level of Aspiration

The extent to which someone is driven to achieve is related to the type of short- and long-term goals established—not by the educator but by the learner. Previous failures and past successes influence the goals that learners set for themselves. Early successes are important motivators in learning subsequent skills. Satisfaction, once achieved, elevates the level of aspiration, which in turn increases the probability of continued performance output in undertaking future endeavors to change behavior. For example, Abdelrazek (2016) and Conley (2015) identified a significant relationship between college students' level of aspiration and their motivation to learn. Tomlin (2017) addressed level of aspiration as one of four key attributes that staff can learn so they are motivated to transform their healthcare practice for improved care delivery.

Past Coping Mechanisms

Educators must explore the coping mechanisms that learners have been using to understand how they have dealt with previous problems. Once these mechanisms are identified, the educator needs to determine whether past coping strategies have been effective and, if so, whether they work well in the present learning situation.

Cultural Background

The educator's knowledge about other cultures and sensitivity to behavioral differences between cultures are important so that the educator can avoid teaching in opposition to cultural beliefs. Assessment of what an illness means to the patient from the patient's cultural perspective is imperative in determining readiness to learn. Remaining

sensitive to cultural influences allows the educator to bridge the gap, when necessary, between the medical healthcare culture and the patient's culture. Building on the learner's knowledge base or belief system (unless it is dangerous to well-being), rather than attempting to change it or claim it is wrong, encourages rather than dampens readiness to learn.

Language is also a part of culture and may prove to be a significant obstacle to learning if the educator and the learner do not speak the same language fluently. Assessing whether learners understand English well enough to be able to express themselves so that others understand is the first step. Obtaining the services of a qualified interpreter is necessary if the learner and nurse do not speak the same language. Enlisting the help of someone other than a trained interpreter (such as a family member or friend) to bridge language differences may negatively influence learning, although this effect depends on such issues as the sensitivity of the topic and the need for privacy. In some instances, the patient may not want family members or associates to know about a health concern or illness.

Medical terminology in and of itself may be a foreign language to many patients, even if they are from a nondominant culture or their primary language is the same as or different from that of the educator. In addition, sometimes a native language does not have an equivalent word to describe the terms that are being used in the teaching situation. Differences in language compound cultural barriers. Educators should not start teaching unless they have determined that the learner understands what they are saying and that they understand and respect the learner's culture.

Locus of Control

Educators can determine whether readiness to learn is prompted by internal or external stimuli in ascertaining the learner's previous life patterns of responsibility and assertiveness. When patients are internally motivated to learn, they have what is called an *internal locus of control*; that is, they are ready to learn when they feel a need to know about something. This drive to learn comes from within the learner. Usually, this type of learner indicates a need to know by asking questions. Remember that when someone asks a question, the time is prime for learning. If patients have an *external locus of control*—that is, they are externally motivated—then someone other than themselves must encourage the

learner to want to know something. The responsibility often falls on the educator to motivate the patient to want to learn.

Knowledge Readiness

Knowledge readiness refers to the learner's present knowledge base, the level of cognitive ability, the existence of any learning disabilities and/or reading problems, and the preferred style of learning. Nurse educators must assess these components to determine readiness to learn and should plan teaching accordingly. See Chapters 5, 7, 9, and 10 for further elaboration on these components that affect knowledge readiness.

Present Knowledge Base

How much someone already knows about a specific subject or how proficient that person is at performing a task is an important factor to determine before designing and implementing instruction. If educators make the mistake of teaching subject material that has already been learned, they risk at the very least inducing boredom and lack of interest in the learner or at the extreme insulting the learner, which could produce resistance to further learning. The nurse educator must always find out what the learner knows prior to teaching and build on this knowledge base to encourage readiness to learn. In teaching patients, the educator also must consider how much information the patient wants to receive. Some patients want to know the details to make informed decisions about their care, whereas others prefer a more general and less in-depth approach and can be overwhelmed by the provision of too much information.

Cognitive Ability

The extent to which information can be processed is indicative of the learner's capabilities. The educator must match the level of behavioral objectives to the cognitive ability of the learner. The learner who is capable of understanding, memorizing, recalling, or recognizing subject material is functioning at a lower level in the cognitive domain than the learner who demonstrates problem solving, concept formation, or application of information. For example, nursing staff or students who can answer questions about cardiopulmonary resuscitation (CPR) on a written test demonstrate an understanding of the subject, but this does not

necessarily mean that they can transfer this knowledge to perform CPR in the clinical setting. Patients who can identify risk factors of hypertension (a low level of functioning in the cognitive domain) may struggle with generalizing this information to incorporate a low-salt diet in their lifestyle.

Individuals with cognitive impairment present a special challenge to the educator and require simple explanations and step-by-step instruction with frequent repetition. Nurse educators should be sure to make information meaningful to those persons with cognitive impairments by teaching at their level and communicating in ways that learners can understand. Enlisting the help of members of the patient's support system by teaching them requisite skills allows them to contribute positively to the reinforcement of self-care activities.

Learning and Reading Disabilities

Learning disabilities, which may be accompanied by low-level reading skills, are not necessarily indicative of an individual's intellectual abilities, but they do require educators to use special or innovative approaches to instruction to sustain or bolster readiness to learn. Individuals with low literacy and numeracy skills or learning disabilities become easily discouraged unless the educator recognizes their special needs and seeks ways to help them accommodate or overcome their problems with encoding words and comprehending information. For example, numeracy skills are important for patients in managing their complex self-care needs, such as patients with insulin-dependent diabetes who are responsible for using insulin pumps, calculating medications, and determining when it is time to reorder medical supplies. In addition, when teaching patients and their families about their absolute risk for illness or disease, which involves percentages, fractions, and/or frequencies, Adler (2018) addresses the need for nurses to know how to simply communicate this type of information and Schrager (2018) suggests five straightforward educator strategies to help patients and families understand their risks.

Learning Styles

As for preferred styles of learning, assessing how someone learns best and likes to learn helps the educator to select appropriate teaching

approaches. Knowing the teaching methods and materials with which a learner is most comfortable or, conversely, those that the learner does not tolerate well allows the educator to tailor teaching to meet the needs of individuals with different styles of learning, thereby increasing their readiness to learn. The next section provides further information about learning styles.

Learning Styles

Learning styles refer to the ways in which and conditions under which learners most efficiently and most effectively perceive, process, store, and recall what they are attempting to learn and their preferred approaches to different learning tasks (Cassidy, 2004; Furnham, 2012). Learning style takes into account the cognitive, affective, and physiological factors affecting how learners perceive, interact with, and respond to the learning environment (Keefe, 1979).

Learning style models are based on the premise that certain characteristics of learning are biological in origin, whereas others are sociologically developed resulting from environmental influences. No learning style is inherently better or worse than another. Recognizing that people have different approaches to learning helps the nurse educator understand the differences in educational interests and needs of diverse populations. Accepting the diversity of such styles can help educators create an atmosphere for learning characterized by experiences that encourage every individual to reach their full potential. Understanding learning styles also can help educators make deliberate decisions about program development and instructional design (Anderson, 2016; Boström & Hallin, 2013; Crannell & Witte, 2012; Gonzalez et al., 2017; Hanzelka, 2013; Innott & Kennedy, 2011; Mangold et al., 2018).

Determining Learning Styles

Three mechanisms to determine learning style are observation, interviews, and administration of learning style instruments. By observing the learner in action, the educator can ascertain how the learner grasps information and solves problems. For example, when doing a math calculation, does the learner write down every step or just the answer? In an interview, the educator can ask the learner about preferred ways of learning as well as the environment most comfortable for learning. Is group discussion or self-instruction

preferable? Does the learner prefer hands-on activities or reading instructions? Is a warm or cold room more conducive to concentrating? Simply asking the question, “How do you learn best?” can yield valuable information on this front. Finally, the educator can administer learning style instruments, such as those described in the next section.

Educators should use all three techniques of observation, interviews, and learning style instruments to determine learning style. Assessment is foremost in the educational process. Once data are gathered through these assessment mechanisms, educators can validate learning style and choose methods and materials for instruction to support a variety of learner preferences. They can then direct patients, students, or staff toward the ways they learn best.

Using the learning style approach to instruction has exciting implications but, as pointed out in the text that follows, application of learning style to teaching and learning must be used with caution. Nevertheless, understanding and recognizing various styles has the potential to positively influence decision making about planning, implementing, and evaluating educational programs.

Learning Style Models and Instruments

The identification and application of information about learning styles continues to be an emerging movement but also controversial. To date, researchers have defined learning styles differently, although the concepts in each definition are often overlapping.

This chapter does not attempt to include all available instruments but rather highlights those commonly cited in recent reviews and in health sciences research literature that refer to the psychometric properties of each tool. These instruments are believed to be the most useful to nurse educators for assessment purposes.

Before using any learning style instrument, it is important to determine the reliability and validity of the tool and to realize that a totally inclusive instrument that measures all domains of learning—cognitive, affective, and psychomotor—does not exist. Therefore, it is best to use more than one measurement tool for assessment. Also, the educator should not rely heavily on these instruments because they are intended not for diagnosis but rather to validate what the learner perceives in comparison to what the educator perceives. When approached from this perspective, these instruments will help the nurse educator in developing a more personalized form of instruction. However, the educator must be cognizant of the fact that although useful for informational purposes the data from these should never limit education choices (Barry & Egan, 2018).

Right-Brain/Left-Brain and Whole-Brain Thinking

Although not technically a model, right-brain/left-brain thinking, along with whole-brain thinking, adds to the understanding of brain functions that are associated with learning. Over 40 years ago, Roger Sperry and his research team established that, in many ways, the brain operates as two brains (Herrmann, 1988; Sperry, 1977), with each hemisphere having separate and complementary functions. The left hemisphere of the brain was found to be the vocal and analytical side, which is used for verbalization and for reality-based and logical thinking. The right hemisphere was found to be the emotional, visual–spatial, and nonverbal side, with thinking processes that are intuitive, subjective, relational,

holistic, and time free. Sperry and his colleagues discovered that learners can use both sides of the brain because of a connector between the two hemispheres called the corpus callosum. Although significant information in current neuroscience research indicates the two-brain model oversimplifies cognitive functioning (Dietrich & Kanso, 2010; Mihov et al., 2010), it nonetheless gives educators yet another approach to better understanding the learner.

There is no correct or wrong side of the brain to use in information processing. Instead, each hemisphere gathers the same sensory information but handles the information in different ways. One hemisphere may take over and inhibit the other in processing information, or the task may be divided between the two sides, with each handling the part best suited to its way of processing information.

Recognizing that one side of the brain may be better equipped for certain kinds of tasks than for others, educators can find the most effective way to present information to learners who have a dominant brain hemisphere (**Box 4-3**). According to Sperry's theory, brain hemisphericity is linked to cognitive learning style or the way individuals perceive and gather information to solve problems, complete assigned tasks, relate to others, and meet the daily challenges of life.

Box 4-3 Examples of Hemisphere Functions

Left-Hemisphere Functions

- Thinking is critical, logical, convergent, focal
- Analytical
- Prefers talking and writing
- Responds to verbal instructions and explanations
- Recognizes/remembers names
- Relies on language in thinking and remembering
- Solves problems by breaking them into parts, then approaches the problem sequentially, using logic
- Good organizational skills, neat
- Likes stability, willing to adhere to rules
- Conscious of time and schedules
- Algebra is the preferred math
- Not as good at interpreting body language
- Controls emotions

Right-Hemisphere Functions

- Thinking is creative, intuitive, divergent, diffuse
- Synthesizing
- Prefers drawing and manipulating objects
- Responds to written instructions and explanations
- Recognizes and remembers faces
- Relies on images in thinking and remembering
- Solves problems by looking at the whole and the configurations, then approaches the problem through patterns, using hunches
- Loose organizational skills, sloppy
- Likes change, uncertainty
- Frequently loses contact with time and schedules
- Geometry is the preferred math
- Good at interpreting body language
- Free with emotions

Educators need to employ teaching methods that enable the learner to use both sides of the brain. For example, to stimulate the development of left-brain thinking, the nurse educator should provide a structured environment by relying on specific objectives and a course outline. To stimulate the development of the right brain, the educator should provide a more unstructured, free-flowing environment that allows for creative opportunities. By employing teaching strategies aimed at helping the learner use both brain hemispheres, the educator perhaps can facilitate more effective and efficient learning.

Lillyman et al. (2011) use storyboarding in helping students use both the right and left brain to reflect on end-of-life issues. Misch (2016) uses humor to encourage students to use the right brain along with the left brain so that critical components of care can be addressed in successful patient, family, and healthcare team interactions. Such whole-brain thinking allows learners to realize the best of both worlds in developing their thought processes (Jacobson, 2016). Duality of thinking is what educators should strive to teach to encourage learners to reach their full learning potential.

Instruments to Measure Right-Brain/Left-Brain and Whole-Brain Thinking

Two instruments are used to measure right- and left-brain dominance. The first, called the brain preference indicator (BPI), consists of a set of questions used to determine hemispheric functioning. The BPI instrument reveals a general style of thought that results in a consistent pattern of behavior in all areas of the individual's life. Although the reliability and validity of this instrument have not been reported, it does provide a starting point for the educator to understand their own right- or left-brain preferences. More information about the BPI can be found in *Whole-Brain Thinking* by Wonder and Donovan (1984).

The other instrument available for widespread commercial use is the Herrmann Brain Dominance Instrument (HBDI). Herrmann's (1988) model incorporates theories on growth and development and considers learning styles as learned patterns of behavior. The HBDI classifies learners in terms of the following four modes, with each quadrant corresponding to a brain structure and different preferences for thinking:

- Quadrant A (left brain, cerebral): logical, analytical, quantitative, factual, critical
- Quadrant B (left brain, limbic): sequential, organized, planned, detailed, structured
- Quadrant C (right brain, limbic): emotional, interpersonal, sensory, kinesthetic, symbolic
- Quadrant D (right brain, cerebral): visual, holistic, innovative

Independent studies have found the HBDI to be psychometrically sound with respect to its reliability and validity for use in the business world (Barclay, 2006; Herrmann Global, 2017), but minimal evidence exists for use in the healthcare field. More information about this model is available at Herrmann International's website (https://www.thinkherrmann.com/).

Field-Independent/Field-Dependent Perception

An extensive series of studies by Witkin et al. (1971a) identified two styles of learning in the cognitive domain, which are based on the bipolar distribution of characteristics of how learners process and structure information in their environment. These authors hypothesized that learners have preference styles for certain environmental cues. A field-independent person perceives items as separate or differentiated from the

surrounding field; a field-dependent person's perception is influenced by or immersed in the surrounding field.

Field-independent individuals have internalized frames of reference such that they experience themselves as separate or differentiated from others and the environment. They are less sensitive to social cues, are not affected by criticism, favor an active participant role, and are eager to test their ideas or opinions in a group.

Field-dependent individuals, by comparison, are more externally focused and as such are socially oriented, more aware of social cues, able to reveal their feelings, and are more dependent on others for reinforcement. They have a need for extrinsic motivation and externally defined objectives and learn better if the material has a social context. They are more easily affected by criticism; take a passive, spectator role; and change their opinions in the face of peer pressure.

Onyekuru (2015) and Romanelli et al. (2009) suggest that individual differences in characteristics and interpersonal behavior can be used as a basis for understanding different cognitive learning styles and can facilitate the way educators work with learners, structure the learning task, tailor their teaching methods, and structure the environment (**Box 4-4**).

Box 4-4 Characteristics of Field-Independent and Field-Dependent Learners

Field-Independent Learners

- Are not affected by criticism
- Will not conform to peer pressure
- Are less influenced by external feedback
- Learn best by organizing their own material
- Have an impersonal orientation to the world
- Place emphasis on applying principles
- Are interested in new ideas or concepts for own sake
- Provide self-directed goals, objectives, and reinforcement
- Prefer lecture method

Field-Dependent Learners

- Will conform to peer pressure

- Are easily affected by criticism
- Are influenced by feedback (grades and evaluations)
- Learn best when material is organized
- Have a social orientation to the world
- Place emphasis on facts
- Prefer learning to be relevant to own experience
- Need external goals, objectives, and reinforcements
- Prefer discussion method

Instrument to Measure Field Independence/Field Dependence

Witkin and colleagues (1971b) devised a tool called the Group Embedded Figures Test (GEFT) to measure field independence/dependence—that is, how a person's perception of an item is influenced by the context in which it appears. Witkin's work on this tool is based on 35 years of psychological research and testing on more than 2,000 individuals, which educators must keep in mind when they attempt to apply findings broadly to the educational setting (Witkin et al., 1977). Bonham (1988) notes that the GEFT, which takes approximately 30 minutes to complete, is designed to determine a person's ability to find simple geometric figures within complex drawings. The GEFT measures the ability to do something, not the manner (style) in which that task is done (Bonham, 1988; Shipman & Shipman, 1985; Witkin & Goodenough, 1981). Older adults generally do not do well on tests in which speed is important (Eckert et al., 2010; Howieson, 2015; Kerchner et al., 2012; Santrock, 2019), and because this assessment tool is a timed test, age bias is a concern (Santrock, 2019).

Wooldridge and Haimes-Bartolf (2006) describe the essence of what it means to be field independent versus field dependent. Field-independent learners take an analytical approach to experiencing the environment. They are more independent in problem solving, are more intrinsically motivated and task-oriented in their learning processes, are more focused and disciplined learners, have longer attention spans, have a more contemplative disposition, depend more on internal cues, have a more competitive and achievement-oriented approach to learning, and prefer formal learning environments. Field-dependent learners, on the other hand, have a more global way of experiencing the environment. They discern discrete parts of the surrounding field; depend on cues and structure from their environment; rely on their experiences in the environment for learning; have short attention spans; are easily distracted;

are more socially oriented, less achievement-oriented, and less competitive; rely heavily on external stimuli to motivate them; and prefer casual learning environments

The best time to use the GEFT seems to be when the educator wants to measure field independence, not field dependence, in determining the extent to which learners are able to ignore distractions from other persons who may offer incorrect information or ideas. The results could help individuals understand why they may have trouble with certain learning experiences (Bonham, 1988). For example, DeTure (2010) designed a study to identify those learner attributes that can be used to predict student success in web-based distance education courses. This author administered the GEFT and the Online Technologies Self-Efficacy Scale (OTSES) to community college students to determine their entry-level confidence with computer skills for online learning. Study findings show a significant positive correlation between the GEFT and the OTSES scores, supporting the notion that field-independent students tend to be more confident with online technologies. Thus, field-dependent students may need more assistance with web-based courses, and the educator may need to find other methods of instruction for their learning to be more successful and less anxiety producing.

Flynn and associates (1999) found a significant association between the number of interruptions and distractions in an ambulatory care pharmacy and dispensing errors (incorrect label information). As the distractions (field background elements) increased, more errors occurred. Field-dependent pharmacists tended to become more distracted and to fill prescriptions inaccurately. Consideration of field independence/dependence can be useful for the educator who is involved with teaching in a clinical setting characterized by constant distractions.

The GEFT has been reasonably well validated in predicting academic performance and retention in college (Garton et al., 2000; Khatib & Hosseinpur, 2011; Oltman et al., 1978). This instrument is available for purchase from Mind Garden (http://www.mind garden.com).

Dunn and Dunn Learning Styles

In 1967, Rita Dunn and Kenneth Dunn set out to develop a user-friendly model that would assist educators in identifying characteristics that allow

individuals to learn in different ways (Dunn & Dunn, 1978). Their model includes motivational factors, social interaction patterns, and physiological and environmental elements. These researchers identified five basic stimuli, as described in the list that follows and as shown in **Figure 4-2**, that affect a person's ability to learn:

1. Environmental elements (such as sound, light, temperature, and design), which are biological in nature
2. Emotional elements (such as motivation, persistence, responsibility, and structure), which are developmental and emerge over time as an outgrowth of experiences that have happened at home, school, play, or work
3. Sociological patterns (such as the desire to work alone or in groups, or a combination of these two approaches), which are thought to be socioculturally based
4. Physical elements (such as perceptual strength, intake, time of day, and mobility), which are also biological in nature and relate to the way learners function physically
5. Psychological elements (such as the way learners process and react to information), which are also biological in nature

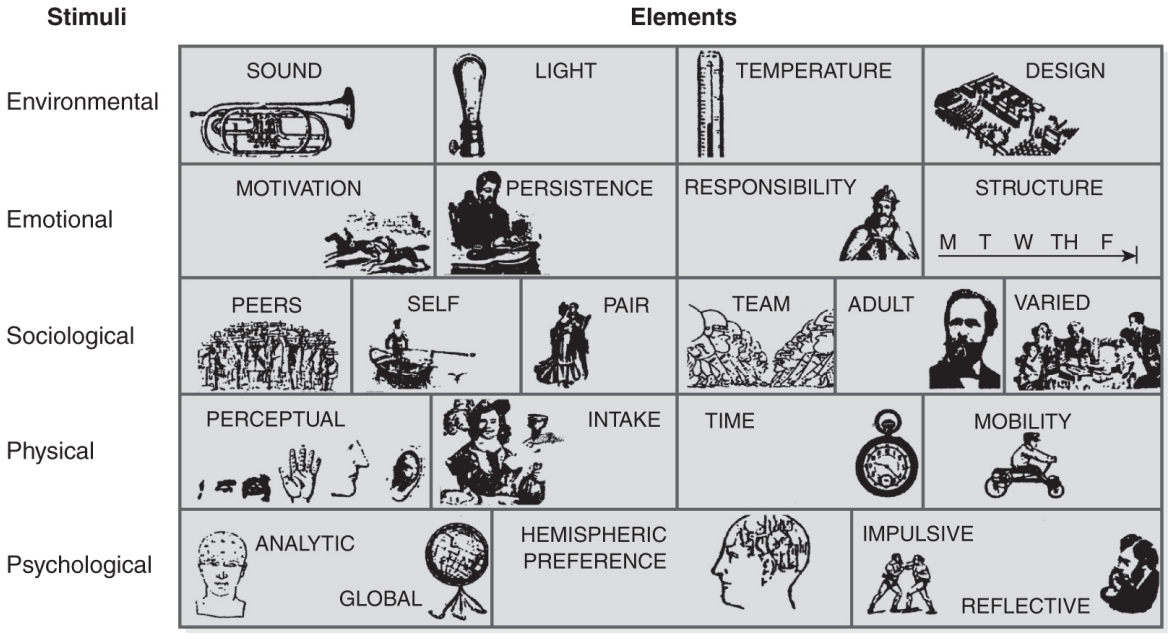

Figure 4-2 Dunn and Dunn's learning style options.

Courtesy of the Association for Supervision and Curriculum Development. Dunn, R. (1983). Can students identify their own

learning styles? *Educational Leadership, 40*(5), 60–62. Reprinted by permission of the Association for Supervision and Curriculum Development. All rights reserved.

Description

Instrument to Measure the Dunn and Dunn Learning Style Inventory

The Dunn and Dunn learning style inventory is a self-report instrument that is widely used in the identification of how individuals prefer to function, learn, concentrate, and perform in their educational activities. It is available in three different forms: for grades 3–5; for grades 6–12; and in an adult version, called the Productivity Environmental Preference Survey (PEPS). Dunn and Dunn stress that the PEPS is not intended to be used as an indicator of underlying psychological factors, value systems, or the quality of attitudes. This instrument yields information concerned with the patterns through which learning occurs but does not assess the finer aspects of an individual's skills, such as the ability to outline procedures and to organize, classify, or analyze new material. It indicates how people prefer to learn, not the abilities they possess.

What has evolved since the model was first developed is a highly tested and continuously revised instrument that is valid and reliable as reported by those who like and use this instrument (Arip et al., 2016; Dunn & Griggs, 2003; Mangino, 2004). However, others highlight problems with the design and reliability of the instrument (Coffield et al., 2004a).

Jung and Myers–Briggs Typology

Carl G. Jung (1921/1971), a Swiss psychiatrist, developed a theory that explains personality similarities and differences by identifying attitudes of people (extraverts and introverts) along with opposite mental functions, which are the ways people perceive or prefer to take in and make use of information from the world around them. Jung proposed that people are likely to operate in a variety of ways depending on the circumstances. Despite these situational adaptations, every individual tends to develop comfortable patterns, which dictate behavior in certain predictable ways. Jung used the word *type* to identify these styles of personality.

According to Jung, everyone uses these opposing perceptions to some degree when dealing with people and situations, but each person prefers one way of looking at the world. Individuals become more skilled in arriving at a decision in either a thinking or feeling way and can function as extraverts at one time and as introverts at another time, but they tend to develop patterns that are most typical and comfortable.

Isabel Myers and her mother, Katherine Briggs, became convinced that Jung's theories had an application for increasing human understanding (Myers, 1980). In addition to Jung's dichotomies, Myers and Briggs discovered another dichotomy (Myers, 1987) and thus made explicit one underdeveloped aspect of Jung's model (**Figure 4-3**). According to Myers and Briggs, an individual reaches a conclusion about or becomes aware of something through a preference of judging or perceiving.

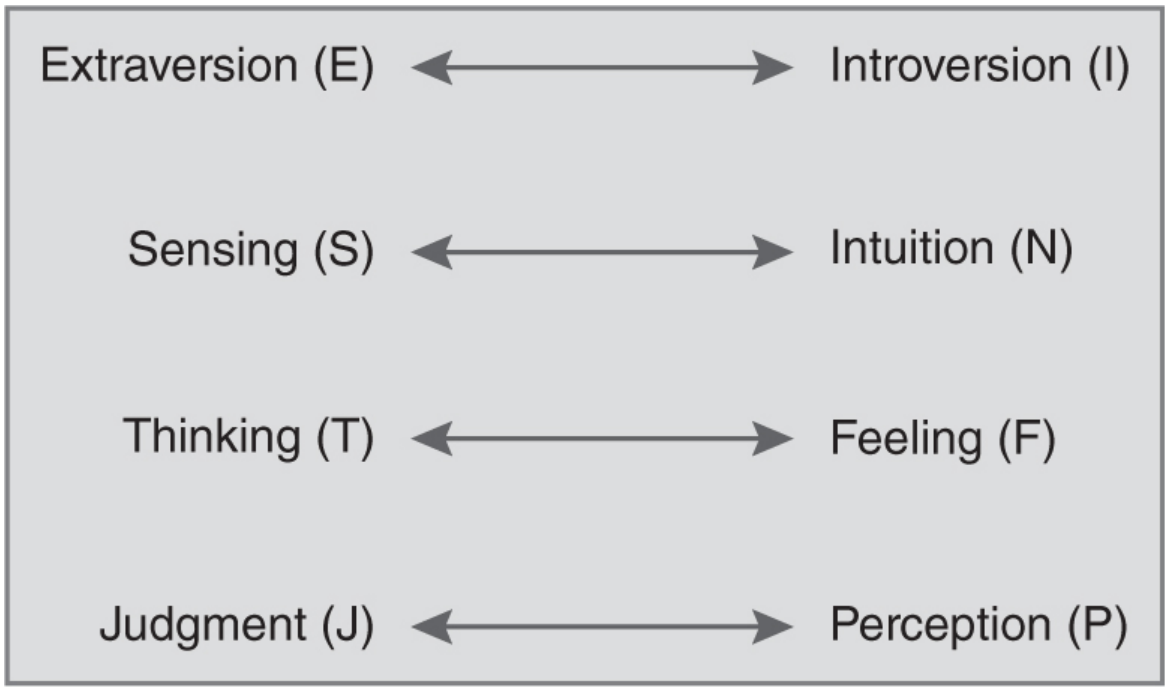

Figure 4-3 Myers–Briggs dichotomous dimensions or preferences.

Description

By combining the different preferences, Myers and Briggs identified 16 personality types, each with its own strengths and interests (**Figure 4-4**).

People can be classified into the 16 personality types based on four constructs (Myers, 1998):

ISTJ	ISFJ	INFJ	INTJ
ISTP	ISFP	INFP	INTP
ESTP	ESFP	ENFP	ENTP
ESTJ	ESFJ	ENFJ	ENTJ

Figure 4-4 Myers–Briggs types.

Modified and reproduced from Myers, I. B. (1998). *Introduction to type*® (3rd ed.). Consulting Psychologists Press. Copyright 1998 by Consulting Psychologists Press, Inc. All rights reserved. Further reproduction is prohibited without the Publisher's written consent.

Description

1. Extraversion–Introversion (E–I) reflects an orientation to either the outside world of people and things or to the inner world of concepts and ideas. This pair of opposite preferences describes the extent to which behavior is determined by attitudes toward the world. Jung invented the terms from Latin words meaning "outward turning" (*extraversion*) and "inward turning" (*introversion*).

   Individuals who prefer extraversion operate comfortably and successfully by interacting with things external to themselves, such as other people, experiences, and situations. They like to clarify

thoughts and ideas through talking and doing. Those persons who operate more comfortably in an extraverted way think aloud.

Individuals with a preference for introversion are more interested in the internal world of their minds, hearts, and souls. They like to brew over thoughts and actions, reflecting on them until they become more personally meaningful. Those persons who operate more comfortably in an introverted way are often thoughtful, reflective, and slow to act because they need time to translate internal thoughts to the external world. Their thoughts are well formulated before they are willing to share them with others.

2. Sensing–Intuition (S–N) describes perception as coming directly through the five senses or indirectly by way of the unconscious. This pair of opposite preferences explains how people understand what is experienced.

   People who prefer sensing experience the world through their senses —vision, hearing, touch, taste, and smell. They observe what is real, what is factual, and what is happening overtly. For these individuals, seeing or experiencing is believing. The sensory functions allow the individual to observe carefully, gather facts, and focus on practical actions.

   Conversely, those people who prefer intuition tend to read between the lines, focus on meaning, and attend to what might be. Those with intuition preferences view the world through possibilities and relationships and are tuned into subtleties of body language and tones of voice. This kind of perception leads them to examine problems and issues in creative and original ways.

3. Thinking–Feeling (T–F) is the approach used by individuals to arrive at judgments through objective versus subjective processes. Thinking types analyze information, data, situations, and people and make decisions based on logic. They are careful and slow in the analysis of the data because accuracy and thoroughness are important to them. They trust objectivity and put faith in logical predictions and rational arguments. Thinking types explore and weigh all alternatives, and the final decision is reached impersonally, unemotionally, and carefully.

For individuals with a feeling preference, the approach to decision making takes place through a subjective, perceptive, empathetic, and emotional perspective. Individuals who prefer feeling search for the effect of a decision on themselves and others. They consider alternatives and examine evidence to develop a personal reaction and commitment. They believe the decision-making process is complex and not totally objective. Circumstantial evidence is extremely important, and these individuals see the world as gray rather than black and white.

4. Judging–Perceiving (J–P) is the way by which an individual reaches a conclusion about or becomes aware of something. The extremes of this continuum are a preference for judging, which is the desire to regulate and bring closure to circumstances in life, and a preference for perceiving, which is the desire to be openminded and understanding.

Instrument to Measure the Myers–Briggs Personality Types

Myers and Briggs developed an instrument called the Myers–Briggs Type Indicator (MBTI) that permits people to learn about their own type of behavior and understand themselves better with respect to the way in which they interact with others. Although the MBTI is not a learning style instrument per se, it does measure differences in personality types, which are combinations of the four dichotomous preferences. The MBTI is a forced-choice, self-report inventory.

The MBTI can be useful for the educator to understand in which ways learners perceive and judge information and how they prefer to learn. Logical, detailed individuals (sensing–thinking type), for example, may have difficulty communicating with persons who are more holistically oriented (intuitive–feeling type). What each party values and believes most and how they go about learning or dealing with information differ and may lead to misunderstandings and conflicts (Bargar & Hoover, 1984). Findings of significant differences between medical graduates and the general adult population in Great Britain in three of the four basic personality dimensions of the MBTI, as well as in combinations of perception and judgment, suggest potential points for miscommunication between physicians and patients (Clack et al., 2004). Another example of how these two personality types function is that the preferred learning

style of sensing–thinking learners emphasizes hands-on experience, demonstration, and application of concepts, whereas intuition–feeling learners prefer emphasis on the theoretical concerns before they can concentrate on the practical applications. Examples of how the MBTI results affect learning are listed in **Box 4-5**.

Box 4-5 Myers–Briggs Types: Examples of Learning

Extraversion

- Likes group work
- Dislikes slow-paced learning
- Likes action and to experience things as the way to learn
- Offers opinions without being asked
- Asks questions to check on the expectations of the educator

Sensing

- Practical
- Realistic
- Observant
- Learns from an orderly sequence of details

Thinking

- Low need for harmony
- Finds ideas and things more interesting than people
- Analytical
- Fair

Judging

- Organized
- Methodical
- Work oriented
- Controls the environment

Introversion

- Likes quiet space
- Dislikes interruptions

- Likes learning that deals with thoughts and ideas
- Offers opinions only when asked
- Asks questions to allow understanding of the learning activity

Intuition

- Always likes something new
- Imaginative
- Sees possibilities
- Prefers the whole concept versus details

Feeling

- Values harmony
- More interested in people than things or ideas
- Sympathetic
- Accepting
- Perceiving

Perceiving

- Open ended
- Flexible
- Play oriented
- Adapts to the environment

Over the years, the MBTI has been used frequently by educational and health professions programs to measure diverse personalities that exist in these fields of study (Randall et al., 2017). For example, Schoessler et al. (1993) used the MBTI to develop a continuing education department for nursing. Hardy and Smith (2001) restructured their nursing orientation program to match preceptor and orientee based on teaching and learning traits identified through individual MBTI scores. Stilwell et al. (2000) identified the usefulness of the MBTI in understanding how aspects of personality relate to medical graduates' choice of medical specialty areas. Allen and Brock (2002) offered MBTI-based guidelines on effective communication among healthcare professionals and between providers, patients, and families.

Since its initial development in the 1920s, the MBTI instrument has undergone several revisions. As for its reliability and validity, a meta-

analysis by Capraro and Capraro (2002) yielded mixed reviews, but a more recent systematic review and meta-analysis by Randall et al. (2017) revealed evidence to support the utility of the MBTI as it applies to college-age students in particular because this group was the focus of the majority of research studies conducted on this instrument. The MBTI instrument and MBTI products are available from CPP (https://www.cpp.com).

Kolb's Experiential Learning Model

David Kolb (1984), a management expert from Case Western Reserve University, developed his learning style model in the early 1970s. Kolb believed that knowledge is acquired through a transformational process, which is continuously created and recreated. In this model, the learner is not a blank slate but rather approaches a topic to be learned with preconceived ideas. Kolb's theory on learning style is that it is a cumulative result of past experiences, heredity, and the demands of the present environment. These factors combine to produce different individual orientations to learning.

Kolb's model, known as the cycle of learning, includes four modes of learning that reflect two major dimensions: perception and processing. He hypothesizes that learning results from the way learners perceive as well as how they process what they perceive.

The dimension of perception involves two opposite perceptual viewpoints: Some learners perceive through concrete experience (CE mode), whereas others perceive through abstract conceptualization (AC mode). At the CE stage of the learning cycle, learners tend to rely more on feelings than on a systematic approach to problems and situations. Learners who fall into this category like interacting with people, benefit from specific experiences, and are sensitive to others. They learn from feeling. In contrast, at the AC stage, learners rely on logic and ideas rather than on feelings to deal with problems or situations. People who fall into this category use systematic planning and logical analysis to solve problems. They learn by thinking.

The process dimension also has two opposing orientations: Some learners process information through reflective observation (RO mode), whereas others process information through active experimentation (AE

mode). At the RO stage of the learning cycle, learners rely on objectivity, careful judgment, personal thoughts, and feelings to form opinions. People who fall into this category look for the meaning of things by viewing them from different perspectives. They learn by watching and listening. At the AE stage of the learning cycle, however, learning is active, and learners like to experiment to get things done. They prefer to influence or change situations and see the results of their actions. They enjoy involvement and are risk takers. They learn by doing.

Kolb describes each learning style as a combination of the four basic learning modes (CE, AC, RO, and AE), identifying separate learning style types that best define the strengths and weaknesses of a learner. The learner predominantly demonstrates characteristics of one of four style types: diverger, assimilator, converger, or accommodator. These learning styles are discussed here as they appear in clockwise order in **Figure 4-5**, starting with the diverger.

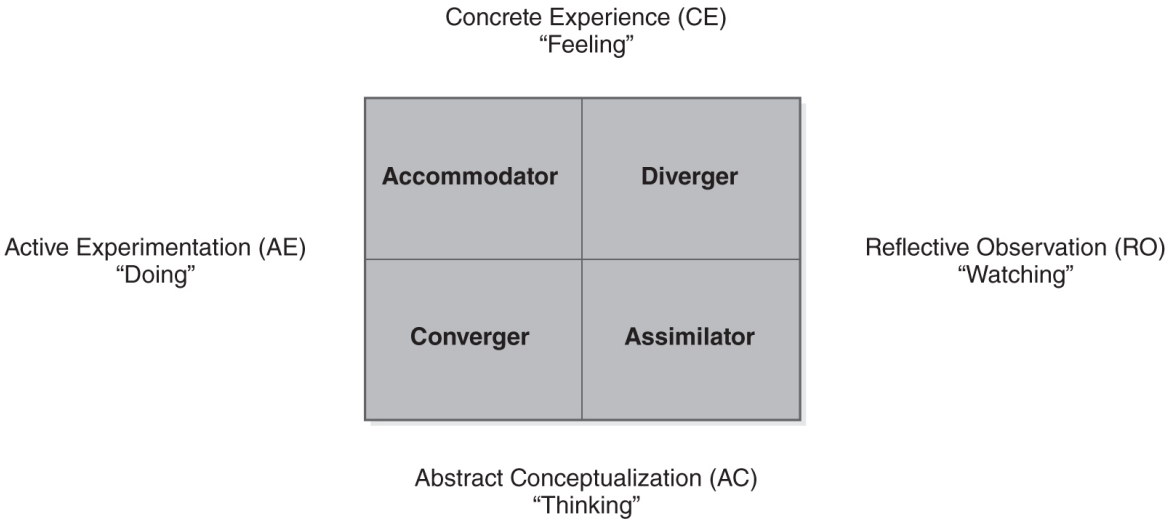

Figure 4-5 Kolb's learning style inventory.

Reproduced from Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development*. Prentice-Hall. © 1984. Reprinted by permission of Pearson Education, Inc., New York, NY.

Description

The diverger combines the learning modes of CE and RO. People with this learning style are good at viewing concrete situations from many points of view. They like to observe, gather information, and gain insights rather than take action. Working in groups to generate ideas appeals to them. They place a high value on understanding for knowledge's sake and like to personalize learning by connecting information with something familiar in their experiences. They have active imaginations, enjoy being involved, and are sensitive to feelings. Divergent thinkers learn best, for example, through group discussions and participating in brainstorming sessions.

The assimilator combines the learning modes of RO and AC. People with this learning style demonstrate the ability to understand large amounts of information by putting it into concise and logical form. They are less interested in people and more focused on abstract ideas and concepts. They are good at inductive reasoning, value theory over practical application of ideas, and need time to reflect on what has been learned and how information can be integrated into their past experiences. They rely on knowledge from experts. Assimilative thinkers learn best, for example, through lecture, one-to-one instruction, and self-instruction methods with ample reading materials to support their learning.

The converger combines the learning modes of AC and AE. People with this learning style type find practical application for ideas and theories and are able to use deductive reasoning to solve problems. They like structure and facts, and they look for specific solutions to problems. Learners with this style prefer technical tasks rather than dealing with social and interpersonal issues. Kolb postulates that individuals with this learning style have skills that are important for specialist and technology careers. The convergent thinker learns best, for example, through demonstration/return demonstration methods of teaching accompanied by handouts and diagrams.

The accommodator combines the learning modes of AE and CE. People with this learning style learn best by hands-on experience and enjoy new and challenging situations. They act on intuition and gut feelings rather than on logic. These risk takers like to explore all possibilities and learn by experimenting with materials and objects. Accommodative thinkers are perhaps the most challenging to educators because they demand new and exciting experiences and are willing to take risks that might endanger

their safety. Role-play, gaming, and computer simulations, for example, are methods of teaching most preferred by this style of learner.

Among every group of learners, approximately 25% will fall into each of the four categories. Kolb believes that understanding a person's learning style, including its strengths and weaknesses, represents a major step toward increasing learning power and helping learners to get the most from their learning experiences. By using different teaching strategies to address these four learning styles, specific modes of learning can be matched, at least some of the time, with the educator's methods of teaching. If the educator predominantly uses only one method of teaching, such as the lecture, then 75% of all learners will be selectively excluded.

When teaching groups of learners, the instructor may want to begin with activities best suited to the divergent thinker and progress sequentially to include activities for the assimilator, converger, and accommodator, respectively (Arndt & Underwood, 1990). This pattern works because learners must first have foundational knowledge of a subject before they can test information. Otherwise, they operate from a level of ignorance. Put simply, they must first have familiarity with facts and ideas before they can explore and test concepts.

Kolb's four learning styles were expanded to nine distinct styles (Kolb & Kolb, 2005). These additional learning styles were incorporated to help better explain the uniqueness of individual learning styles. Added to the original diverger, assimilator, converger, and accomodator were the new Northerner, Easterner, Southerner, and Westerner. These were created by dividing the AC–CE and AE–RO scores at the 30th percentile and 60th percentile of the total norm group and plotting them on the Nine-Region Learning Style Type Grid (Kolb & Kolb, 2005). According to Kolb and Kolb (2005) the Northerner emphasizes feeling (CE) while balancing acting (AE) and reflecting (RO); the Easterner emphasizes reflecting (RO) while balancing feeling (CE) and thinking (AC); the Southerner emphasizes thinking (AC) while balancing acting (AE) and reflecting (RO); and the Westerner emphasizes acting (AE) while balancing feeling (CE) and thinking (AC). The ninth style, a balancing learning style, was also identified that integrates AC and CE and AE and RO. This was added to reduce some of the confusion that occurred with those individuals who did not fit perfectly into one of the four learning styles.

Instrument to Measure Kolb's Experiential Learning Styles

The Learning Style Inventory (LSI) is a 20-item, self-report questionnaire that requires respondents to rank four sentence endings corresponding to each of the four learning modes. Eight of the 20 items on the questionnaire assess learning flexibility. A scoring process reduces the ranking evidence to four mode scores (CE, RO, AC, and AE), which are further reduced to two-dimension scores (concrete–abstract and reflective–active). Two combinations of dimension scores measure the learner's preference for abstractness versus concreteness (AC–CE) and for action versus reflection (AE–RO). The predominant score indicates the learner's style (diverger, assimilator, converger, or accommodator).

The Kolb model is popular in the healthcare field and has been the subject of many studies. Some scholars believe that this model's validity has not been demonstrated (Coffield et al., 2004b; Manolis et al., 2013; Schenck & Cruickshank, 2015). Even more recent research using Kolb's model has found no correlation between learning style and learning outcomes (Childs-Kean et al., 2020) and no correlation between healthcare students' learning style and its impact on critical thinking skills, academic achievement, psychomotor skills, and learning via simulation (Celik et al., 2017; Saldanha et al., 2019; Shirazi & Heidari, 2019). Nevertheless, these authors also stress that consideration of algl learning styles need to be incorporated into teaching methodologies. even though this may increase the time needed for learners to grasp the subject being taught (Celik et al., 2017).

Conversely, other research studies positively report on Kolb's model. For example, Hauer et al. (2005) used the LSI to assess the learning styles of students enrolled in several health programs (nursing, physician assistant, occupational therapy, physical therapy, and speech-language pathology) and found that each of these disciplines is correlated to a specific learning style; awareness of these differences can improve communication among interdisciplinary team members. Kolb and Kolb (2013) also vigorously defend their model after conducting an extensive and comprehensive review of the theory, psychometric properties, and educational applications of the newest version (4.0) of the LSI. They reveal that this latest version has internal consistency reliability (Cronbach alpha = .81) and internal validity (.92) and external validity based on variables of age, gender, educational level, educational specialization, and culture. The LSI

(version 4.0) can be obtained from Experience Based Learning Systems, Inc. (http://learningfromexperience.com/).

Gardner's Eight Types of Intelligence

Most models and measurement instruments on learning style focus on the adult as learner. However, children also have their own way of learning that can be assessed from the standpoint of every individual's unique pattern of growth and neurological functioning. Psychologist Howard Gardner (1983) developed a theory focused on the multiple kinds of intelligence in children. Gardner based his theory on findings from brain research, developmental work, and psychological testing. He identified seven kinds of intelligence located in different parts of the brain: linguistic, logical-mathematical, spatial, musical, bodily-kinesthetic, interpersonal, and intrapersonal. Later, Gardner (1999) identified an eighth kind of intelligence, called naturalistic. Each learner possesses all eight kinds of intelligence, albeit in different proportions.

In 2006, Gardner seriously began to consider another kind of intelligence that he named existential. He observed that individuals seem to possess the ability to intellectually contemplate phenomena or questions beyond sensory data. Thus, they tend to be able to tackle questions about human existence, such as the meaning of life, why people die, and how did we get on earth. However, Gardner (2020) has decided not to pursue existential intelligence as another form of intellect because he does not believe it meets the original inclusion criteria, although others have shown an interest in the possibility that this ninth type of intelligence does exist.

The following is a description of each of the eight types of intelligence that make up Gardner's theory. Gardner feels strongly that the traditional understanding of intelligence, measured by IQ testing, is way too limited (Marenus, 2020). Even though these types have been used originally to account for a range of human intelligence in children, they can broadly apply to adults as well. However, most studies using Gardner's theory focus on assessing student competencies.

Linguistic intelligence seems to reside in Broca's area of the left side of the brain. Children with a tendency to display this type of intelligence have highly developed auditory skills and think in words. They like writing, telling stories, spelling words, and reading, and they can recall names,

places, and dates. These children learn best by verbalizing, hearing, or seeing words. Word games or crossword puzzles are an excellent method for helping these children to learn new material.

Logical-mathematical intelligence involves both sides of the brain. The right side of the brain deals with concepts, and the left side remembers symbols. The children who are strong in this intelligence explore patterns, categories, and relationships. In the adolescent years, they are able to engage in logical thinking with a high degree of abstraction. As learners, they question many things and ask where, what, and when. A question such a learner might ask is, “If people are always supposed to be good to each other, then why do people always say they are sorry?” Children who rate high in logical-mathematical intelligence can do arithmetic problems quickly in their heads, like to learn by using computers, and do experiments to test concepts they do not understand. They enjoy strategy board games such as chess and checkers.

Spatial intelligence is related to the right side of the brain. Children with high spatial intelligence learn by images and pictures. They enjoy such activities as building blocks, jigsaw puzzles, and daydreaming. They like to draw or do other art activities, can read charts and diagrams, and learn with visual methods such as videos or photographs.

Musical intelligence also is related to the right side of the brain. Musically intelligent children can be found singing a tune, indicating when a note is off key, playing musical instruments with ease, dancing to music, and keeping time rhythmically. They also are sensitive to sounds in the environment, such as the sound of walking on snow on a cold winter morning. Often, musically intelligent children learn best with music playing in the background.

Bodily-kinesthetic intelligence involves the basal ganglia and cerebellum of the brain in addition to other brain structures. Children with this type of intelligence learn by processing knowledge through bodily sensations, such as moving around or acting things out. It is difficult for these learners to sit still for long periods of time. They are good at sports and have highly developed fine-motor coordination. Use of body language to communicate and copying people’s behaviors or movements come easily for this group of learners.

Interpersonal intelligence involves the prefrontal lobes of the brain. Children with high interpersonal intelligence understand people, notice others' feelings, tend to have many friends, and are gifted in social skills. They learn best in groups and gravitate toward activities that involve others in problem solving.

Intrapersonal intelligence also involves the prefrontal lobes of the brain. Children with this type of intelligence have strong personalities, prefer the inner world of feelings and ideas, and like being alone. They are very private individuals, desire a quiet area to learn, and prefer to be by themselves to learn. They tend to be self-directed and self-confident. They learn well with independent, self-paced instruction.

Naturalistic intelligence refers to sensing abilities in making patterns and connections to elements in nature. Children with high naturalistic intelligence can distinguish and categorize objects or phenomena in nature. They enjoy subjects, shows, and stories that deal with animals or naturally occurring phenomena and are keenly aware of their surroundings and subtle changes in their environment.

Educators should always approach children from the perspective of these different intelligences (Armstrong, 1987). For nurses, it can often be difficult to assess the preferred learning style of a child when they are facing an illness or surgery. Asking some key questions of the child or parents may give the educator some clues about how to approach the child: Which subjects does the child excel in or like best? Which kinds of hobbies does the child have? What excites this child? Which kinds of toys does the child play with? Which inner qualities does the child possess, such as courage, playfulness, curiosity, friendliness, or creativity? Which talents does the child possess?

By using Gardner's theory of the eight intelligences, the educator can assess each child's style of learning and tailor teaching accordingly. For example, if the educator wants to assist a child in learning about a kidney disorder, then the educator can use one of the following eight approaches, depending on the child's style of learning:

- Linguistic: Practice quizzing the child orally on the different parts of the kidney, the disease itself, and different ways to take care of himself or herself.

- Spatial: Have a diagram or chart that allows the child to associate different colors or shapes with concepts. Storytelling that illustrates a child with the same chronic illness can be used.
- Bodily-kinesthetic: Have a kidney model available that can be felt, taken apart, and manipulated. Have the child identify tactile features of the kidney or act out appropriate behavior.
- Logical-mathematical: Group concepts into categories, starting with simple generalizations or health behaviors. Reasoning works well in showing the child the consequences of actions.
- Musical: Teach self-care or the material to be learned by putting information into a song. Soft music also serves as a relaxing influence on the child.
- Interpersonal: Have a group of children play a card game such as a version of Old Maid that matches health information with medical pictures or pictures of healthcare activities and procedures.
- Intrapersonal: Suggest that the child become active by writing to friends, family, or local and state government officials to advocate for kidney disease research. Such learners need to research the facts and then convey these findings to others.
- Naturalist: Provide pet therapy, allow the child to engage in outside activities that are a form of exercise (e.g., gardening or nature walks), or offer videos that feature nature, science, or animals.

Although Gardner's theory of multiple intelligences was originally designed for use with children, several recent articles have addressed its application with adults. For example, Sheahan et al. (2015) conducted an exploratory trial using a control group and an intervention group that benefited from multiple intelligences, teaching approaches. The purpose was for teaching clinical skills to first-year undergraduate nursing students. Students were assessed for their preferred learning style. The results of this study support the use of multiple intelligences as teaching approaches for the various preferred ways of learning. Many educators see the theory as simple common sense—that children (and adults) have varied talents and learn in different ways even though there is little evidence supporting the multiple intelligences theory (Gardner, 2004; Waterhouse, 2006). Additional information about Gardner's theory is available at his website (http://www.howardgardner.com).

Instrument to Measure Multiple Intelligences

Although Howard Gardner does not believe individuals need to be tested to find out their preferred style of learning, he does refer to an instrument called Multiple Intelligences Developmental Assessment Scales (MIDAS™) created by C. Branton Shearer (http://www.miresearch.org/).

VARK Learning Styles

Fleming and Mills (1992) have identified four categories or preferences—visual, aural, read/write, and kinesthetic (VARK)—that seem to reflect the learning style experiences of their students. The VARK model technically focuses on a person's preference for taking in and putting out information. According to Fleming and Mills, an individual learns most effectively and comfortably by one of the following ways:

- Visual learners like graphical representations such as flowcharts with step-by-step directions.
- Aural learners enjoy listening to lectures, often need directions read aloud, and prefer to discuss topics and form study groups.
- Read/write learners like the written word, as evidenced by reading or writing, with references to additional sources of information.
- Kinesthetic learners enjoy doing hands-on activities, such as role-play and return demonstration.

Fleming also stresses that the VARK was designed to be a starting place for both educators and learners to have a conversation about the different strategies for teaching and learning that individuals can use as appropriate for them (Fleming & Baume, 2006). The VARK is a way to communicate. Fleming (2012) also believes that knowledge of VARK will encourage educators to teach in styles that are not their own preferred way of teaching. Fleming and Bonwell (2013) contend that the VARK should act as a catalyst for reflection by learners about their preferences and learning strategies.

Instrument to Measure the VARK

The VARK questionnaire (version 7.8) provides users with a profile of their learning preferences for taking in and giving out information. This instrument consists of 16 questions with four options or modalities, and the learner can select more than one option for each question. The VARK

is available for free as either an online or printable version (http://vark-learn.com).

Some evidence supports the validity of the VARK scores, suggesting that this instrument may be used as a low-stakes diagnostic tool by students and teachers (Leite et al., 2010), although Fleming and Mills (1992) never intended this questionnaire to be diagnostic in nature. Educators may find VARK scores to be an excellent way to help open a dialogue with learners on the differences that exist in the way individuals prefer to learn. Leite et al. do not recommend the VARK as a research tool until other sources of psychometric evidence are collected. However, researchers continue to use the VARK to measure whether an educational intervention is successful (Bhagat et al., 2015; Stirling & Alquraini, 2017).

The VARK questionnaire is easy to use and can readily be applied in the healthcare setting. In a pilot study, Koonce et al. (2011) used the VARK assessment to tailor health information materials for emergency department patients who were hypertensive. Although there were no significant differences in changes in quiz scores on a hypertensive knowledge assessment between the experimental and control group, patients who received the learning style–tailored information reported higher levels of satisfaction with the intervention materials. The authors hypothesized that the lack of significant differences between the two groups may have been a result of the presence of high baseline hypertension knowledge scores. Childs-Kean et al. (2020) reviewed research related to the VARK and summarized that healthcare students prefer a multimodal approach to learning, but there is no correlation between using the VARK as a framework for learning activities and students' academic success. Auguste et al. (2020) found that adverse events in new home dialysis patients were related to learning styles. Visual learning preferences resulted in fewer adverse events in comparison to nonvisual preferences. The authors advised nurses to teach patients by learning styles to improve health outcomes.

Interpretation of the Use of Learning Style Models and Instruments

Learning style is an important concept, but educators must exercise caution when assessing styles so as not to ignore other factors that are equally important to teaching and learning, such as readiness and capabilities to learn, educational background, and rates of learning. Learning styles, which vary from person to person, also differ from capabilities. The style by which someone learns describes how that individual processes stimuli, whereas that individual's capabilities define how much and how well the person processes the information (Thompson & Crutchlow, 1993). Another caution to keep in mind is that much of the advice offered with respect to using learning styles consists of "logical deductions from the various theories of learning style, rather than conclusions drawn from empirical research" (Coffield et al., 2004a, p. 125).

Some learning theorists advocate that learning style be matched with a similar teaching style for learners to attain an optimal level of achievement. Understanding learning styles helps educators think about how to modify their instructional methods so to best present different content and to reach the widest variety of learners. However, research in this area is clouded by inconsistent findings (Coffield et al., 2004b; Cuevas, 2015; Norman, 2009; Scott, 2005; Willingham et al., 2015). After reviewing the literature, Pashler et al. (2008), Rogowsky et al. (2015), Bhagat et al. (2015), and Newton and Miah (2017) concluded that there is insufficient evidence to justify this approach. Cuevas (2014) believes learning styles are no more than a myth and suggests cognitive scientists and educators consider an alternative theory, *dual coding*, which is more strongly supported by empirical research. Dual coding refers to the idea that two separate pathways exist, one verbal and one visual, for encoding information into memory. Instead, these authors suggest that educators should be more concerned with matching their

instruction to the content they are teaching than to the style preferences of learners. In fact, Alzain et al. (2018) suggest that using learning styles can be associated with harms because focusing only on styles limit the learner's exposure to other ways of learning.

Are learning style instruments really measuring what the educator thinks they are measuring? Barry and Egan (2018) strongly believe that learning style theory is a method to inform learners of the various ways they can learn but will not limit their educational choices. Validity of the various learning style models is still challenged even while educators continue to pursue using them. The most important rationale for continued use is that both educators and learners can realize that not everyone is the same, all learners' preferences are equally important to learning, and no matter what the student's learning style preference is, the content at hand can still be learned. With that said, it is worth honoring the unique gifts that each learner possesses.

It may be that learning occurs not so much because teacher and learner styles are a perfect match, but because the educator uses a variety of teaching approaches rather than relying on just one, so that learners feel less stressed and more confident. As a result, learners are more satisfied overall with their learning experience and hence more motivated to learn. Application of learning style theory to facilitate the education process allows the educator to approach each learner holistically by recognizing that not all learners process information in precisely the same way.

Research indicates that learning style preferences prevail over time, although they may fluctuate depending on the context in which learners are operating at any given moment. The concept of matching styles implies that individuals are static, which contradicts the purpose of education. Learners need to experience some discomfort before they can grow. Educators need to generate dynamic disequilibrium rather than create an environment that is too harmonious (Bhagat et al., 2015; Joyce, 1984).

When selecting a learning style instrument, the educator must first evaluate the instrument for validity, reliability, and applicability to the population for which it is intended. In addition, the ease of administering the instrument as well as analyzing the results needs to be taken into consideration. Also, educators must adhere to copyright laws, which means that they must purchase the instrument or obtain the author's permission before using the tool.

For purposes of assessment, the nurse educator is encouraged to use multiple learning style models and instruments. If the educator focuses on only one model, the possibility arises that the educator may be trying to make learners fit into a specific style type that does not suit them—a forced choice with no options. Given the teaching–learning situation, the educator may find certain learning style models and instruments to be more appropriate than others in providing strategies for dealing with needs, problems, or unique circumstances.

Of course, it may not always be practical to administer learning style instruments because of considerations such as cost, time, accessibility, or appropriateness for a specific population. Therefore, educators should follow these general guidelines when assessing individual learning styles:

- Become familiar with the different models and instruments available and the various ways in which styles are classified so that they are easier to recognize.
- Identify key elements of an individual's learning style by observing and asking questions to verify observations. Then, initially match teaching methods and instructional materials to those unique qualities. For example, the following questions could elicit valuable information: Do you prefer to attend lectures or group discussions? Which do you like best, reading or viewing a film? Would you like me to demonstrate this skill first, or would you rather learn by doing while I talk you through the procedure?

- Always allow learners the opportunity to say when a teaching method or instructional material is not working for them.
- Encourage learners to become aware of their learning styles so as to increase understanding from both the educator's and the learner's perspectives. Everyone should realize that a variety of learning modalities exist and that no one style is better than another.
- Be cautious about saying that certain teaching methods are always more effective for certain styles. Remember that everyone is unique, circumstances may alter preferences, and many factors influence learning.
- Prompt learners to expand their style ranges rather than to seek only comfortable experiences.
- Provide learning choices that enable learners to operate, at least some of the time, in the style by which they prefer to learn.
- When possible, use a team of educators who have varied teaching styles to present new and complex information in different ways to ensure mastery of information.

Educators must exercise caution when using any of these instruments to assess learning style. They should avoid placing too much emphasis or reliance on these tools to categorize learners. The goal should not be to stereotype learners as to style but rather to ensure that each learner is given an equal opportunity to learn in the best or most comfortable way. Understanding how someone prefers to learn assists the educator in choosing diverse teaching methods and materials to meet the needs of both that learner and all learners.

As the current learning style models and their corresponding instruments are controversial and the present-day education environment needs to be continuously adaptable, there may be a need for newer versions of learning style models. As some aspects of education, technology, and health care move toward adopting artificial intelligence (AI) capabilities, possibly AI can substitute as a means to assess the determinants of learning due to its potential for being more accurate, efficient, and faster in comparison to human

skills. A framework for using AI (Bajaj & Sharma, 2018) for this purpose has been created but the software is still being developed. As another example of advancement, El Aissaoui et al. (2019) describe a machine learning algorithm for predicting students' learning styles.

State of the Evidence

Interwoven into each section of this chapter are examples of specific published research about the determinants of learning. This chapter's approach to assessing the evidence to be included in support of the three determinants of learning is based on the framework suggested by Lohr (2004). She cites four dimensions of evidence that nurse educators need to consider when assessing the available evidence:

1. Level of evidence (study design)
2. Quality of evidence (concern with bias)
3. Relevance of evidence (implying applicability)
4. Strength of evidence (precision, reproducibility, and attributability)

For this chapter, using this framework was helpful in deciding what is considered appropriate evidence, where the evidence comes from (e.g., refereed journals as opposed to commercial internet sites), and whether all the evidence counts (or counts with the same weight when several articles are available from which to choose). Most of the literature about the determinants of learning is descriptive in nature or consists of expert opinion. Many studies lack the scientific rigor needed to provide evidence of strength; therefore, for the most part, these studies were not included in this chapter.

The research findings cited in this chapter support the importance of conducting an educational assessment. However, the deficit of evidence on the process and criteria for assessment is striking when compared to the number of studies that provide evidence for the effectiveness of different teaching methodologies. For example, Sivapuram (2020) found that the level of evidence supporting the different ways of assessing learning needs was rated a grade B, which means the desirable effects appear to outweigh undesirable

effects of assessing learning needs, but the research may not always be of the highest quality.

Many of the current scientifically designed studies do not consider all the determinants of learning before examining the benefits of various teaching interventions. Every learner has different learning needs, readiness to learn, and learning styles, which may account for the paucity of experimental research in this area. Even though very few systemic reviews that pertained to learning styles were found, the evidence suggests that learning style instruments should be used with caution.

The amount of research-based evidence about the three determinants of learning suggests that educational assessment is not an easy area in which to conduct research. It is essential to acknowledge this limitation and to remember that nursing research, as compared to other sciences, is still young and is just beginning to attract a greater number of investigators.

Even though much more evidence is needed, the available evidence on conducting an educational assessment substantiates its importance and provides direction for the nurse as educator. Conducting a needs assessment on all three determinants of learning is essential before any educational intervention is performed.

Summary

This chapter stresses the importance of the assessment phase of learning because the educator must be aware of and know how to determine learning needs, readiness to learn, and individual learning styles prior to planning for any educational encounter.

Learning is a complex concept that is not directly seen but rather can be inferred from permanent changes that occur in the learner's behavior in the cognitive, psychomotor, and affective domains. Educators should not define behavioral objectives for these three domains until they establish the needs of the learner, the learner's readiness to learn, and the ways in which the learner best learns. Based on the findings from assessment of these determinants, the educator can then choose the teaching approaches and learning activities best suited for an individual.

Identifying and prioritizing learning needs require the educator to discover what the learner feels is important and the educator knows to be important. Once needs are established and agreed on, the educator must assess the learner's readiness to learn based on the physical, emotional, experiential, and knowledge components specific to each learner. Assessing learning styles by interviewing, observing, and using instrument measurement can reveal how individuals best learn as well as how they prefer to learn.

By accepting the diversity of needs, readiness levels, and styles among learners, the educator can create a versatile atmosphere and facilitate optimal experiences that encourage all learners to reach their full potential. Whoever the audience may be, nurse educators should select teaching interventions and learning activities most beneficial for the learner based on the three determinants of learning.

Review Questions

1. How would you define the term *determinants of learning*?
2. What are the seven methods to assess patient learning needs?
3. What is meant by the term *readiness to learn*?
4. What are the four types of readiness to learn?
5. What are the components of each type of readiness to learn?
6. What is the definition of the term *learning style*?
7. Which models and instruments are available to determine someone's learning style?
8. What does each of the seven learning style models and instruments measure?
9. What evidence is available to support the determinants of learning?

CASE STUDY

Jeremey Smart is a 57-year-old man recovering from a recent lobectomy of a malignant tumor in the right lung. Mr. Smart has a supportive wife and two adult children who live 4 days away by car. You are the primary nurse caring for him and your focus is on patient engagement to encourage active participation by Mr. Smart and his wife when educating them in preparation for self-care upon discharge to home. Mrs. Smart states, "I am concerned about Jeremey because he will need chemotherapy, and I am not sure he fully understands his disease." Currently, 2 days after the surgery, Mr. Smart is beginning to ask team members questions about his prognosis and potential functional abilities. He tells you, "My doctor tried to explain the surgery to me, but I remember very little of what he said. I don't understand much about this kind of health problem I have." Mr. Smart appears not to comprehend the significance of his cancer diagnosis and talks about playing golf and going on hikes in the mountains soon after he goes home.

As a member of the interdisciplinary team and the primary nurse caring for Mr. Smart, you and your colleagues are discussing how best to assess his learning needs, to prioritize these needs, to identify what may interfere with his readiness to learn, and to choose an instructional approach that best supports his learning style preferences.

1. What are two methods that could be used to assess Mr. Smart's learning needs? List the advantages and disadvantages of each method.
2. What criteria, in conjunction with Mr. Smart's perceptions, should your team consider in prioritizing his learning needs? Give examples of specific learning needs that will likely be a priority.
3. Which major clues indicate Mr. Smart's readiness to learn? Using the PEEK model, identify potential obstacles that might interfere with his readiness to learn.
4. According to the Kolb model, how will knowledge of Mr. Smart's learning preference(s) affect your team's instructional approach? Choose one Kolb learning preference for Mr. Smart and describe which instructional approach best supports this preference.

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CHAPTER 5

Developmental Stages of the Learner

Susan B. Bastable

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CHAPTER HIGHLIGHTS

- Developmental Characteristics
- The Developmental Stages of Childhood
  - *Infancy (First 12 Months of Life) and Toddlerhood (1–2 Years of Age)*
  - *Early Childhood (3–5 Years of Age)*
  - *Middle and Late Childhood (6–11 Years of Age)*
  - *Adolescence (12–19 Years of Age)*
- The Developmental Stages of Adulthood
  - *Young Adulthood (20–40 Years of Age)*
  - *Middle-Aged Adulthood (41–64 Years of Age)*
  - *Older Adulthood (65 Years of Age and Older)*
- The Role of the Family in Patient Education
- State of the Evidence

KEY TERMS

ageism

andragogy

causality

crystallized intelligence

egocentric causation

egocentrism

fluid intelligence

geragogy

imaginary audience

pedagogy

personal fable

OBJECTIVES

After completing this chapter, the reader will be able to:

1. Identify the characteristics of learners that influence learning at various stages of growth and development.
2. Recognize the role of the nurse as educator in assessing stage-specific learner needs according to maturational levels.
3. Determine the role of the family in patient education at various stages of development.
4. Discuss appropriate teaching strategies effective for learners at different developmental stages.

When planning, designing, implementing, and evaluating an educational program, the nurse as educator must carefully consider the characteristics of learners with respect to their developmental stage in life. The more heterogeneous the target audience, the more complex the development of an educational program to meet the diverse needs of the population. Conversely, the more homogeneous the population of learners, the more straightforward the approach to teaching is likely to be.

An individual's developmental stage significantly influences the ability to learn. Pedagogy, andragogy, and geragogy are three different orientations to learning in childhood, young and middle adulthood, and older adulthood, respectively. To meet the health-related educational needs of learners, a developmental approach must be used.

For many years, developmental psychologists have explored the various patterns of behavior characteristic of specific stages of development. More than ever before, educators acknowledge the effects of growth and development on an individual's willingness and ability to make use of

instruction. This chapter has specific implications for nurses educating patients, staff, and students, as teaching plans must address stage-specific competencies of the learner. In this chapter, therefore, the distinct life stages of learners are considered when providing teaching recommendations. Also, this chapter emphasizes the role of the nurse in assessment of stage-specific learner needs, the role of the family in the teaching–learning process, and the teaching strategies specific to meeting the needs of learners at various developmental stages of life.

A deliberate attempt has been made to minimize reference to age as the criterion for categorization of learners. Research on life-span development shows that chronological age per se is not the only predictor of learning ability (Crandell et al., 2019; Santrock, 2019). At any given age, one finds a wide variation in the acquisition of abilities related to the three fundamental domains of development: physical (biological), cognitive, and psychosocial (emotional–social) maturation. Age ranges, such as those included after each developmental stage heading in this chapter, are intended to be used as merely approximate age-strata reference points or general guidelines; they do not imply that chronological ages necessarily correspond perfectly to the various stages of development (Newman & Newman, 2021). Thus, the term *developmental stage* is the perspective used, based on the confirmation from research that human growth and development are sequential but not always specifically age-related, because individuals progress through these stages at varying rates (Kail & Cavanaugh, 2019).

Development is contextual and though the passage of time has traditionally been synonymous with chronological age, social and behavioral psychologists consider the many other changes occurring over time that affect the dynamic relationship between a human's biological makeup and the environment. It is understood that three important contextual influences act on and interact with the individual to produce development (Crandell et al., 2019; Santrock, 2019):

1. Normative age-graded influences are strongly related to chronological age and are similar for individuals in a specific age group, such as the biological processes of puberty and menopause and the sociocultural processes of transitioning to different levels of formal education or to retirement.

2. Normative history-graded influences are common to people in a certain age cohort or generation because they have been uniquely exposed to similar historical circumstances, such as the Vietnam War, the age of personal computers and mobile communication technology, the terrorist events of September 11, 2001, or the COVID-19 pandemic.
3. Normative life events are the unusual or unique circumstances, positive or negative, that are turning points in individuals' lives that cause them to change direction, such as a house fire, serious injury in an accident, winning the lottery, divorce, or an unexpected career opportunity.

Although this chapter focuses on the patient as the learner throughout the life span, nurses and nurse educators can apply the stage-specific characteristics of adulthood and the associated principles of adult learning presented herein to any audience of young, middle, or older adult learners, whether the nurse is instructing the public in the community, preparing students in a nursing education program, or providing continuing education to staff nurses or colleagues.

Developmental Characteristics

As noted earlier, actual chronological age is only a relative indicator of someone's physical, cognitive, and psychosocial stage of development. Unique as every individual is in the world, however, some typical developmental trends have been identified as milestones of normal progression through the life cycle. When dealing with the teaching–learning process, it is imperative to examine the developmental phases as individuals progress from infancy to senescence to fully appreciate the behavioral changes that occur in the cognitive, affective, and psychomotor domains.

This chapter will provide a brief overview of each developmental stage. For an in-depth review of the physical, cognitive, and psychosocial developments unique to each stage, please refer to the full texts of Santrock (2019), Polan and Taylor (2019), and Kail and Cavanaugh (2019) cited in this chapter. **Table 5-1** provides a succinct review of the key characteristics of each developmental stage and outlines teaching strategies to be used in relation to the physical, cognitive, and psychosocial maturational levels indicative of learner readiness.

Table 5-1 Stage-Appropriate Teaching Strategies

Learner	General Characteristics	Teaching Strategies	Nursing Interventions
		Infancy–Toddlerhood	

Learner	General Characteristics	Teaching Strategies	Nursing Interventions
Infancy–Toddlerhood			
Approximate age: Birth–2 years Cognitive stage: Sensorimotor Psychosocial stage: Trust vs. mistrust (Birth–12 mo) Autonomy vs. shame and doubt (1–2 yr)	Dependent on environment Needs security Explores self and environment Natural curiosity	Orient teaching to caregiver Use repetition and imitation of information Stimulate all senses Provide physical safety and emotional security Allow play and manipulation of objects	Welcome active involvement Forge alliances Encourage physical closeness Provide detailed information Answer questions and concerns Ask for information on child's strengths/limitations and likes/dislikes
Early Childhood			
Approximate age: 3–5 years Cognitive stage: Preoperational	Egocentric Thinking precausal, concrete, literal Believes illness self-caused and punitive	Use warm, calm approach Build trust Use repetition of information Allow manipulation of objects and	Welcome active involvement Forge alliances Encourage physical closeness Provide detailed information

Learner	General Characteristics	Teaching Strategies	Nursing Interventions
Psychosocial stage: Initiative vs. guilt	Limited sense of time Fears bodily injury Cannot generalize Animistic thinking (objects possess life or human characteristics) Centration (focus is on one characteristic of an object) Separation anxiety Motivated by curiosity Active imagination, prone to fears Play is his/her work	Answer questions and correct misconceptions Give care with explanation Reassure not to blame self Explain procedures simply and briefly Provide safe, secure environment Use positive reinforcement Encourage questions to reveal perceptions/feelings Use simple drawings and stories Use play therapy, with dolls and puppets Stimulate senses: Visual, auditory, tactile, motor	Ask for information on child's strengths/limitations and likes/dislikes

Infancy–Toddlerhood

Middle and Late Childhood

Learner	General Characteristics	Teaching Strategies	Nursing Interventions
		Infancy–Toddlerhood	
Approximate age: 6–11 years Cognitive stage: Concrete operations Psychosocial stage: Industry vs. inferiority	More realistic and objective Understands cause and effect Deductive/inductive reasoning Wants concrete information Able to compare objects and events Variable rates of physical growth Reasons syllogistically Understands seriousness and consequences of actions Subject-centered focus Immediate orientation	Encourage independence and active participation Be honest, allay fears Use logical explanation Allow time to ask questions Use analogies to make invisible processes real Establish role models Relate care to other children's experiences; compare procedures Use subject-centered focus Use play therapy Provide group activities either in person or virtually Use diagrams, models, pictures,	Welcome active involvement Forge alliances Encourage physical closeness Provide detailed information Answer questions and concerns Ask for information on child's strengths/limitations and likes/dislikes

Learner	General Characteristics	Teaching Strategies	Nursing Interventions
		Infancy–Toddlerhood	
		digital media, printed materials, and computer, tablet, or smartphone applications as adjuncts to various teaching methods	
		Adolescence	
Approximate age: 12–19 years Cognitive stage: Formal operations Psychosocial stage: Identity vs. role confusion	Abstract, hypothetical thinking Can build on past learning Reasons by logic and understands scientific principles Future orientation Motivated by desire for social acceptance Peer group important Intense personal preoccupation, appearance	Establish trust, authenticity Know their agenda Address fears/concerns about outcomes of illness Identify control focus Include in plan of care Use peers for support and influence Negotiate changes Focus on details	Explore emotional and financial support Determine goals and expectations Assess stress levels Respect values and norms Determine role responsibilities and relationships Engage in 1:1 teaching without parents present, but with adolescent's permission inform

Learner	General Characteristics	Teaching Strategies	Nursing Interventions
		Infancy–Toddlerhood	
	extremely important, believes that everyone is focusing on them and their activities (imaginary audience) Feels invulnerable, invincible/immune to natural laws (personal fable)	Make information meaningful to life Ensure confidentiality and privacy Arrange peer group sessions in person or virtually (e.g., social networking, podcasts, online videos, live interactive sessions) Use audiovisuals, role-play, contracts, reading materials Provide for experimentation and flexibility	family of content covered
		Young Adulthood	

Learner	General Characteristics	Teaching Strategies	Nursing Interventions
Infancy–Toddlerhood			
Approximate age: 20–40 years Cognitive stage: Formal operations Psychosocial stage: Intimacy vs. isolation	Autonomous Self-directed Uses personal experiences to enhance or interfere with learning Intrinsic motivation Able to analyze critically Makes decisions about personal, occupational, and social roles Competency-based learner	Use problem-centered focus Draw on meaningful experiences Focus on immediacy of application Encourage active participation Allow to set own pace, be self-directed Organize material Recognize social role Apply new knowledge through role-playing and hands-on practice (in person or virtually)	Explore emotional, financial, and physical support system Assess motivational level for involvement Identify potential obstacles and stressors
Middle-Aged Adulthood			

Learner	General Characteristics	Teaching Strategies	Nursing Interventions
	Infancy–Toddlerhood		
Approximate age: 41–64 years Cognitive stage: Formal operations Psychosocial stage: Generativity vs. self-absorption and stagnation	Sense of self well developed Concerned with physical changes At peak in career Explores alternative lifestyles Reflects on contributions to family and society Reexamines goals and values Questions achievements and successes Has confidence in abilities Desires to modify unsatisfactory aspects of life	Focus on maintaining independence and reestablishing normal life patterns Assess positive and negative past experiences with learning Assess potential sources of stress caused by midlife crisis issues Provide information to coincide with life concerns and problems Introduce to online resources as appropriate	Explore emotional, financial, and physical support systems Assess motivational level for involvement Identify potential obstacles and stressors
	Older Adulthood		
Approximate	**Cognitive**	Use concrete	Involve principal

Learner	General Characteristics	Teaching Strategies	Nursing Interventions
	Infancy–Toddlerhood		
age: 65 years and over Cognitive stage: Formal operations Psychosocial stage: Ego integrity vs. despair	**changes** Decreased ability to think abstractly, process information Decreased short-term memory Increased reaction time Increased test anxiety Stimulus persistence (afterimage) Focuses on past life experiences	examples Build on past life experiences Make information relevant and meaningful Present one concept at a time Allow time for processing/response (slow pace) Use repetition and reinforcement of information Avoid written exams Use verbal exchange and coaching Establish retrieval plan (use one or several clues) Encourage active involvement Keep explanations brief	caregivers Encourage participation Provide resources for support (respite care) Assess coping mechanisms Provide written instructions for reinforcement Provide anticipatory problem solving (what happens if . . .)

Learner	General Characteristics	Teaching Strategies	Nursing Interventions
		Infancy–Toddlerhood	
		Use analogies to illustrate abstract information Provide virtual learning opportunities only if comfortable	
	Sensory/motor deficits Auditory changes Hearing loss, especially high-pitched tones, consonants (S, Z, T, F, and G), and rapid speech Visual changes Farsighted (needs glasses to read) Lenses become opaque (glare problem) Smaller pupil size (decreased visual adaptation to darkness)	Speak slowly, distinctly Use low-pitched tones Avoid shouting Use visual aids to supplement verbal instruction Avoid glares, use soft white light Provide sufficient light Use white backgrounds and black print Use large letters and well-spaced print	

Learner	General Characteristics	Teaching Strategies	Nursing Interventions
	Decreased peripheral perception Yellowing of lenses (distorts low-range colors: blue, green, violet) Distorted depth perception Fatigue/decreased energy levels Pathophysiology (chronic illness)	Avoid color coding with pastel hues, greens, purples, and yellows ***Infancy–Toddlerhood*** Increase safety precautions/provide safe environment Ensure accessibility and fit of prostheses (i.e., glasses, hearing aid) Keep sessions short Provide for frequent rest periods Allow for extra time to perform Establish realistic short-term goals	

Learner	General Characteristics	Teaching Strategies	Nursing Interventions
		Infancy–Toddlerhood	
	Psychosocial changes Decreased risk taking Selective learning Intimidated by formal learning	Give time to reminisce Identify and present pertinent material Use informal teaching sessions Demonstrate relevance of information to daily life Assess resources Make learning positive Identify past positive experiences Integrate new behaviors with formerly established ones	

Sources: Erikson (1963, 1968), Erikson & Erikson (1998), and Piaget (1951, 1952)

As influential as age can be to learning readiness, it should never be examined in isolation. Growth and development interact with experiential background, physical and emotional health status, and personal motivation,

as well as numerous environmental factors such as stress, the surrounding conditions, and the available support systems to affect a person's ability and readiness to learn.

Musinski (1999) describes three phases of learning: dependence, independence, and interdependence. These passages of learning ability from childhood to adulthood, labeled by Covey (1990) as the "maturity continuum," are identified as follows.

- Dependence is characteristic of the infant and young child, who are totally dependent on others for direction, support, and nurturance from a physical, emotional, social, and intellectual standpoint. Some adults are considered stuck in this stage if they demonstrate manipulative behavior, do not listen, are insecure, or do not accept responsibility for their own actions. For example, adults with psychiatric illness or advanced dementia may fall into this category due to their cognitive deficits.
- Independence occurs when children develop the ability to physically, intellectually, socially, and emotionally care for themselves and make their own choices, including taking responsibility for learning. However, children experiencing severe pain and/or illness may become overwhelmed and revert to the earlier level of dependence.
- Interdependence occurs when an individual has sufficiently advanced in maturity to achieve self-reliance, a sense of self-esteem, and the ability to give and receive, and when that individual demonstrates a level of respect for others. Full physical maturity does not guarantee simultaneous emotional, social, and intellectual maturity.

If the nurse as educator is to encourage learners to take responsibility for their own health, the learner must be recognized as an important source of data regarding their health status. Before any learning can occur, the nurse must assess how much knowledge the learner already possesses with respect to the topic to be taught. With a child client, for example, new content should be introduced at appropriate stages of development and should build on the child's previous knowledge base and experiences.

The major question underlying the planning for educational experiences is: When is the most appropriate or best time to teach the learner? The answer is *when the learner is ready*. The *teachable moment*, as defined by Havighurst (1976), is that point in time when the learner is most receptive to a teaching situation. It is important to realize that the teachable moment need not be a spontaneous and unpredictable event. That is, the nurse as

educator does not always have to wait for teachable moments to occur; the teacher can actively create these opportunities by taking an interest in and attending to the needs of the learner, as well as using the present situation to heighten the learner's awareness of the need for health behavior changes (Hinkle & Cheever, 2018; Lawson & Flocke, 2009). An example of this is using the COVID-19 pandemic to review the important principles of good hand hygiene. When assessing readiness to learn, the nurse educator must determine not only whether an interpersonal relationship has been established, prerequisite knowledge and skills have been mastered, and the learner exhibits motivation, but also whether the plan for teaching matches the learner's developmental level (Crandell et al., 2019; Leifer, & Fleck, 2013; Polan & Taylor, 2019; Santrock, 2019).

The Developmental Stages of Childhood

Pedagogy is the art and science of helping children to learn (Knowles, 1990; Knowles et al., 2020). The different stages of childhood are divided according to what developmental theorists and educational psychologists define as specific patterns of behavior seen in definitive phases of growth and development. One common attribute observed throughout all phases of childhood is that learning is subject-centered. This section reviews the developmental characteristics in the four stages of childhood and the teaching strategies to be used in relation to the physical, cognitive, and psychosocial maturational levels indicative of learner readiness (Table 5-1).

Infancy (First 12 Months of Life) and Toddlerhood (1–2 Years of Age)

The field of growth and development is highly complex, and physical, cognitive, and psychosocial maturation are so changeable during the very early years of childhood. Because of the dependency of members of this age group, the focus of instruction for health maintenance of children is geared toward the parents, who are considered the primary learners rather than the very young child (Callans et al., 2016; Crandell et al., 2019; Santrock, 2019). However, the older toddler should not be excluded from healthcare teaching and can participate to some extent in the education process.

At no other time in life is physical maturation so rapid as during the period of development from infancy to toddlerhood (London et al., 2017). Exploration of self and the environment becomes paramount and stimulates further physical development (Crandell et al., 2019; Kail & Cavanaugh, 2019). Patient education must focus on teaching

the parents of very young children the importance of stimulation, nutrition, the practice of safety measures to prevent illness and injury, and health promotion (Polan & Taylor, 2019).

Teaching Strategies

Patient education for infancy through toddlerhood is often devoted to teaching parents about aspects of typical development, safety, health promotion, and disease prevention. In cases of developmental delay, as in autism or congenital disorders such as cerebral palsy, education centers on supporting parents to maximize their children's strengths and adapt the home environment to facilitate optimal cognitive and motor development. When the child becomes ill or injured, the first priority for teaching interventions would be to assess the parents' and child's anxiety levels and to help them cope with their feelings of stress related to uncertainty and guilt about the cause of the illness or injury. The disruption in their routine during illness or hospitalizations, along with the need to separate from parents, is often very stressful for the toddler (London et al., 2017). Separation anxiety is a characteristic of this stage of development and is particularly apparent when children feel insecure in an unfamiliar environment. This anxiety is often compounded when they are subjected to medical procedures and other healthcare interventions performed by people who are strangers to them (London et al., 2017). Anxiety on the part of the child and parents can adversely affect their readiness to learn. See Chapter 4 for factors influencing readiness to learn.

Although teaching activities primarily are directed to the main caregiver(s), children at this developmental stage in life have a great capacity for learning. Toddlers are capable of understanding to some degree the procedures and interventions that they may experience. Because of the young child's natural tendency to be intimidated by unfamiliar people, it is imperative that a primary nurse is assigned and time is taken to establish a relationship with the child and parents. This approach not only provides consistency in the teaching–learning process but also helps to reduce the child's fear of

strangers. Parents should be present whenever possible during formal and informal teaching and learning activities to allay stress (London et al., 2017). Ideally, health teaching should take place in an environment familiar to the child, such as the home or daycare center. When the child is hospitalized, the environment selected for teaching and learning sessions should be as safe and secure as possible, such as the child's bed or the playroom, to increase the child's sense of feeling protected.

Movement is an important mechanism by which toddlers communicate. Immobility resulting from illness, hospital confinement, or disability tends to increase children's anxiety by restricting activity. Nursing interventions that promote children's use of gross motor abilities and that stimulate their visual, auditory, and tactile senses should be chosen whenever possible.

Developing rapport with children through simple teaching helps to elicit their cooperation and active involvement. The approach to children should be warm, honest, calm, accepting, and matter of fact. A smile, a warm tone of voice, a gesture of encouragement, or a word of praise goes a long way in attracting children's attention and helping them adjust to new circumstances. Fundamental to the child's response is how the parents respond to healthcare personnel and medical interventions.

The following teaching strategies are suggested to convey information to members of this age group. These strategies feed into children's natural tendency for play and their need for active participation and sensory experiences.

For Short-Term Learning

- Read simple stories from books with lots of pictures.
- Use dolls and puppets to act out feelings and behaviors.
- Use simple audiotapes with music and videotapes with cartoon characters.
- Role-play to bring the child's imagination closer to reality.

- Give simple, concrete, nonthreatening explanations to accompany visual and tactile experiences.
- Perform procedures on a teddy bear or doll first to help the child anticipate what an experience will be like.
- Allow the child something to do—squeeze your hand, hold a Band-Aid, sing a song, cry if it hurts—to channel their response to an unpleasant experience.
- Keep teaching sessions brief (no longer than about 5 minutes each) because of the child's short attention span.
- Cluster teaching sessions close together so that children can remember what they learned from one instructional encounter to another.
- Avoid analogies and explain things in straightforward and simple terms because children take their world literally and concretely.
- Individualize the pace of teaching according to the child's responses and level of attention.

For Long-Term Learning

- Focus on rituals, imitation, and repetition of information in the form of words and actions to hold the child's attention. For example, practice washing hands before and after eating and toileting, which can be a teachable moment in the family's daily rituals and routines.
- Use reinforcement as an opportunity for children to achieve permanence of learning through practice.
- Employ the teaching methods of gaming and modeling as a means by which children can learn about the world and test their ideas over time.
- Encourage parents to act as role models, because their values and beliefs serve to reinforce healthy behaviors and significantly influence the child's development of attitudes and behaviors.

Early Childhood (3–5 Years of Age)

Children in the preschool years continue with development of skills learned in the earlier years of growth. Their sense of identity becomes clearer, and their world expands to encompass involvement with others external to the family unit. Children in this developmental category acquire new behaviors that give them more independence from their parents and allow them to care for themselves more autonomously. Learning during this developmental period occurs through interactions with others and through mimicking or modeling the behaviors of playmates and adults (Crandell et al., 2019; Santrock, 2019). Although their efforts are more coordinated, supervision of activities is still required because they lack judgment in carrying out the skills they have developed.

The young child also continues to have a limited sense of time and being made to wait 15 minutes can feel like an eternity. As they begin to understand and appreciate the world around them, their attention span (ability to focus) begins to lengthen such that they can usually remain quiet long enough to listen to a song or hear a short story read (Santrock, 2019).

Teaching Strategies

The nurse's interactions with preschool children and their parents are often sporadic, usually occurring during occasional well-child visits to the pediatrician's office or when minor medical problems arise. During these interactions, the nurse should take every opportunity to teach parents about health promotion and disease prevention measures, to provide guidance regarding normal growth and development, and to offer instruction about medical recommendations related to illness or disability. Parents can be a great asset to the nurse in working with children in this developmental phase, and they should be included in all aspects of the educational plan and the actual teaching experience. Parents can serve as the primary resource to answer questions about children's disabilities, their idiosyncrasies, and their favorite toys—all of which may affect their ability to learn (Bedells & Bevan, 2016; Hussey & Hirsh, 1983). Explanations of the purpose and reasons for

a procedure remain beyond the young child's level of reasoning, so any explanations must be kept very simple and matter of fact (Pidgeon, 1985). Children's fear of pain and bodily harm is uppermost in their minds, whether they are well or ill. Loss of body integrity is the preschool child's greatest threat, which significantly affects their willingness to interact with healthcare personnel (Poster, 1983; Vulcan, 1984). Their ideas regarding illness also are primitive with respect to cause and effect; illness and hospitalization are thought to be a punishment for something they did wrong, either through omission or commission (London et al., 2017). Children's attribution of the cause of illness to the consequences of their own transgressions is known as **egocentric causation** (Polan & Taylor, 2019; Richmond & Kotelchuck, 1984).

Because young children have fantasies and active imaginations, it is most important for the nurse to reassure them and allow them to express their fears openly (Heiney, 1991). Nurses need to choose their words carefully when describing procedures and interventions and keep explanations simple (Miller & Stoeckel, 2019). Preschool children are familiar with many words, but using terms such as *cut* and *knife* is frightening to them. Instead, nurses should use less threatening words such as *fix*, *sew*, and *cover up the hole*. *Band-Aids* is a much more understandable term than *dressings*, and bandages are often thought by children to have magical healing powers (Miller & Stoeckel, 2019).

Although still dependent on family, the young child has begun to have increasing contact with the outside world and is usually able to interact more comfortably with others. Nevertheless, significant adults in a child's life should be included as participants during teaching sessions. They can provide support to the child, substitute as the teacher if their child is reluctant to interact with the nurse, and reinforce teaching at a later point in time. The primary caretakers, usually the mother and father, are the recipients of most of the nurse's teaching efforts. They are the learners who will assist the child in achieving desired health outcomes (Callans et al., 2016; Kaakinen et al., 2018; Whitener et al., 1998).

The following specific teaching strategies are recommended.

For Short-Term Learning

- Provide physical and visual stimuli because language ability is still limited, both for expressing ideas and for comprehending verbal instructions.
- Keep teaching sessions short (no more than 15 minutes) and scheduled sequentially at close intervals so that information is not forgotten.
- Relate information needs to activities and experiences familiar to the child. For example, ask the child to pretend to blow out candles on a birthday cake to practice deep breathing.
- Encourage the child to participate in selecting between a limited number of teaching–learning options, such as playing with dolls or reading a story, which promotes active involvement and helps to establish nurse–client rapport.
- Arrange small-group sessions with peers to make teaching less threatening and more fun.
- Give praise and approval through both verbal expressions and nonverbal gestures, which are real motivators for learning.
- Give tangible rewards, such as badges or small toys, immediately following a successful learning experience to encourage the mastery of cognitive and psychomotor skills.
- Allow the child to manipulate equipment and play with replicas or dolls to learn about body parts. Special kidney dolls, ostomy dolls with stomas, or orthopedic dolls with splints and tractions provide opportunities for hands-on experience.
- Use storybooks to emphasize the humanity of healthcare personnel; to depict relationships between the child, parents, and others; and to help the child identify with certain situations.

For Long-Term Learning

- Enlist the help of parents, who can play a vital role in modeling a variety of healthy habits, such as practicing safety measures

and eating a balanced diet; offer them access to support and follow-up as the need arises.
- Reinforce positive health behaviors and the acquisition of specific skills.

Middle and Late Childhood (6–11 Years of Age)

In middle and late childhood, children have progressed in their physical, cognitive, and psychosocial skills to the point where most begin formal training in structured school systems. They approach learning with enthusiastic anticipation, and their minds are open to new and varied ideas.

Children at this developmental level are motivated to learn because of their natural curiosity and their desire to understand more about themselves, their bodies, their world, and the influence that different stimuli in their lives have on them (Whitener et al., 1998). This stage is a period of great change for them, when attitudes, values, and perceptions of themselves, their society, and the world are shaped and expanded. Visions of their own environment and the cultures of others take on more depth and breadth (Santrock, 2019). They have developed the ability to concentrate for extended periods, can tolerate delayed gratification, are responsible for independently carrying out activities of daily living, have a good understanding of the environment around them, and can generalize from experience (Crandell et al., 2019). Children in the early period of this developmental phase know the functions and names of many common body parts, whereas older children have a more specific knowledge of anatomy and can differentiate between external and internal organs with a beginning understanding of their complex functions (Raven, 2016).

Illness is thought of in terms of social consequences and role alterations, such as the realization that they will miss school and outside activities, people will feel sorry for them, and they will be unable to maintain their usual routines (Banks, 1990). They also fear illness and disability that could significantly disrupt their academic

progress, interfere with social contacts, decrease their independence, and result in loss of control over body functioning (Koopman et al., 2004).

Teaching Strategies

It is important to follow sound educational principles with the child and family, such as identifying individual learning styles, determining readiness to learn, and accommodating special learning needs and abilities to achieve positive health outcomes. Given their increased ability to comprehend information and their desire for active involvement and control of their lives, it is very important to include school-aged children in patient education efforts, as these "hands-on" experiences are important sources of learning (Hayes, 2018). The nurse in the role as educator should explain illness, treatment plans, and procedures in simple, logical terms in accordance with the child's level of understanding and reasoning. Although children at this stage of development can think logically, their ability to engage in abstract thought remains limited. Therefore, teaching should be presented in concrete terms with step-by-step instructions (Pidgeon, 1985; Whitener et al., 1998). It is imperative that the nurse observe children's reactions and listen to their verbal feedback to confirm that information shared has not been misinterpreted or confused.

To the extent feasible, parents should be informed of what their child is being taught. Teaching parents directly is encouraged so that they may be involved in fostering their child's independence, providing emotional support and physical assistance, and giving guidance regarding the correct techniques or regimens in self-care management. Siblings and peers also should be considered as sources of support. In attempting to master self-care skills, children thrive on praise from others who are important in their lives as rewards for their accomplishments and successes (Hussey & Hirsh, 1983; Santrock, 2019).

Education for health promotion and health maintenance is most likely to occur in the school system through the school nurse, but the

parents as well as the nurse outside the school setting should be told which content is being addressed. Information then can be reinforced and expanded when in contact with the child in other care settings. Numerous opportunities for nurses to teach the individual child or groups of children about health promotion and disease, injury, and infection prevention are available in schools, physicians' offices, community centers, outpatient clinics, or hospitals. Health education for children of this age can be very fragmented because of the many encounters they have with nurses in a variety of settings (Edelman & Kudzma, 2018).

The school nurse is in an excellent position to coordinate the efforts of all other providers to avoid duplication of teaching content or the giving of conflicting information as well as to provide reinforcement of learning. According to *Healthy People 2030* (U.S. Department of Health and Human Services [USDHHS], 2020), health promotion regarding healthy eating and weight status, exercise, sleep, mental health, and prevention of injuries, as well as avoidance of tobacco, alcohol, and drug use, are just a few examples of objectives intended to improve the health of American children. The school nurse can play a vital role in providing education to the school-aged child to meet these goals (American Academy of Pediatrics Council on School Health, 2016). In support of this teaching–learning process, *Healthy People 2030* has focused on the school setting as a place to promote health for children, outlining objectives that are holistic in nature and address not only physical and mental well-being, but also the child's academic success (USDHHS, 2020). The school nurse is afforded the opportunity to educate children not only in a group when teaching a class but also on a one-to-one basis when encountering an individual child in the office for a certain problem or need.

The specific conditions that may come to the attention of the nurse in caring for children at this phase of development include problems such as behavioral disorders, hyperactivity, learning disorders, obesity, diabetes, asthma, and enuresis. Extensive teaching may be needed to help children and parents understand a condition

particularly related to them and learn how to overcome or deal with it (Edelman & Kudzma, 2018).

Individual circumstances surrounding the child, along with their experiences, may also be factors in how health is viewed. Marin (2010) found that concepts of illness in children vary depending on socioeconomic status (SES) and ethnicity, although she found no differences in their thinking based on gender. Children from lower SES levels and minority backgrounds tend to have a less sophisticated understanding of the causes of illness compared with those children from higher SES levels and those belonging to the majority population. She suggested that this may be a result of educational, cultural, and language differences and that healthcare professionals should consider a child's ethnicity and SES when communicating symptoms and causes of illness based on cultural health beliefs and practices.

Also, research indicates that systematic differences exist in children's reasoning skills with respect to understanding body functioning and the cause of illness resulting from their experiences with illness. Children suffering from chronic diseases have been found to have more sophisticated conceptualization of illness **causality**, which refers to the ability to grasp a cause-and-effect relationship between two paired, successive events (Crandell et al., 2019). They also tend to have a better grasp on body functioning than healthy peers. Piaget (1976) postulated that experience with a phenomenon catalyzes a better understanding of it.

Conversely, the stress and anxiety resulting from having to live with a chronic illness or disability can interfere with a child's general cognitive performance. Chronically ill children are likely to have a less refined understanding of the physical world than healthy children do, and the former often are unable to generalize what they learned about a specific illness to a broader understanding of illness causality (Perrin et al., 1991). Thus, illness may act as an intrusive factor in overall cognitive development (Bell et al., 2016). The need to sustain or bolster their self-image, self-concept, and self-esteem

requires that children be invited to participate, to the extent possible, in planning for and carrying out learning activities (Snowman & McCown, 2015). For young children receiving an x-ray or other imaging procedure, for example, it would be beneficial to have them initially simulate the experience by positioning a doll or stuffed animal under the machine as the technician explains the procedure. This strategy allows them to participate and can decrease their fear. Because of children's fears of falling behind in school, being separated from peer groups, and being left out of social activities, teaching must be geared toward fostering normal development despite any limitations that may be imposed by illness or disability (Falvo, 2011; Leifer, & Fleck, 2013).

Children in middle and late childhood are used to the structured, direct, and formal learning in the school environment; consequently, they are receptive to a similar teaching–learning approach when hospitalized or confined at home. The following teaching strategies are suggested when caring for children in this developmental stage of life (Edelman & Kudzma 2018; Falvo, 2011; Hayes, 2018; Leifer, & Fleck, 2013; Snowman & McCown, 2015).

For Short-Term Learning

- Allow school-aged children to take responsibility for their own health care because they are not only willing but also capable of manipulating equipment with accuracy. Because of their adeptness in relation to manual dexterity, mathematical operations, and logical thought processes, they can be taught, for example, to apply their own splint or use an asthma inhaler as prescribed.
- Teaching sessions can be extended to last up to 30 minutes each because the increased cognitive abilities of school-aged children make possible the attention to and the retention of information. However, lessons should be spread apart to allow for comprehension of large amounts of content and to provide opportunity for the practice of newly acquired skills between sessions.

- Use diagrams, models, pictures, digital media, printed materials, and computer, tablet, or smartphone applications as adjuncts to various teaching methods because the increased facility these children have with language (both spoken and written) and mathematical concepts allows them to work with more complex instructional tools.
- Choose audiovisual and printed materials that show peers undergoing similar procedures or facing similar situations.
- Clarify any scientific terminology and medical jargon used.
- Use analogies as an effective means of providing information in meaningful terms, such as “Having a chest x-ray is like having your picture taken” or “White blood cells are like police cells that can attack and destroy infection.”
- Use one-to-one teaching sessions as a method to individualize learning relevant to the child’s own experiences and as a means of interpreting the results of nursing interventions specific to the child’s own condition.
- Provide time for clarification, validation, and reinforcement of what is being learned.
- Select individual instructional techniques that provide opportunity for privacy—an increasingly important concern for this group of learners, who often feel quite self-conscious and modest when learning about bodily functions.
- Employ group teaching sessions with others of similar age and with similar problems or needs to help children avoid feelings of isolation and to assist them in identifying with their own peers.
- Prepare children for procedures and interventions well in advance to allow them time to cope with their feelings and fears, to anticipate events, and to understand what the purpose of each procedure is, how it relates to their condition, and how much time it will take.
- Encourage participation in planning for procedures and events because active involvement helps the child to assimilate information more readily.
- Provide much-needed nurturance and support, always keeping in mind that young children are not just small adults. Praise and rewards help motivate and reinforce learning.

For Long-Term Learning

- Help school-aged children acquire skills that they can use to assume self-care responsibility for carrying out therapeutic treatment regimens on an ongoing basis with minimal assistance.
- Assist them in learning to maintain their own well-being and prevent illnesses from occurring.

Research suggests that lifelong health attitudes and behaviors begin in the early childhood phase of development and remain intrapersonally consistent throughout the stage of middle to late childhood (USDHHS, 2020). The development of cognitive understanding of health and illness has been shown to follow a systematic progression parallel to the stage of general cognitive development (Koopman et al., 2004). As the child matures, beliefs about health and illness become less concrete and more abstract, less egocentric, and increasingly differentiated and consistent.

Motivation, self-esteem, and positive self-perception are personal characteristics that influence health behavior. Research has shown that the higher the grade level of the child, the greater the understanding of illness and an awareness of body cues. Thus, children become more actively involved in their own health care as they progress developmentally (Farrand & Cox, 1993; Gilljam et al., 2016; Whitener et al., 1998). Teaching should be directed at assisting them to incorporate positive health actions into their daily lives. Because of the importance of peer influence, group activities are an effective method of teaching health behaviors, attitudes, and values.

Adolescence (12–19 Years of Age)

Adolescence marks the transition from childhood to adulthood. During this prolonged and very change-filled time, adolescents and their families may experience significant turmoil. How adolescents think about themselves and the world often influences many

healthcare issues facing them, from anorexia to obesity. Teenage thought and behavior give insight into the etiology of some of the major health problems of this group of learners (Elkind, 1984; Grootens-Wiegers et al., 2017). Adolescents are known to be among the nation's most at-risk populations (Ares et al., 2015). *Healthy People 2030* identifies adolescents as a specific topic area, with objectives focused on interventions to promote health as well as mitigate the risks associated with this population (USDHHS, 2020).

Teaching Strategies

For education to be effective, an understanding of the characteristics of the adolescent phase of development is crucial (Ackard & Neumark-Sztainer, 2001; Grootens-Wiegers et al., 2017; Ormrod, 2018). Teenagers have a strong need for belonging to a group that provides opportunities for friendship, peer acceptance, and peer support. Today's adolescents comprise the generational cohort Generation Z, or Gen Z. They excel with self-directed learning and thrive on the use of technology (Shatto & Erwin, 2016). The overwhelming majority do not know a world without the smartphone, and the recent coronavirus pandemic has impacted them by disrupting their contact with peers, school attendance, and major life milestones (Parker & Igielnik, 2020).

Although most individuals at this phase of development remain relatively healthy, an estimated 20% of U.S. teenagers have at least one serious health problem, such as asthma, learning disabilities, eating disorders (e.g., obesity, anorexia, or bulimia), diabetes, a range of disabilities resulting from injury, or psychological problems resulting from depression, anxiety, or physical and/or emotional maltreatment. In addition, adolescents are considered at high risk for teen pregnancy, the effects of poverty, drug or alcohol abuse, and sexually transmitted diseases such as venereal disease and AIDS. The three leading causes of death in this age group are accidents, homicide, and suicide (Heron, 2019; London et al., 2017). More than 50% of all adolescent deaths are a result of accidents, and most of these incidents involve motor vehicles (Santrock, 2019).

The ability of adolescents to think abstractly and critically enables them to conceptualize invisible processes and make determinations about what others say and how they behave. With this capacity, teenagers can become obsessed with what they think as well as what others are thinking, a characteristic known as adolescent **egocentrism**. They begin to believe that everyone is focusing on the same things they are—namely, themselves and their activities. Elkind (1984) labels this belief as the **imaginary audience**, a type of social thinking that has considerable influence over an adolescent's behavior. The imaginary audience explains the pervasive self-consciousness of adolescents, who, on the one hand, may feel embarrassed because they believe everyone is looking at them, and, on the other hand, desire to be looked at and thought about because this attention confirms their sense of being special and unique (Crandell et al., 2019; Santrock, 2019; Snowman & McCown, 2015).

Adolescents are able to understand the concept of health and illness, the multiple causes of diseases, the influence of variables on health status, and the ideas associated with health promotion and disease prevention. Parents, healthcare providers, and the internet are all potential sources of health-related information for adolescents. At this developmental stage, adolescents recognize that illness and disability are processes resulting from a dysfunction or nonfunction of a part or parts of the body and can comprehend the outcomes or prognosis of an illness. They also can identify health behaviors, although they may reject practicing them or begin to engage in risk-taking behaviors because of their brain development, the social pressures they receive from peers, and their feelings of invincibility (Balocchini et al., 2013; Ormrod, 2018). Elkind (1984) labels this second type of social thinking as the **personal fable**. The personal fable leads adolescents to believe that they are invulnerable—other people grow old and die, but not them; other people may not realize their personal ambitions, but they will. Recent research, however, reveals that adolescents 15 years of age and older are not as susceptible to the personal fable as once thought (Cauffman & Steinberg, 2000). Although children in the mid- to late-adolescent period appear to be aware of the risks they take, it is

important, nevertheless, to recognize that this population continues to need support and guidance (Brown et al., 2007).

Despite these potential threats to their well-being, adolescents use medical services the least frequently of all age groups. Compounding this problem is the realization that adolescent health has not been a priority in the past and the health issues of this population have been largely ignored by the healthcare system globally (Patton et al., 2016). Thus, the educational needs of adolescents are broad and varied. The potential topics for teaching are numerous, ranging from sexual adjustment, contraception, and venereal disease to accident prevention, nutrition, substance abuse, and mental health.

Adolescents demand personal space, control, privacy, and confidentiality. To them, illness, injury, disability, and hospitalization mean dependency, loss of identity, a change in body image and functioning, bodily embarrassment, confinement, separation from peers, and possible death. The provision of knowledge alone is, therefore, not sufficient for this population. Because of the many issues apparent during the adolescent period, the need for coping skills is profound and can influence the successful completion of this stage of development (Grey et al., 1999; Hoffman, 2016; Markova & Nikitskaya, 2017; Williams & McGillicuddy-De Lisi, 1999; Zimmer-Gembeck & Skinner, 2008).

Healthy teens have difficulty imagining themselves as sick or injured. Those with an illness or disability often comply poorly with medical regimens and continue to indulge in risk-taking behaviors. Because of their preoccupation with body image and functioning and the perceived importance of peer acceptance and support, they view health recommendations as a threat to their autonomy and sense of control.

Probably the greatest challenge to the nurse responsible for teaching the adolescent, whether healthy or ill, is to be able to develop a mutually respectful, trusting relationship (Brown et al., 2007). Adolescents, because of their well-developed cognitive and

language abilities, can participate fully in all aspects of learning and decision making, but they need privacy, understanding, an honest and straightforward approach, and unqualified acceptance in the face of their fears of embarrassment, losing independence, identity, and self-control (Ackard & Neumark-Sztainer, 2001; Lipstein et al., 2013). The American Academy of Pediatrics Committee on Adolescence (2016) cites availability, visibility, quality, confidentiality, affordability, flexibility, and coordination as important factors in providing education effectively to the adolescent population.

The existence of an imaginary audience and personal fable can contribute to the exacerbation of existing problems or cause new ones. Adolescents with disfiguring disabilities, who as young children exhibited a great deal of spirit and strength, may now show signs of depression and lack of will. For the first time, they look at themselves from the standpoint of others and reinterpret behavior once seen as friendly as actually condescending. Teenagers may have failed to engage in wearing a mask or practicing social distancing during the coronavirus pandemic because the personal fable tells them that other people will contract the virus or spread it, but not them. Teenagers with chronic illnesses may stop taking prescribed medications because they feel they can manage without them to prove to others that they are well and free of medical constraints; other people with similar diseases need to follow therapeutic regimens, but not them.

Adolescents' language skills and ability to conceptualize and think abstractly give the nurse as educator a wide range of teaching methods and instructional tools from which to choose (Brown et al., 2007). The following teaching strategies are suggested when caring for adolescents.

For Short-Term Learning

- Use one-to-one instruction to ensure confidentiality of sensitive information.

- Choose peer-group discussion sessions as an effective approach to deal with health topics such as smoking, alcohol and drug use, safety measures, obesity, and teenage sexuality. Adolescents benefit from being exposed to others who have the same concerns or who have successfully dealt with problems like theirs.
- Use face-to-face or online group discussion, role playing, and gaming as methods to clarify values and solve problems, which feed into the teenager's need to belong and to be actively involved. Getting groups of peers together in person or virtually (e.g., blogs, social networking, podcasts, online videos) can be very effective in helping teens confront health challenges and learn how to significantly change behavior (Snowman & McCown, 2015).
- Employ adjunct instructional tools, such as complex models, diagrams, and specific, detailed written materials, which can be used competently by many adolescents. Using technology is a comfortable approach to learning for adolescents, who generally have facility with technological equipment after years of academic and personal experience with telecommunications in the home and at school.
- Clarify any scientific terminology and medical jargon used.
- Share decision making whenever possible, because control is an important issue for adolescents.
- Include adolescents in formulating teaching plans related to teaching strategies, expected outcomes, and determining what needs to be learned and how it can best be achieved to meet their needs for autonomy.
- Suggest options so that they feel they have a choice about courses of action.
- Give a rationale for all that is said and done to help adolescents feel a sense of control.
- Approach them with respect, tact, openness, and flexibility to elicit their attention and encourage their responsiveness to teaching–learning situations.
- Expect negative responses, which are common when their self-image and self-integrity are threatened.

- Avoid confrontation and acting like an authority figure. Instead of directly contradicting adolescents' opinions and beliefs, acknowledge their thoughts and then casually suggest an alternative viewpoint or choices, such as "Yes, I can see your point, but what about the possibility of . . .?"

For Long-Term Learning

- Accept adolescents' personal fable and imaginary audience as valid, rather than challenging their feelings of uniqueness and invincibility.
- Acknowledge that their feelings are very real because denying them their opinions simply will not work.
- Allow them the opportunity to test their own convictions. Let them know, for example, that although some other special people may get away without taking medication, others cannot. Suggest, if medically feasible, setting up a trial period with medications scheduled further apart or in lowered dosages to determine how they can manage.

Although much of patient education should be done directly with adolescents to respect their right to individuality, privacy, and confidentiality, teaching effectiveness may be enhanced by including their families to some extent (Brown et al., 2007; Lipstein et al., 2013). The nurse as educator can give guidance and support to families, helping them to better understand adolescent behavior (Hines & Paulson, 2006). Parents should be taught how to set realistic limits and at the same time foster the adolescent's sense of independence. Through prior assessment of potential sources of stress, teaching both the parents and the adolescent (as well as siblings) can be enhanced. Because of ambivalence the adolescent feels while in this transition stage from childhood to adulthood, healthcare teaching, to be effective, must consider the learning needs of the adolescent as well as the parents (Ackard & Neumark-Sztainer, 2001; Falvo, 2011).

The Developmental Stages of Adulthood

Andragogy, the term used by Knowles (1990) to describe his theory of adult learning, is the art and science of teaching adults. Education within this framework is more learner centered and less teacher centered; that is, instead of one party imparting knowledge to another, the power relationship between the educator and the adult learner is much more horizontal (Curran, 2014). The concept of andragogy has served for years as a useful framework in guiding instruction for patient teaching and for continuing education of staff. Recently, based on emerging research and theory from a variety of disciplines, Knowles and colleagues (2020) discussed new perspectives on andragogy that have refined and strengthened the core adult learning principles that Knowles originally proposed.

The following basic assumptions about Knowles's framework have major implications for planning, implementing, and evaluating teaching programs for adults as the individual matures:

1. The adult's self-concept moves from one of being a dependent personality to being an independent, self-directed human being.
2. The adult accumulates a growing reservoir of previous experience that serves as a rich resource for learning.
3. Readiness to learn becomes increasingly oriented to the developmental tasks of social roles.
4. Adults are best motivated to learn when the information being offered is needed to improve or support their life situation.
5. Adults learn for personal fulfillment such as self-esteem or an improved quality of life.

A limitation of Knowles's assumptions about child versus adult learners is that they are derived from studies conducted on healthy people. Illness and injury, however, have the potential to significantly change the cognitive and psychological processes used for learning (Best, 2001; Zurakowski et al., 2006).

The period of adulthood constitutes three major developmental stages—the young adult stage, the middle-aged adult stage, and the older adult

stage (Table 5-1). Although adulthood, like childhood, can be divided into various developmental phases, the focus for learning is quite different. Whereas a child's readiness to learn depends on physical, cognitive, and psychosocial development, adults have essentially reached the peak of their physical and cognitive capacities.

The emphasis for adult learning revolves around differentiation of life tasks and social roles with respect to employment, family, and other activities beyond the responsibilities of home and career (Merriam & Bierema, 2014; National Academies of Sciences, Engineering, and Medicine, 2018). In contrast to childhood learning, which is subject-centered, adult learning is problem-centered. The prime motivator to learn in adulthood is being able to apply knowledge and skills for the solution of immediate problems. Unlike children, who enjoy learning for the sake of gaining an understanding of themselves and the world, adults must clearly perceive the relevancy of acquiring new behaviors or changing old ones for them to be willing and eager to learn. In the beginning of any teaching–learning encounter, therefore, adults want to know how they will benefit from their efforts at learning (Knowles et al., 2020).

In contrast to the child learner, who is dependent on authority figures for learning, the adult is much more self-directed and independent in seeking information. For adults, past experiences are internalized and form the basis for further learning. Adults already have a rich resource of stored information on which to build a further understanding of relationships between ideas and concepts (Conlan et al., 2015). Compared to children, adults grasp relationships more quickly, but they do not tolerate learning isolated facts as well. **Table 5-2** highlights the main differences between teaching children and teaching adults.

Table 5-2 Process Elements of Andragogy

Element	Pedagogical Approach	Andragogical Approach

Element	Pedagogical Approach	Andragogical Approach
1. Preparing Learners	Minimal	Provide information Prepare for participation Help develop realistic expectations Begin thinking about content
2. Climate	Authority oriented Formal Competitive	Relaxed, trusting Mutually respectful Informal, warm Collaborative, supportive Openness and authenticity Humanness
3. Planning	By instructor	Mechanism for mutual planning by learners and facilitator
4. Diagnosis of Needs	By instructor	By mutual assessment
5. Setting of Objectives	By instructor	By mutual negotiation

Element	Pedagogical Approach	Andragogical Approach
6. Designing Learning Plans	Logic of subject matter Content units	Sequenced by readiness Problem units
7. Learning Activities	Transmittal techniques	Experiential techniques (inquiry)
8. Evaluation	By instructor	Mutual rediagnosis of needs Mutual measurement of program

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Because adults already have established ideas, values, and attitudes, they also tend to be more resistant to change. In addition, adults must overcome obstacles to learning very different from those faced by children. For example, they have the burden of family, work, and social responsibilities, which can diminish their time, energy, and concentration for learning. Also, their need for self-direction may present problems because various stages of illness, as well as the healthcare setting in which they may find themselves, can force dependency. Anxiety, too, may negatively affect their motivation and ability to learn, especially if the content is perceived as difficult (Kinkead et al., 2016). Furthermore, some adults may feel too old or too out of touch with the formal learning of the school years to learn new things. If past experiences with learning were not positive, they also may shy away from assuming the role of learner for fear of the risk of failure (Merriam & Bierema, 2014).

Although nurse educators can consider adult learners as autonomous, self-directed, and independent, these individuals often want and need structure, clear and concise specifics, and direct guidance. As such, Taylor et al. (2000) label adults as “paradoxical” learners.

A variety of reasons explain why adults pursue learning throughout their lives. Basically, three categories describe the general orientation of adults toward continuing education (Knowles et al., 2020; Miller & Stoeckel, 2019):

1. Goal-oriented learners engage in educational endeavors to accomplish clear and identifiable objectives. Continuing education for them is episodic and occurs as a recurring pattern throughout their lives as they realize the need for or an interest in expanding their knowledge and skills. Adults attend night courses or professional workshops to build their expertise in a specific subject or for advancement in their professional or personal lives.
2. Activity-oriented learners select educational activities primarily to meet social needs. The learning of content is secondary to their need for human contact. Although they may choose to participate in support groups, special-interest groups, or self-help groups, or attend academic classes because of an interest in a topic being offered, they join essentially out of their desire to be around others and converse with people in similar circumstances—retirement, parenting, divorce, or widowhood. Their drive is to alleviate social isolation or loneliness.
3. Learning-oriented learners view themselves as perpetual students who seek knowledge for knowledge’s sake. They are active learners throughout their lives and tend to join groups, classes, or organizations with the anticipation that the experience will be educational and personally rewarding.

In most cases, all three types of learners initiate the learning experience for themselves. In planning educational activities for adults, it is important to determine their motives for wanting to be involved. That is, it is advantageous for the nurse educator to understand the purpose and expectations of the individuals who participate in continuing education programs. Armed with that knowledge, the nurse educator can best serve learners in the role of facilitator for referral or resource information, thereby embracing the adults’ state of independence and interdependence (Musinski, 1999).

Obviously, there are many differences between child and adult learners (Table 5-1 and Table 5-2). As the following discussion clearly reveals, there also are differences in the characteristics of adult learners within the three developmental stages of adulthood.

Young Adulthood (20–40 Years of Age)

The transition from adolescence to becoming a young adult has been termed *emerging adulthood*. Early adulthood is composed of the cohort currently between 20 and 40 years of age and is made up of both Gen Z (ages 20 to 24) and the Millennial generation (ages 25 to 40). These age cohorts share similar viewpoints on issues such as global warming, racial equality, and the role of government. While both are more ethnically diverse than previous cohorts, Gen Z tends to be more so than Millennials, and are also better educated thus far (Fry, 2020; Parker & Igielnik, 2020).

Young adulthood is a time for establishing long-term, intimate relationships with other people, choosing a lifestyle and adjusting to it, deciding on an occupation, and managing a home and family. Many of the events they experience are happy and growth promoting from an emotional and social perspective, but they also can prove disappointing and psychologically draining. Decisions made during this time lead to changes in the lives of young adults that can be a potential source of stress for them. It is a time when intimacy and courtship are pursued and spousal and/or parental roles are developed (Santrock, 2019).

Teaching Strategies

Based on the paucity of literature on health teaching of individuals who belong specifically to this age cohort, young adulthood is the life-span period that has received the least attention by nurse educators. At this developmental stage, prior to the emergence of the chronic diseases that characterize the middle-age and older years, young adults are generally very healthy and tend to have limited exposure to health professionals. Their contact with the healthcare system is usually for pre-employment, college, or pre-sport physicals; for a minor episodic complaint; or for pregnancy and contraceptive care (Orshan, 2008). At the same time, young adulthood is a crucial period for the establishment of behaviors that

help individuals to lead healthy lives, both physically and emotionally. Many of the choices young adults make, if not positive ones, will be difficult to modify later. This stage of development is a very important period with future implications for young adults' economic security, health, and well-being (Bonnie et al., 2015). As Havighurst (1976) points out, this stage is full of "teachable moment" opportunities and healthcare providers must take advantage of every opportunity to promote healthy behaviors with this population (Hinkle & Cheever, 2018).

Health promotion is the most neglected aspect of healthcare teaching at this stage of life. Yet, many of the health issues related to risk factors and stress management are important to deal with to help young adults establish positive health practices for preventing problems with illness in the future. The major factors that need to be addressed in this age group are healthy eating habits, regular exercise, and avoiding drug abuse. Such behaviors will reduce the incidence of high blood pressure, elevated cholesterol, obesity, smoking, and overuse of alcohol and drugs (Santrock, 2019).

The nurse as educator must find a way of reaching and communicating with this audience about health promotion and disease prevention measures. Readiness to learn does not always require the nurse educator to wait for it to develop. Rather, such readiness can be actively fostered through experiences the nurse creates. Knowledge of the individual's lifestyle can provide cues to concentrate on when determining specific aspects of education for the young adult. For example, if the individual is planning marriage, then establishing healthy relationships, family planning, contraception, and parenting skills are potential topics to address during teaching (Orshan, 2008). The motivation for adults to learn comes in response to internal drives, such as need for self-esteem, a better quality of life, or job satisfaction, and in response to external motivators, such as job promotion, more money, or more time to pursue outside activities (Crandell et al., 2019; Miller & Stoeckel, 2019).

When young adults are faced with acute or chronic illnesses or disabilities, many of which may significantly alter their lifestyles, they are stimulated to learn to maintain their independence and return to normal life patterns. It is likely they will view an illness or disability as a serious setback to achieving their immediate or future life goals.

Because adults typically desire active participation in the educational process, whenever possible it is important for the nurse as educator to allow them the opportunity for mutual collaboration in health education decision making. They should be encouraged, as Knowles (1990) suggested, to select what to learn (objectives), how they want material to be presented (teaching methods and tools), and which indicators will be used to determine the achievement of learning goals (evaluation). Also, it must be remembered that adults bring to the teaching–learning situation a variety of experiences that can serve as the foundation on which to build new learning. Consequently, it is important to draw on their personal experiences to make learning relevant, useful, and motivating. Young adults tend to be reluctant to expend the resources of time, money, and energy to learn new information, skills, and attitudes if they do not see the content of instruction as relevant to their current lives or anticipated problems (Collins, 2004; Knowles et al., 2020).

Teaching strategies must be directed at encouraging young adults to seek information that expands their knowledge base, helps them control their lives, and bolsters their self-esteem. Whether they are well or ill, young adults need to know about the opportunities available to learning. Making them aware of health issues and learning opportunities can occur in a variety of settings, such as physicians' offices, student health services, health fairs, community and outpatient clinics, or hospitals. In all cases, these educational opportunities must be convenient and accessible to them in terms of their lifestyle with respect to work and family responsibilities. Relevant, applicable, and practical information is what adults desire and value—they want to know "what's in it for me," according to Collins (2004).

Because they tend to be very self-directed in their approach to learning, young adults do well with written patient education materials and audiovisual tools, including online instruction, that allow them to self-pace their learning independently. Group discussion is an attractive method for teaching and learning because it provides young adults with the opportunity to interact with others of similar age and in similar situations, such as in parenting groups, prenatal classes, exercise classes, or marital adjustment sessions. Although assessment prior to teaching helps to determine the level at which to begin teaching, no matter what the content, the enduring axiom is to make learning easy and relevant. To facilitate learning, present concepts logically from simple to complex and

establish conceptual relationships through specific application of information (Collins, 2004; Musinski, 1999).

Middle-Aged Adulthood (41–64 Years of Age)

Just as adolescence is the link between childhood and adulthood, so midlife is the transition period between young adulthood and older adulthood. Middle-aged Americans make up about one-fourth of the population, and this current cohort includes the Baby Boomers and Generation X cohorts (Fry, 2020). Although middle-aged adulthood was once one of the most neglected age periods, the concept of what has been thought of as middle age is being nudged upward. As more people live longer, middle age is now coming later in life than ever before. Adults are no longer considered to be "over the hill" when they celebrate their 40th birthday. Middle age for many healthy adults is starting later and lasting longer (Newman & Newman, 2021; Santrock, 2019).

During middle age, some individuals experience accomplishments in their careers, their sense of who they are is well developed, their children are grown, and they have time to share their talents, serve as mentors for others, and pursue new or latent interests. For them, this stage is a time to reflect on the contributions they have made to family and society, relish in their achievements, and reexamine their goals and values (Newman & Newman, 2021). However, for other middle-aged adults, they may have had career interruptions or failures due to economic recessions and/or find themselves in the sandwich generation, which is presented with challenges not faced by others in their cohort, such as caregiving, financial maintenance, and emotional support for aging parents and children who are not yet independent (Parker & Patten, 2013; Ro, 2021).

Teaching Strategies

Depending on individual situations, middle-aged adults may be facing either a more relaxed lifestyle or an increase in stress level because of midlife crisis issues such as menopause, obvious physical changes in their bodies, responsibility for their own parents' declining health status, still raising a young child or supporting a grown child, or concern about how finite their life really is. They may have regrets and feel they did not achieve the goals or live up to the values they had set for themselves in

young adulthood or the expectations others had of them as young adults. Santrock (2019) cites research indicating that this stage in life is not so much seen as a crisis but rather as a period of midlife consciousness. The Pew Research Center addresses the rising financial, emotional, and care burdens facing nearly half of middle-aged adults in this sandwich generation. Despite these multigenerational responsibilities and stressors, the Pew survey found that these adults overall are just as contented with their lives as are other adults who do not have these burdens and pressures at this stage in life (Parker & Patten, 2013). The COVID-19 pandemic, however, has added another layer of strain on both time and finances for this generation "caught in the middle" (Grose, 2020).

For many adults, the accumulation of life experiences and their proven record of accomplishments often allow them to come to the teaching–learning situation with confidence in their abilities as learners. However, if their past experiences with learning were minimal or not positive, their motivation likely will not be at a high enough level to easily facilitate learning. Physical changes, especially with respect to hearing and vision, may impede learning as well (Santrock, 2019).

When teaching members of this age group, the nurse must be aware of their potential sources of stress, the health risk factors associated with this stage of life, and the concerns typical of midlife. Misconceptions regarding physical changes such as menopause are common. Stress may interfere with middle-aged adults' ability to learn or may be a motivational force for learning (Merriam & Bierema, 2014). Those who have lived healthy and productive lives are often motivated to contact health professionals to ensure maintenance of their healthy status. Such contacts represent an opportune time for the nurse educator to reach out to assist these middle-aged adults in coping with stress and maintaining optimal health status. Many need and want information related to chronic illnesses that can arise at this phase of life (Orshan, 2008).

Adult learners need to be reassured or complimented on their learning competencies. Reinforcement for learning is internalized and serves to reward them for their efforts. Teaching strategies for learning are similar in type to teaching methods and instructional tools used for the young adult learner, but the content differs to coincide with the concerns and problems specific to this group of learners.

Older Adulthood (65 Years of Age and Older)

The percentage of middle-aged adults in the United States has tripled since 1900, and in 2011, the first wave of Baby Boomers turned 65 years of age. Older persons constitute approximately 52.4 million of the U.S. population now, but by 2060, the number of those older than age 65 will increase to approximately 94.7 million Americans, nearly doubling in size. Those aged 85 and older make up the fastest-growing segment of the population in the country today, and that segment is expected to increase 123% by 2040, a rise of approximately 14.4 million people (USDHHS, 2019). With more than $1.7 trillion of the 2019 federal budget allocated for Medicare and Social Security, a considerable portion of this country's fiscal resources is used for programs that support those 65 years and older (Congressional Budget Office, 2020).

Some developmentalists categorize older adults into distinct divisions based on different age ranges. For example, Santrock (2019) identifies three groups of older adults: the young-old (65–74 years of age), the old-old (75–84 years of age), and the oldest-old (85 years and older). Newman and Newman (2021) have identified the last stages of aging into two categories: later adulthood (60–75 years) and elderhood (75 years until death). These distinctions acknowledge a shift in health and productivity levels of people in the later years according to biological and social trends.

Most older people have at least one chronic condition, and many, especially in the later years, have multiple conditions. On average, they are hospitalized longer than persons in other age categories and require more teaching overall to broaden their knowledge of self-care. In addition, it is approximated by the USDHHS that as of 2019, the educational profile of older Americans is as follows: 59% of Hispanics, 79% of Black Americans, 80% of those of Asian descent, and 92% of non-Hispanic Whites older than 65 years of age have a high school education; this percentage is 88% for the aggregate. These numbers have increased significantly since 1970, when only 28% of older adults had a high school diploma. However, currently, only 31% of them have a college degree at the bachelor's level or higher (USDHHS, 2019). Lower educational levels in some ethnic groups, sensory impairments, the disuse of literacy skills once learned, and cognitive changes in the population of older adults may contribute to their decreased ability to read and comprehend written

materials (Best, 2001; Centers for Disease Control and Prevention [CDC], 2009; 2016; Speros, 2009).

For these reasons, their patient education needs are generally greater and more complex than those for persons in any of the other developmental stages. Numerous studies have documented that older adults can benefit from health education programs. Their compliance, if they are given specific health directions, can be quite high. Given the considerable healthcare expenditures for older people, education programs to improve their health status and reduce morbidity would be a cost-effective measure (Behm et al., 2014; Best, 2001; Mauk, 2018; Robnett & Chop, 2015).

Because American society values physical strength, beauty, social networking, productivity, and integrity of body and mind, people fear the natural losses that accompany the aging process. Growing older is a normal event, yet the inevitable continuation of human development that results in biological, psychological, and social changes with the passage of time is a reminder of mortality. Nurses and nurse educators must recognize that a significant number of older persons respond to these changes by viewing them as challenges rather than defeats. Many aspects of older adulthood can be pleasurable, such as becoming a grandparent and experiencing retirement that gives one time to pursue lifelong interests, as well as freedom to explore new avenues of endeavor (Santrock, 2019).

Teaching Strategies

The teaching of older persons, known as **geragogy**, is different from teaching younger adults (andragogy) and children (pedagogy). For teaching to be effective, geragogy must accommodate the normal physical, cognitive, and psychosocial changes that occur during this phase of growth and development (Best, 2001; Miller & Stoeckel, 2019; Zurakowski et al., 2006). Until recently, little had been written about the special learning needs of older adults that acknowledged the physiological and psychological aging changes that affect their ability to learn.

Age changes, which begin in young and middle adulthood, progress significantly at this older adult stage of life. These changes often create obstacles to learning unless nurses understand them and can adapt

appropriate teaching interventions to meet the older person's needs. The sensory perceptive abilities that relate most closely to learning capacity are visual and auditory changes. Hearing loss, which is very common beginning in the late 40s and 50s, includes diminished ability to discriminate high-pitched, high-frequency sounds. Visual changes such as cataracts, macular degeneration, reduced pupil size, decline in depth perception, and presbyopia may prevent older persons from being able to see small print, read words printed on glossy paper, or drive a car. Yellowing of the ocular lens can produce color distortions and diminished color perceptions (Miller & Stoeckel, 2019).

Learning in older adults can be affected by such sociological, psychological, and cognitive factors as retirement, economics, mental status, and information processing abilities (Crandell et al., 2019; Miller & Stoeckel, 2019; Santrock, 2019). Understanding older persons' developmental tasks allows nurses to alter how they approach both well and ill individuals in terms of counseling, teaching, and establishing a therapeutic relationship. Nurses must be aware of the possibility that older patients may delay medical attention. Decreased cognitive functioning, sensory deficits, lower energy levels, and other factors may prevent early disease detection and intervention. A decline in psychomotor performance affects older adults' reflex responses and their ability to handle stress. Coping with simple tasks becomes more difficult. Chronic illnesses, depression, and literacy levels, particularly among the oldest-old, have implications with respect to how they care for themselves (eating, dressing, and taking medications) as well as the extent to which they understand the nature of their illnesses (Best, 2001; Kim & Youn, 2015; Mauk, 2018).

Despite the changes in cognition caused by aging, most research supports the premise that the ability of older adults to learn and remember is virtually as good as ever if special care is taken to slow the pace of presenting information, to ensure relevance of material, and to give appropriate feedback when teaching (**Figure 5-1**).

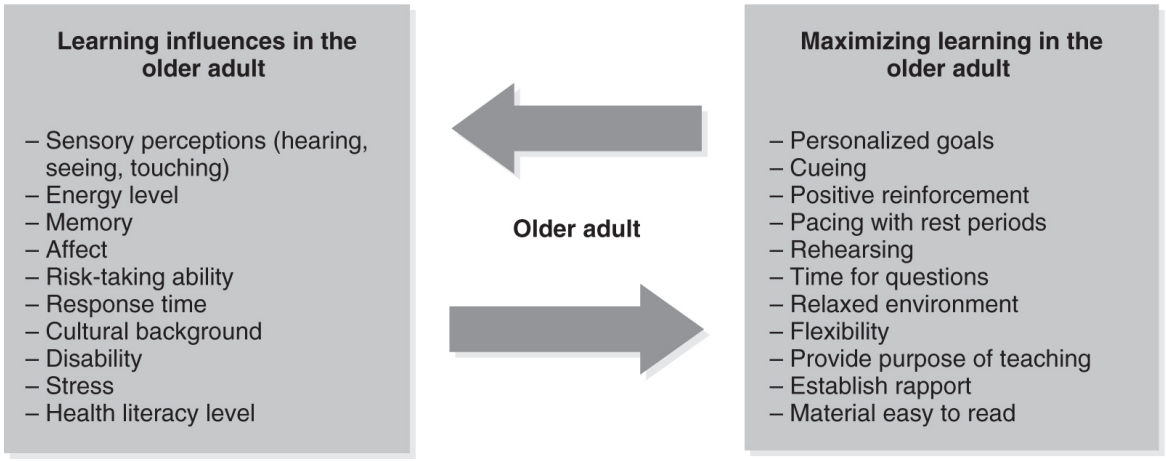

Figure 5-1 Learning in the older adult.

Data from Mauk, K. L. (2014). *Gerontological nursing: Competencies for care* (3rd ed.). Jones & Bartlett Learning; Rendon, D. C., Davis, D. K., Gioiella, E. C., & Tranzillo, M. J. (1986). The right to know, the right to be taught. *Journal of Gerontological Nursing, 12*(12), 36. https://doi.org/10.3928/0098-9134-19861201-08

Description

In working with older adults, reminiscing is a beneficial approach to use to establish a therapeutic relationship. Memories can be quite powerful. Talking with older persons about their experiences—marriage, children, grandchildren, jobs, community involvement, and the like—can be very stimulating. Furthermore, their answers will give the nurse insight into their humanness, their abilities, and their concerns.

Too many times nurses and other health professionals believe the adage, "You can't teach an old dog new tricks." Gavan (2003) warns that it is easy to fall into the habit of believing the myths associated with the intelligence, personality traits, motivation, and social relations of older adults. She outlined the following prevalent myths that must be dispelled to prevent harmful outcomes in the older adult when these myths are assumed to be true:

Myth No. 1: Senility. Intelligence test scores indicate that many older adults maintain their cognitive functioning well into their 80s and 90s. Mental decline is not always caused by the aging process itself but rather

by disease processes, medication interactions, sensory deficits, dehydration, and malnutrition.

Myth No. 2: Rigid Personalities. Personality traits, such as agreeableness, satisfaction, and extraversion, remain stable throughout the older adult years. Although diversity in personality traits among individuals in the older population exists as it does in all other stages of life, labeling older adults as cranky, stubborn, and inflexible does a disservice to them.

Myth No. 3: Loneliness. As mentioned earlier, the belief that older adults are more frequently vulnerable to depression, isolation, and feelings of being lonely has not been upheld by research, which indicates that their satisfaction with life continues at a steady level throughout the period of adulthood.

Myth No. 4: Abandonment. It is untrue that older adults are abandoned by their children, siblings, or good friends. The amount of contacts older adults have with significant others remains constant over time. Successful aging depends on an extended family support network.

Crandell et al. (2019) also point out that American culture is preoccupied with youthfulness and has distorted notions about late adulthood that perpetuate negative views of this generation. **Ageism** describes prejudice against the older adult. This discrimination based on age, which exists in most segments of American society, perpetuates the negative stereotype of aging as a period of decline (Gavan, 2003; Miller & Stoeckel, 2019). There is no typical older adult—not all individuals in this age group are unhealthy, unhappy, fearful, institutionalized, or disengaged; dwell on their own mortality; or find themselves in financial straits. Stereotypes can have a very powerful impact on older adults in both a positive and negative way, affecting their physical and cognitive functioning. Positive stereotypes can bring out the best in a person, whereas negative ones can lead to fulfillment of a pessimistic state (Bennett & Gaines, 2010).

Nurse educators may not even be aware of their stereotypical attitudes toward older adults. Furthermore, healthcare providers make assumptions about older clients that cause them to overlook problems that could be treatable (Gavan, 2003). To check their assumptions, nurses can think about the last time they gave instructions to an older patient and ask themselves the following questions.

- Did I talk to the family and ignore the patient when I described some aspect of care or discharge planning?
- Did I tell the older person not to worry when they asked a question? Did I say, “Just leave everything up to us”?
- Did I eliminate information that I normally would have given to a younger patient?
- Did I attribute a decline in cognitive functioning to the aging process without considering common underlying causes in mental deterioration, such as effects of medication interactions, fluid imbalances, poor nutrition, or sensory impairments?

All health professionals must remember that older people can learn, but their abilities and needs differ from those of younger persons. The process of teaching and learning is much more rewarding and successful for both the nurse and the patient if it is tailored to fit the older adult’s physical, cognitive, motivational, and social differences.

Because changes during aging vary considerably from one individual to another, it is essential to assess each learner’s physical, cognitive, and psychosocial functioning levels before developing and implementing any teaching plan (Miller & Stoeckel, 2019). Keep in mind that older adults have an overall lower educational level of formal schooling than does the remainder of the population. Also, they were raised in an era when consumerism and health education were practically nonexistent. As a result, older people may feel uncomfortable in the teaching–learning situation and may be reluctant to ask questions.

As the older population becomes more educated and in tune with consumer activism in the health field, these individuals will likely have an increased desire to actively participate in decision making and demand more detailed and sophisticated information. Nurse educators must take steps to support older clients in making decisions affecting their health (Mauk, 2018). This increased participation by clients can assist in managing chronic diseases, promoting quality and safety in healthcare organizations, and ensuring effective redesign of care and treatment-related processes (Longtin et al., 2010). Further, the involvement of clients in deciding the course of their own care is supported by *Healthy People 2030* (USDHHS, 2020).

Health education for older persons should be directed at promoting their involvement and encouraging a change, if necessary, in their attitudes toward learning (Ahroni, 1996; Weinrich & Boyd, 1992). A climate of mutual respect in which they are made to feel important for what they once were as well as for what they are today should be cultivated. Interaction needs to be supportive, not judgmental.

Interventions work best when they take place in a casual, informal atmosphere. In the primary care setting, where time is often limited, it may be beneficial to schedule additional time, if possible, to allow for a more relaxed environment. Individual and situational variables such as motivation, life experiences, educational background, socioeconomic status, health or illness status, and motor, cognitive, and language skills may all influence the ability of the older adult to learn.

A recent report found that 73% of those persons older than age 65 are engaged in some type of computer use and 53% are smartphone owners (Livingston, 2019); these numbers will surely rise as technology has become an important factor in coping with the coronavirus pandemic. Thus, although many older adults routinely use computers, some still do not. Learning can be derailed if an assumption is made that the client has the computer skills necessary to look up healthcare information or engage in self-education. Thus, nurses must first assess technology skills in older adults and are advised to provide non-computer-based learning materials to these clients on an as-needed basis. As the population continues to age, technology use will be more prevalent and preferred by clients. Nurses will need to refer older adults who wish to expand their technology skills to programs offering individualized instruction in a collaborative environment where learning is repetitious, self-paced, and hands-on (LoBuono et al., 2020; Mauk, 2018). However, despite the cognitive comfort some aging clients have with technology, the nurse may need to suggest adaptive devices for the computer to accommodate the physical changes of aging.

Some of the more common aging changes that affect learning and the teaching strategies specific to meeting the needs of the older adult are summarized in Table 5-1. When teaching older persons, abiding by the following specific tips can create an environment for learning that considers major changes in their physical, cognitive, and psychosocial

functioning (Best, 2001; Crandell et al., 2019; Doak et al., 1996; Robnett & Chop, 2015; Santrock, 2019; Weinrich & Boyd, 1992).

Physical Needs

1. To compensate for visual changes, teaching should be done in an environment that is brightly lit but without glare. Visual aids should include large print, well-spaced letters, and the use of primary colors. The educator should wear bright colors and a visible name tag. Use white or off-white, flat matte paper and black print for posters, diagrams, and other written materials.

   Because of older persons' difficulty in discriminating certain shades of color, avoid blue, blue–green, and violet hues. Keep in mind that tasks that require recognizing different shades of color, such as test strips measuring the presence of sugar in the urine, may present learning difficulties for older patients. Color distortions can have an especially devastating effect on learning if, for example, the type of pill is referred to by color in guiding patients to take medications as prescribed. Green, blue, and yellow pills may all appear gray to older persons.

   Accommodations should be made to meet older adults' physical needs, such as arranging seats so that the learner is reasonably close to the instructor and to any visual aids that may be used. For patients who wear glasses, be sure they are readily accessible, lenses are clean, and frames are properly fitted.

2. To compensate for hearing losses, eliminate extraneous noise, avoid covering your mouth when speaking, directly face the learner, and speak slowly with clear enunciation and demarcation between words. These techniques assist the learner who may be seeking visual confirmation of what is being said.

   Low-pitched voices are heard best, but be careful not to drop your voice at the end of words or phrases. Do not shout because it distorts sounds; the decibel level of normal speech is usually not a problem for individuals with hearing impairments. The intensity of sound seems to be less important than the pitch and rate of auditory stimuli.

Word speed should not exceed 140 words spoken per minute. If the learner uses hearing aids, be sure they have working batteries. Ask for feedback from the learner to determine whether you are speaking too softly, too fast, or not distinctly enough. When addressing a group, microphones are useful aids.

Be alert to nonverbal cues from the audience. Participants who are having difficulty with hearing your message may try to compensate by leaning forward, turning the good ear to the speaker, or cupping their hands to their ears. Ask older persons to repeat verbal instructions to be sure they heard and interpreted the entire message correctly.

3. To compensate for musculoskeletal problems, decreased efficiency of the cardiovascular system, and reduced kidney function, keep sessions short, schedule frequent breaks to allow for use of bathroom facilities, and allow time for stretching to relieve painful, stiff joints and to stimulate circulation. Provide pain medication and encourage the learner to follow their usual pain management routine. Also, provide comfortable seating.
4. To compensate for any decline in central nervous system functioning and decreased metabolic rates, set aside more time for the giving and receiving of information and for the practice of psychomotor skills. Also, do not assume that older persons have the psychomotor skills necessary to handle technological equipment for self-paced learning, such as computers and mouse, smartphones, ear buds instead of headsets, MP3 or digital players, and DVD players. In addition, they may have difficulty with independently applying prostheses or changing dressings because of decreased strength and coordination. Be careful not to misinterpret the loss of energy and motor skills as a lack of motivation.
5. To compensate for the impact of hearing and visual changes on computer use, be sure that the speakers on the computer are working well and use headphones to block background noise. The computer screen should be clean and free of glare, offer good resolution, and provide large-enough print. Further, clients with arthritis may need to learn alternative ways to use the mouse (Mauk, 2018). **Table 5-3** outlines specific strategies that can assist older adults to overcome problems associated with computer use.

Table 5-3 Problems That Can Be Overcome by Older Adults Using Computers

Age Change	Effect on Computer Use	Possible Solutions
Hearing	Sound from computer may not be heard	Use earphones to enhance hearing and eliminate background noise. Speak slowly and clearly when recording or verbally conveying a message electronically.
Vision	Vision declines, need for bifocal glasses, viewing monitor may be difficult, problems with glaucoma and light/colors	Adjust monitor's tilt to eliminate glare. Change size of font to 14. Make sure contrast is clear. Change the screen resolution to promote color perception.

Age Change	Effect on Computer Use	Possible Solutions
Motor control tremors	May affect use of keyboard or control of mouse, may not be able to hold the mouse and consistently click correct mouse buttons, may have difficulty using touchpad on a laptop	Highlight area and press Enter. Avoid double clicking. Practice with repetition.
Arthritis	May not be able to hold the mouse and consistently click correct mouse buttons	Highlight area and press Enter. Teach how to use options on keyboard. Teach optimal seating and hand positioning. Suggest ergonomic keyboards. Explore voice activation options.
Attention span	Problems with inability to focus and making correct inferences	Priming—introduce concept early on. Repetition is key to retention. Use cheat sheets.

Cognitive Needs

1. Aging affects the mind as well as the body (Arfanakis et al., 2016). Physiological research has demonstrated that people have two kinds of intellectual ability—crystallized and fluid intelligence. **Crystallized intelligence** is the intelligence absorbed over a lifetime, such as vocabulary, general information, understanding social interactions, arithmetic reasoning, and ability to evaluate experiences. This kind of intelligence increases with experience as people age. However, it is important to understand that crystallized intelligence can be impaired by disease states, such as the dementia seen in Alzheimer's disease. **Fluid intelligence** is the capacity to perceive relationships, to reason, and to perform abstract thinking. This kind of intelligence declines as degenerative changes occur. The decrease in fluid intelligence results in the following specific changes:
    - *Slower processing and reaction time.* Older persons need more time to process and react to information, especially as measured in terms of relationships between actions and results. However, if the factor of speed is removed from intelligence tests, for example, older people can perform as well as younger people. In performance of activities of daily living, when speed is not a factor, older adults can demonstrate their true abilities to function well and independently (Kray & Lindenberger, 2000). To compensate for a decrease in fluid intelligence, provide older persons with more opportunities to process and react to information and to see relationships between concepts.
    - *Persistence of stimulus (afterimage).* Older adults can confuse a previous symbol or word with a new word or symbol just introduced. Nurse educators can wait for a response demonstrating comprehension before they introduce a new concept or word definition.
    - *Decreased short-term memory.* Older adults sometimes have difficulty remembering events or conversations that occurred just hours or days before. However, long-term memory often remains strong, such as the ability to clearly and accurately remember something from their youth. Coaching and repetition are very useful strategies that assist with short-term recall. Memory also can be enhanced by involving the learner in devising ways to remember how or when to perform a procedure. When teaching, nurses should avoid presenting long lists by dividing a series of

directions for action into short, discrete, step-by-step messages and then waiting for a response after each one. For instance, to give directions about following different menus depending on exercise levels, they can use an active voice to personalize the message. For example, instead of saying, “Use menu A if not active; use menu B if somewhat active; use menu C if very active,” they should say, “You should use menu A if you are not active.” Then wait for the learner’s response, which might be, “That’s what I should eat if I’m not very active?” The nurse educator can follow up with the response, “That’s right. And if you are somewhat active, you should. . . .”

- *Increased test anxiety.* People in the older adult years are especially anxious about making mistakes when performing; when they do make an error, they become easily frustrated. Because of their anxiety, they may take an inordinate amount of time to respond to questions, particularly on tests that are written rather than verbal. Because many older adults experience test anxiety, try to explain procedures simply and thoroughly, reassure them, and, if possible, give verbal rather than written tests.
- *Altered time perception.* For older persons, life becomes more finite and compressed. Issues of the here and now tend to be more important, and some adhere to the philosophy, “I’ll worry about that tomorrow.” This way of thinking can be detrimental when applied to health issues because it serves as a vehicle for denial or delay in taking appropriate action.

2. Be aware of the effects of medications and energy levels on concentration, alertness, and coordination. Try to schedule teaching sessions before or well after medications are taken and when the person is rested. For example, the patient who has just returned from physical therapy or a diagnostic procedure will likely lack the energy needed to attend to learning.
3. Be certain to ask what an individual already knows about a healthcare issue or technique before explaining it. Repetition for reinforcement of learning is one thing; repeating information already known may seem patronizing. Conversely, nurse educators should never assume that because someone has been exposed to information before that the individual, in fact, learned it. Confirm patients’ level of knowledge before beginning to teach. Basic

information should be understood before progressing to more complex information.

4. Convincing older persons of the usefulness of what the educator is teaching is only half the battle in getting them motivated. Nurse educators also may have to convince patients that the information or technique they are teaching is correct. Anything that is entirely strange or that upsets established habits is likely to be far more difficult for older adults to learn. Information that confirms existing beliefs (cognitive schema) is better remembered than that which contradicts these beliefs. Patients with chronic illnesses frequently have established schemas about their medical conditions that they have embraced for years.

   As perception slows, the older person's mind has more trouble accommodating to new ways than does the mind of a younger person. Find out about older persons' health habits and beliefs before trying to change their ways or teach something new. For example, many older adults were taught as children that pain is a sign that something is wrong, and they should always stop whatever they are doing if it causes pain. Educators need to identify this belief before trying to teach them that they sometimes need to move through their pain to avoid stiffness and joint contractures.

5. Arrange for brief teaching sessions because a shortened attention span (attentional narrowing) requires scheduling a series of sessions to provide sufficient time for learning. In addition, if the material is relevant and focused on the here and now, older persons are more likely to be attentive to the information being presented. If procedures or treatments are perceived as stressful or emotionally threatening, attentional narrowing occurs.
6. Recognize that the process of conceptualizing and the ability to think abstractly become more difficult with aging. Conclude each teaching session with a summary of the information presented and allow for a question-and-answer period to correct any misconceptions.

Psychosocial Needs

1. Assess family relationships to determine how dependent the older person is on other members for financial and emotional support. In turn, nurse educators can explore the level of involvement by family

members in reinforcing the lessons they are teaching and in giving assistance with self-care measures. Do family members help the older person to function independently, or do they foster dependency? With permission of the patient, include family members in teaching sessions and enlist their support.
2. Determine availability of resources. A lack of resources can sabotage any teaching plan, especially if the recommendations include expecting older adults to carry out something they cannot afford or lack the means to do, such as buying or renting equipment, having transportation to get to therapy or teaching sessions, purchasing medications, and the like.
3. Encourage active involvement of older adults to improve their self-esteem and to stimulate them both mentally and socially. Teaching must be directed at helping them find meaningful ways to use talents acquired over their lifetime. Establishing a rapport based on trust can provide them contact with others to bolster their sense of self-worth.
4. Identify coping mechanisms. No other time in the life cycle that carries with it the number of developmental tasks associated with adaptation to loss of roles, social and family contacts, and physical and cognitive capacities than does this time. Teaching must include offering constructive methods of coping.

The older person's ability to learn self-care activities and the nurse's success in educating older adults may be affected by the methods and materials chosen for teaching (Movahedi et al., 2015). One-to-one instruction provides a nonthreatening environment for older adults in which to meet their individual needs and goals. This teaching approach helps them to compensate for their special deficits and promotes their active participation in learning. Group teaching also can be a beneficial approach for fostering social skills and maintaining contact with others through shared experiences. Self-paced instructional tools may be very appropriate, but it is important to know the client's previous learning techniques, mental and physical abilities, and comfort levels with certain approaches before assigning any such tools.

Games, role-play, demonstration, and return demonstration can be used to rehearse problem-solving and psychomotor skills if these methods, and the tools used to complement them, are designed appropriately to accommodate the various developmental characteristics of this age group. For example, speed or competition should not be factors in the

games chosen, and plenty of time should be reserved for return demonstrations. These teaching methods stimulate learning and can offer active learning opportunities to put knowledge into practice. Written materials, if appropriate in terms of literacy level and visual acuity in the older adult, are excellent adjuncts to augment, supplement, and reinforce verbal instructions.

The Role of the Family in Patient Education

The role of the family is considered one of the key variables influencing positive patient care outcomes. The primary motives in patient education for involving family members in the care delivery and decision-making process are to decrease the stress of hospitalization, reduce costs of care, increase satisfaction with care, reduce hospital readmissions, and effectively prepare the patient for self-care management outside the healthcare setting. Family caregivers provide critical emotional, physical, and social support to the patient (Gavan, 2003; Mudrazija, 2019; Reeber, 1992; Reinhard et al., 2012).

Future projections indicate that the number of Americans who need long-term services and supports (LTSS) in the home will continue to grow at a significant rate, almost doubling from 10 million today to 18 million by 2050. According to federal statistics, 21% of individuals over 65 years of age need assistance from an informal caregiver with at least one activity of daily living, such as medication administration, and for those over 85 years of age, this percentage increases to 39%. Based on 2013 data, it is estimated that the approximate value of services provided to adults by family caregivers is $470 billion annually (Mudrazija, 2019).

The role of family caregivers is central to the quality of care for older adults in the community. Although the physical, emotional, and financial toll on caregivers can be great (Hudson et al., 2020), including the family members in the teaching–learning process helps to ensure that the situation is a win-win scenario for both the clients and the nurse educators. Family role enhancement and increased knowledge on the part of the family have positive benefits for the learners as well as the teachers. Patients derive increased satisfaction and greater independence in self-care, and nurses experience increased job satisfaction and personal gratification in

helping patients to reach their potential and achieve successful outcomes (Barnes, 1995; Duprez et al., 2020; Gavan, 2003).

Numerous nursing, life-span development, and educational psychology theories provide the conceptual frameworks for understanding the dynamics and importance of family relationships as influential in achieving teaching–learning outcomes. Although a great deal of attention has been given to the ways in which young and adolescent families function, comparatively less attention has been paid to the dynamics of the complex interactions that characterize the aging family (Gavan, 2003). However, as the population of older adults continues to grow, the field of family gerontology has become an emergent area of research. For example, Blieszner and Bedford (2012) offer a compendium of information regarding the aging family, including dynamics between adult children and their parents and the importance of sibling relationships as people age. Kusaba et al. (2016) conducted a study in Japan on caregivers responsible for older family members, finding that their perceptions about burden of care were strongly influenced by family dynamics such as scapegoating, disengagement, undesirable behavior patterns, and transfer of problems across generations. These authors advise health professionals to consider these dynamics when talking to caregivers.

In patient education, the nurse may be tempted to teach as many family members as possible. Realistically, it is difficult to coordinate the instruction of so many different people. The more individuals involved, the greater the potential for misunderstanding of instruction. The family must make the deliberate decision as to who is the most appropriate person to take the primary responsibility as the caregiver.

The nurse educator must determine how caregivers feel about the role of providing supportive care and about learning the necessary information. They also must explore caregiver learning style preferences, cognitive abilities, fears and concerns, and current knowledge of the situation. The family and the nurse may perceive

the patient problem differently (Mauk, 2018). Such differences must be identified so that effective teaching can be provided. The caregiver needs similar information to what the patient is given to provide support, feedback, and reinforcement of self-care consistent with prescribed regimens of care. In some situations, a secondary caregiver is identified and also must be considered when teaching.

Sometimes the family members need more information than the patient to compensate for any sensory deficits or cognitive limitations the patient may have. Anticipatory teaching with family caregivers can reduce their anxiety, uncertainty, and lack of confidence. What the family is to *do* is important, but what the family is to *expect* also is essential information to be shared during the teaching–learning process (Haggard, 1989). The greatest challenge for caregivers is to develop confidence in their ability to do what is right for the patient. Education is the means to help them confront this challenge (Reinhard et al., 2012).

The family can be the educator's greatest ally in preparing the patient for discharge and in helping the patient to become independent in self-care. The patient's family is perhaps the single most significant determinant of the success or failure of the education plan and achievement of successful aging (Capezuti, 2014; Gavan, 2003; Haggard, 1989). Rankin and Stallings's 2001 model for patient and family education serves as a foundation for assessing the family profile to determine the family members' understanding of the actual or potential health problem(s), the resources available to them, their ways of functioning, and their educational backgrounds, lifestyles, and beliefs.

Education is truly the most powerful tool nurse educators possess to ensure optimal care and the transfer of power to the patient–family dyad. It is imperative that attention be focused on both the assumed and the expected responsibilities of family caregivers. The role of the family has been stressed in each developmental section in this chapter.

State of the Evidence

In an extensive review of the literature, a significant number of studies, from both primary and secondary sources, that were carried out by nurses and other healthcare professionals were found to support the application of teaching and learning principles to the education of middle-aged and older adult clients in various healthcare settings. However, current nursing and healthcare research focusing specifically on patient education approaches applicable to the age cohorts of children, adolescents, and the young adult population, as well as instructional needs of family members as caregivers, is lacking.

For example, the article by Richmond and Kotelchuck (1984), written more than three decades ago, remains an excellent and thorough examination of health maintenance in children, including children's cognitive understanding of health and disease, their psychological control over health, parental and media influences on health behaviors, the impact of school health education, and the role of health professionals in the management of childhood illness and health services for children. Currently, the National Resource Center for Health and Safety in Child Care and Early Education (2020) publishes up-to-date information on performance standards and guidelines for a program of healthcare activities for children. However, updated information in the healthcare literature on the application of new approaches to foster child health is sorely needed.

To bolster general understanding of the physical, cognitive, and psychosocial (emotional) traits of human development across the life span, plenty of excellent resources, well grounded by research evidence, exist in the fields of psychology in general and educational psychology, in particular. However, much of the educational psychology literature focuses extensively on the application of teaching and learning principles only to preschool and K–12

classrooms. Understandably, life-span developmental scientists do not specifically consider health education of well individuals with respect to disease prevention, risk reduction, and health promotion efforts or to health promotion, maintenance, and rehabilitation measures for persons who are acutely and chronically ill. The application and translation of developmental characteristics to the teaching and learning aspects of healthcare delivery are the responsibility of nurses and other healthcare providers. Much more investigation is needed to demonstrate how to effectively teach clients at different developmental stages based on their learning needs, learning styles, and readiness to learn, thereby ensuring achievement of the most positive client-centered outcomes possible.

Increased attention has been paid to the appropriateness of teaching methods and instructional materials (especially as they relate to multimedia technology) for college-aged students and adult learners to meet their expectations for lifelong learning. Given the fact that the population is steadily aging, nurses are caring for an increasingly older audience of learners. Expanding the use of technology as a consistent educational strategy with older adults is an area of future growth.

Many of today's nursing students are somewhat older than the traditional college-aged students, and nursing staff are adult continuing-education learners. It is gratifying to witness the acknowledgment of these population changes through an emphasis on studying generational differences in learner preferences, modes of information processing, and memory and recall with respect to the impact of standard versus newer technological methods and tools for the effective delivery of instruction. The literature, such as the articles written by Billings and Kowalski (2004), Fishman (2016), and Shatto and Erwin (2016), highlight the different experiences, values, beliefs, and needs of learners from varied generational backgrounds.

Although there has been an upsurge of interest in educational strategies and techniques for teaching and learning as they apply to certain population groups in the broad healthcare arena, much more

research needs to be done regarding the creative leadership role of the nurse educator functioning as facilitator rather than teacher of patients and family members (at all stages of development) and of nursing students and staff (de Swardt, 2019; Donner et al., 2005, World Health Organization [WHO], 2016). Research has only begun to scratch the surface of how teaching and learning are affected by situational variables, such as chronic illness, acute illness, disability, or wellness; by personality traits, such as motivation and learning styles; by temperament responses, such as anxiety and attention span; and by sociocultural influences, such as gender, economic status, and educational background.

Another area requiring further exploration is the role of family and other support systems on the success of educational endeavors to help Americans of all ages maintain and improve their health status. Much more evidence from research needs to be conducted on family structure and the many changing relationships in society that promote or hinder teaching and learning of clients in various healthcare settings.

The national initiatives of *Healthy People 2030*, as well as pending policy goals at local and state levels, will not be realized unless a better understanding is gained of the impact of physical, cognitive, psychological/emotional, and sociocultural changes that occur across the life course that can serve as a guideline for teaching and learning in nursing and healthcare practice.

Summary

For nurses, it is important to understand the specific and varied tasks associated with each developmental stage to individualize the approach to education in meeting the needs and desires of clients and their families. Assessment of physical, cognitive, and psychosocial maturation within each developmental period is crucial in determining the appropriate strategies to facilitate the teaching–learning process. The younger learner is, in many ways, very different from the adult learner. Issues of dependency, extent of participation, rate of and capacity for learning, and situational and emotional obstacles to learning vary significantly across the various phases of development.

Readiness to learn in children is very subject-centered and highly influenced by their physical, cognitive, and psychosocial maturation. By comparison, motivation to learn in adults is very problem-centered and more oriented to psychosocial tasks related to roles and expectations of work, family, and community activities.

For client education to be effective, the nurse in the role of educator must create an environment conducive to learning by presenting information at the learner's level, inviting participation and feedback, and identifying whether parental, family, and/or peer involvement is appropriate or necessary. Nurses are the main source of health information. In concert with the client, they must facilitate the teaching–learning process by determining what needs to be taught, when to teach, how to teach, and who should be the focus of teaching based on the developmental stage of the learner.

When nursing students and staff are the audience of learners, the educator also is responsible for assuming the leadership role as facilitator of the learning process. In conjunction with these adult learners, nurse educators can establish objectives and learner-centered approaches that challenge the educator's creativity to

foster self-direction, motivation, interest, and active participation for independence and interdependence in learning.

Review Questions

1. What are the seven stages of development?
2. Define pedagogy, andragogy, and geragogy.
3. What are the salient or prominent characteristics at each stage of development that influence the ability to learn?
4. What are three main teaching strategies for each stage of development?
5. How do people you know in each stage of development compare with what you have learned about physical, cognitive, and psychosocial characteristics at the various developmental stages?
6. What are barriers and facilitators to using online materials or other types of technology as a teaching strategy in each stage of development?
7. What is the role of the family in the teaching and learning process in each stage of development?
8. How does the role of the nurse vary when teaching individuals at different stages of development?

CASE STUDY

Your local hospital is developing a new grant-funded outreach program that focuses on a family-centered approach to healthy eating and exercise. Expected patient outcomes of the program are to increase the weekly amount of fruits and vegetables consumed and to increase the number of minutes spent in physical activity each week. Your role as a nursing consultant to this program is to help the team develop a comprehensive, family-oriented educational program that covers important topics related to nutrition and exercise. Gavin, a member of the team, suggests, “Let’s do our teaching with all the family members together in a group.” Leigh, another team member, states, “We should separate the family members into similar age groups for the teaching—that way, we can better keep their interest.” You suggest that the team integrate Gavin’s and Leigh’s suggestions

and plan a total of five teaching sessions, with four of the sessions grouping participants according to developmental stages and the final session grouping families together. Participants range from 3 to 75 years of age.

1. Describe how you will determine the different age range groupings of the participants for the first four sessions. Explain the different age ranges and general developmental characteristics of each group.
2. Choose two different developmental stage groupings and give examples of teaching strategies you will use with each group for the specific teaching sessions. Explain why you chose these strategies.
3. What are some advantages to grouping participants by developmental stages? What are some disadvantages?

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CHAPTER 6

Motivation and Adherence: Impact on Changing Learner Behavior

Lois Linden

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CHAPTER HIGHLIGHTS

- Motivation
  - Motivational Constructs
  - Motivational Axioms
  - Assessment of Motivation
  - Motivational Strategies
- Adherence
- Health Behavior Models and Theories
  - Health Belief Model
  - Health Promotion Model (Revised)
  - Self-Efficacy Theory
  - Protection Motivation Theory
  - Change Theory and Model
  - Theory of Reasoned Action and Theory of Planned Behavior
  - Therapeutic Alliance Model
  - Social Ecological Models
- Models for Health Education
  - Similarities and Dissimilarities of Models
  - Educator Agreement With Model Conceptualizations
  - Functional Utility of Models
  - Integration of Models for Use in Education
- Role of Nurse as Educator in Behavioral Change
  - Facilitator/Coach
  - Collaborator

    - Organizer
    - Evaluator
- State of the Evidence

KEY TERMS

adherence

change theory and model

concept mapping

concordance

health belief model (HBM)

health locus of control (HLOC)

health promotion model (HPM)

hierarchy of needs

locus of control (LOC)

motivation

motivational axioms

motivational constructs

motivational incentives

motivational interviewing (MI)

motivational state

multiple levels of influence

nonadherence

OARS

protection motivation theory (PMT)

READS

self-efficacy

self-efficacy theory

self-regulated learning (SRL)

social ecological models

theory of planned behavior (TPB)

theory of reasoned action (TRA)

therapeutic alliance model

OBJECTIVES

After completing this chapter, the reader will be able to:

1. Define the terms *motivation* and *adherence* relative to behavior change in the learner.
2. Name the motivational constructs relevant to learning.
3. Identify incentives and obstacles that affect motivation to learn.
4. Discuss the motivational axioms that set the stage for motivation.
5. Identify parameters for the comprehensive assessment of learner motivation.
6. Outline motivational strategies that can facilitate a change in learner behaviors.
7. Explain the importance of the concepts of adherence and nonadherence to patient health and to the healthcare industry.
8. Compare selected health behavior theories and models that describe, explain, or predict health behaviors.
9. Describe the role of the nurse as educator in motivating learners to change their behaviors.

A principal challenge for nurses regardless of their specialty area or practice setting is to understand people's health behaviors—why some people follow their medical instructions and engage in positive actions to maintain and improve their health, whereas other people do not adhere to their medical treatment, do little or nothing to promote their health, or

participate in activities that may worsen their health. A related challenge for nurses is to find ways to help patients change their health behaviors—perhaps to adjust their behaviors so they adapt to an illness or injury, to cease unhealthy habits and replace them with healthy actions and activities, or to motivate patients as well as people in the community to prevent illness and injury to maximize their health and well-being.

The issue of people's health behaviors often comes to the forefront when caring for patients who do not adhere to their prescribed medical treatment or who may put themselves at risk for illness or injury by their decisions, actions, and unhealthy lifestyles. This raises two questions that so often puzzle nurses and other health professionals: (1) Why do some patients follow treatment recommendations, but others do not? (2) Are there ways to influence and motivate patients and members of the community to change their attitudes and behaviors to better promote healing, recovery, and well-being? Hardcastle et al. (2015) addressed this significant challenge to health providers who care for people who are not inclined to engage in positive health behaviors.

From a healthcare perspective, the crux of the problem is often viewed as follows: If patients lack the desire or wherewithal to take responsibility for their own health, then the time, money, and energy spent on medical interventions and care delivery to inform and guide them may seem fruitless. This is a critical issue for society at large as well as for each health professional charged with treating and educating patients for the benefit of their health.

To be effective in the educator role, nurses need to understand what motivates learners to learn new knowledge and skills and to commit to participating in an agreed plan of care. If the result of learning is a change in behavior, it is paramount that nurse educators understand what influences behavior change. Which factors promote or hinder the acquisition and application of knowledge, and what drives the learner to learn? While health behavior models and theories may appear simple, it must be recognized that the factors determining health behaviors are complex. Knowledge alone does not guarantee that the learner will engage in health-promoting, goal-directed behaviors or that the desired outcomes will be achieved. The most well-thought-out educational program or plan of care cannot accomplish the prescribed goals if the learner is not understood within the context of complex factors associated

with motivation and adherence that lead to human growth and development.

The goals of this chapter are to assist nurse educators in better understanding the concepts of motivation and adherence (or the lack thereof); to identify which factors promote or hinder the acquisition and application of knowledge and skills; to outline parameters for the assessment of motivation; to present selected theories and models as frameworks that describe, explain, or predict health behaviors; and to explore the role of the nurse as educator in setting the stage for change in learners that will make a difference in their lives. This information serves as useful tools not only to help learners either maintain desired behaviors or to promote behavioral changes when educating patients or the general public, but also when teaching behavioral change to nursing staff and students in clinical and educational settings. The emphasis, though, in this chapter will focus on health behaviors of patients and the public as learners.

Motivation

Motivation was introduced as a theory early in the 20th century with the focus on an individual's will and instincts (Schunk et al., 2014). Motivation evolved from a minor concept within developing learning theories to the more contemporary view of motivation as a foundational theory having a significant impact on learning and behavior. Recognizing how motivation influences learning helps educators understand why people behave as they do (Schunk, 2020).

Motivation, from the Latin word *movere*, means to set into motion. It is what causes a person to act and it involves the biological, emotional, social, and cognitive forces behind human actions (Cherry, 2020). **Motivation** is defined as a process, a state, or a force. Schunk and colleagues define motivation as the "process whereby goal-directed activities are instigated and sustained" (Schunk et al., 2014, p. 5). Also, motivation is considered an "internal state that arouses, directs, and sustains human behavior" (Glynn et al., 2005, p. 15). In addition, Whittaker (2015) explains motivation as an energy "that compels an individual to engage in certain behaviors" (p. 45).

Motivation is an especially complex phenomenon influenced by both internal and external variables (Kort, 1987). Numerous personal factors impact motivation, such as internal emotions, cognition, goals, and prior and current experiences. In addition, external factors, including relationships, societal influences, and the complexity of tasks to be accomplished, are variables that also have an impact on motivation (Kort, 1987; Schunk, 2020).

Motivational Constructs

According to Jensen (2005), Renninger and Hidi (2011), Schunk (2020), and Schunk et al. (2014), **motivational constructs** are

components of motivation that serve as internal or external forces influencing an individual to act or not to act. Based on motivational theory, these researchers have identified the following primary constructs:

1. Motivation is influenced by neurocognitive activities in the brain.
2. Motivational state is either positively or negatively impacted by fluid interaction of an individual's cognitive and affective behaviors.
3. Motivation is influenced by personal attributes and beliefs, such as self-efficacy and locus of control.
4. Motivation is affected by relationships within the context of society, groups, and cultures to which an individual identifies with or belongs.
5. Motivation is influenced by the integration of self-regulated learning activities that involve goal orientation, performance achievement, and self-reflection.

Thus, a synthesized definition views motivation as a multifaceted process influenced by internal and external factors that arouse interest and sustained attention toward achieving a goal (Glynn et al., 2005; Kort, 1987; Schunk, 2020; Schunk et al., 2014; Whittaker, 2015). Motivation can be intrinsic (a drive that comes from within the self) or extrinsic (a drive that comes from outside the self).

Factors that influence motivation can serve as either incentives or obstacles to achieving desired behaviors. Both creating incentives and decreasing obstacles to motivation pose a challenge for the nurse as educator. The cognitive (thinking processes), affective (emotions and feelings), and psychomotor (skill behavior) domains as well as the social circumstances of the learner can serve to facilitate or block motivation.

Motivational incentives are those factors that influence motivation in the direction of a desired goal and need to be considered in the context of the individual. What may be a motivational incentive for one learner may be a motivational obstacle for another. As an example, a nurse assigned to work with a woman who is elderly may

be motivated to care for her when other staff nurses on the unit hold older adults in high regard. However, another nurse may be motivationally blocked by the same emotional domain because previous experiences with older women, such as a grandmother, were unrewarding.

Each of the previously noted constructs are embodied in the definition of motivation and are discussed as follows.

Neurocognitive Activities

The neuroscience of motivation is beyond complex, so only the basic cognitive anatomical and physiological processes related to motivation are highlighted. One key cognitive activity that impacts motivation is activating the neural connections within the brain. The reciprocity of emotions, learning, and physical needs can all activate various centers of the brain that impact motivation. Likewise, the perceived strength of motivational stimuli can impact emotions, learning, and physical reactions.

Jensen (2005) clearly and succinctly details the steps of brain activity that occur when new learning happens. The activation of learning begins with stimulation of *sensory memory* triggered by such factors as sensory input or cognitive thinking. Sensory memory sparks *interest*, which has recently been studied as a crucial aspect of motivation for learning. Interest impacts both cognitive and affective variables and is very individualized (Renninger & Hidi, 2011). Interest is so essential that even without specific learning goals or a positive self-efficacy (confidence in one's abilities), a person's learning can be influenced by stimulating interest in and attention to a topic.

Interest and attention to a stimulus activate neurons both chemically and electrically, causing reactions across neural synapses. As the brain asks and answers the internal question of "So what?" and determines that the information can be used or applied, *neuroplasticity* results through the formation and strengthening of

synaptic connections (Jensen, 2005). Just as a muscle enlarges and strengthens through repetition, so do the neural synapses, resulting in increased strength and number of neurons (Owens & Tanner, 2017; Renninger & Hidi, 2011). These physical and structural changes in the brain result from the reciprocal processes of learner experiences connecting with new information and, through practice and repetition, storage and retrieval of content in long-term memory is promoted (Schunk, 2020). Learning has occurred and satisfaction with achievement further increases the motivational desire for future experiences. Interest and motivation stimulate the release of dopamine and acetylcholine, which prime learners for learning and enhances neuroplasticity, resulting in brain growth (Owens & Tanner, 2017).

Through activation of the neural networks, Bruner (1960) summarizes the three nearly simultaneous processes of learning that occur: (1) acquiring new knowledge, (2) transforming the new information into something meaningful, and (3) evaluating the new knowledge for accuracy and pertinence. All this is happening in a relatively unconscious manner in a matter of minutes. The motivational aspect of the learning process enhances the neural processes if new content is of interest to the learner because it is unique, relatable, or meaningful.

Motivational State

A second motivational construct is known as **motivational state**, which is an interplay of an individual's emotional and cognitive behaviors. Ideally, this combination results in receptivity for learning (Jensen, 2005). However, the impact of any one of them being less than optimal may interfere with the desired state. For instance, a learner may feel positive about an anticipated activity, experiencing good feelings within a stable physical situation and being cognitively aware and alert. Receiving a disturbing phone call, however, can create a negative emotional reaction, producing a physiological stress response and distracting the learner from being able to concentrate on any learning. The motivational state has been

negatively impacted, interfering with what previously were ideal learning conditions. On the other hand, in a patient learning situation, the patient in emotional distress may be able to respond to new learning if the nurse educator first addresses the emotional situation and offers caring and support prior to introducing new learning content. The motivational state can be influenced either internally or externally.

Another example would be the stress and anxiety that students likely feel during a testing situation. If the test is seen as a threat and anxiety increases to a point of interference with cognitive functioning, then retrieval and transfer of information during the testing situation will be decreased. Some amount of anxiety, however, may produce an effect of optimal arousal, which can help the individual have sharper cognitive functioning (Jensen, 2005; Schunk et al., 2014). The nurse educator has opportunities to create a safe, nonthreatening environment, encourage use of stress-relieving strategies, and offer reminders of past achievement, all influencing a more positive motivational state.

External variables can influence motivational state and they can occur at three different phases of time: pretask, during-task, and posttask (Schunk, 2020), as described under the motivational strategies section of this chapter. These time frames afford the nurse educator an opportunity to plan strategies for each phase to help affect an optimal motivational state for learning and change. When an individual anticipates or receives a meaningful reward, functional magnetic resonance imaging (fMRI) reveals an increase in blood flow to areas of the brain, which, in turn, increases the level of opiates and results in a pleasurable sensation. Expectancy of a reward also may result in release of dopamine that heightens the sense of pleasure and increases motivation (Jensen, 2005). The cycle of motivation stimulating neural responses of pleasure and the pleasurable sensations increasing the motivational state are powerful examples of reciprocity that can lead to deeper learning experiences.

Personal Attributes and Beliefs

A third motivational construct centers around personal attributes and beliefs of the learner. Innumerable personal variables influence motivation to learn, such as developmental stage, cognitive abilities and limitations, sensory functioning, emotional readiness, gender, ethnicity, state of health (actual or perceived), internal and external forces, and severity or chronicity of illness (see Chapters 4, 5, 8, and 9). An infinite number of possible combinations of variables provide a prism through which to view each person as unique. While research continues to delve into understanding each variable, the intersectionality of them is paramount. The role of the nurse educator is to continually learn about the motivations of learners to help them work toward their specific goals.

For example, when considering the influence of personal attributes and beliefs on motivation, an individual's stage of development is an important variable to consider. The natural curiosity of infants and young children motivates them to learn from watching others, which Bandura (1986), the social cognitive theorist, coined as role modeling. As individuals develop through childhood into adolescence and adulthood, their motivational beliefs develop from experiences and internal responses to those experiences as well as from the vicarious observation of others. Personal responses to experiences contribute to the individual's sense of self. Studies have found that as children move into adolescence, self-perception and self-concept of their abilities and competencies decrease (Schunk et al., 2014), most likely due to their perspective of self becoming more realistic versus the optimistic view that younger children tend to possess. Researchers conclude that children underperform and underachieve when their self-perceptions are lower than their ability (Jacobs et al., 2002).

A subset of the personal factors and beliefs construct is the concept known as locus of control. One way to view the issue of control in the learning situation is through this concept (Rotter, 1954). **Locus of control (LOC)** refers to an individual's sense of responsibility for

their own behavior and the extent to which motivation to act originates from within the person (internal) or is influenced by others (external). **Health locus of control (HLOC)** specifically relates LOC to health behaviors and describes an individual's belief that health is dependent on internal and external factors (Wallston et al., 1978).

Through objective measurement, individuals can be categorized as *internals*, whose health behavior is self-directed, or *externals*, for whom others are viewed as more powerful in influencing health outcomes. Externals believe that fate or some other powerful outside force(s) determines life's course, whereas internals believe that they control their own destiny. For instance, an external might say, "Osteoporosis runs in my family, and it will catch up with me." An internal might say, "Although there is a history of osteoporosis in my family, I will have necessary screenings, eat an appropriate diet, and do weight-bearing exercise to prevent or control this problem."

From a student perspective, an external may view test results as based on fate rather than any control they might have had to impact the outcome through studying. For example, a study of LOC and academic success yields evidence that nursing students with an external LOC had lower grades than those with internal LOC (Wood et al., 2009).

Recently, four dimensions to the concept of HLOC that expand on Rotter's (1954) original concept of LOC have been identified by Combes and Feral (2011) as follows:

1. Internal: Power originates from within and is related to personal abilities.
2. Chance external: Fate is a powerful outside influence.
3. Others external: Others such as family, friends, and associates are powerful influences.
4. Doctors external: Doctors have power to control outcomes.

As an example of the influence of HLOC, Brincks et al. (2010) investigated how it affects the patient–provider relationship. They found that a powerful HLOC (doctors external) resulted in HIV

patients demonstrating a trusting, positive relationship with physicians. Janowski et al. (2013) examined HLOC and acceptance of illness in patients with chronic diseases and found health-related behaviors were significantly positively correlated with all categories (dimensions) of HLOC regardless of specific diagnosis, but they also found sociodemographic factors (age, gender, education, marital status) were crucial in determining frequency of health behaviors in these patients. However, in a 7-year cohort study, Rideout et al. (2017) reported that HLOC scores were "changeable" for patients undergoing coronary artery bypass graft surgery when comparing their scores during the perioperative phase and the rehabilitative phase. The study indicates the concept of HLOC is complex.

Many researchers in the health professions have studied the link between locus of control and motivation to adhere to recommended therapeutic regimens. Given the complexity of the phenomenon of LOC characterized by the interplay of many factors that make up individuals' cognitive and psychosocial behaviors, the results in this area have been somewhat mixed. Some investigators have found a significant correlation and others an insignificant relationship between LOC and a willingness by patients who have acute or chronic conditions to follow prescribed treatments for orthopedic problems, hypertension, diabetes, obesity, HIV, and schizophrenia (Combes & Feral, 2011; Epstein et al., 2014; Indelicato et al., 2017; Morowatisharifabad et al., 2010; O'Hea et al., 2009; Omeje & Nebo, 2011; Porto et al., 2014). Although the literature remains inconclusive as to the nature of the relationship between motivation to adhere to prescribed regimens and internal versus external LOC, Nguyen (2016) suggests that different teaching and coaching strategies are indicated for internal versus external LOC learners.

Self-efficacy is another subset of this personal attributes and beliefs construct. **Self-efficacy** is defined as a person's belief in their own capacities or abilities to achieve one or more goals they set for themselves and is indicative of self-confidence and feelings of self-control. Self-efficacy is a significant predictor of motivation and behavior change (Affendi et al., 2017; Brouwer-Goossensen et al.,

2018; Euromed Info, n.d.). As such, it is a strong determinant in an individual's ability to carry out self-management and a powerful predictor of intent to change health-related behavior (Brouwer-Goossensen et al., 2018).

Ways in which nurse educators can enhance an individual's self-efficacy include using skills mastery (breaking down tasks to be learned into manageable steps), modeling (seeing someone else effectively coping with the same problem), and social persuasion (encouraging the learner to do slightly more than they are now doing). When using these teaching strategies, be sure to set realistic, short-term goals that can be achieved so as not to overwhelm or discourage the learner (Euromed Info, n.d.). See the self-efficacy theory discussed in this chapter as an integral element of Bandura's social cognitive perspective.

Context of Society, Groups, and Cultures

While personal beliefs influence how an individual views themself and their goals, the context of relationship systems within which a person lives and interacts also guides motivation and behavior. Family or significant others in the support system; cultural identity; roles at work, home, school, and community; and teacher–learner interaction are all relationship-based factors that influence an individual's motivation. The interactional aspects of motivation are perhaps the most salient because the learner always exists in the context of interlocking relationships. Individuals are viewed in the context of family/community/cultural systems that have lifelong effects on the choices that individuals make, including healthcare seeking and healthcare decision making. These significant-other systems may have an even greater influence on health outcomes than commonly acknowledged (Jackson et al., 2015). The nurse in the role of educator needs to consider the positive benefits or negative influences of these systems on health promotion.

For example, if the circumstances within which the person is living do not meet their basic human needs, it is very challenging for that

person to be motivated to learn or change behavior. Maslow (1943) developed the theory of human motivation based on a hieracrchy of needs that is still widely used in the social sciences. The major premise of Maslow's motivation theory is integrated wholeness of the individual. Using the principles of a **hierarchy of needs**—physiological, safety, love/belonging, esteem, and self-actualization—Maslow noted the relatedness of needs, which are organized by their level of potency. Some individuals are highly motivated, whereas others are weakly motivated (see Chapter 3). When a need is sufficiently satisfied, then the next potent need emerges. An example of the hierarchy of basic needs is the powerful need to satisfy hunger.

Societal context variables differ as to intensity depending on fluctuating circumstances. Although too numerous to delineate, they can have a dramatic impact on an individual's current motivational state. For example, if a person lives in an economically deprived versus an affluent situation, their needs and priorities likely will be different. However, generalizations are elusive in helping to determine the actual extent of societal influences on a learner without considering their perspectives.

Interactions with members of groups, especially the relational aspects, can have a significant influence on motivation of a learner. Known as external motivators, the learner may feel the need to work toward the expectations of others or help to meet the needs of others. Also, an individual's self-efficacy beliefs, goals, and persistence to change behavior can be mediated by outside sources. Understanding the relational persuasions others have on the learner may be an important area to assess when supporting the learner in setting personal goals and plans.

Finally, cultural influences may or may not be an important factor from the learner's perspective. Based upon the level of acculturation of the learner, their beliefs regarding cultural values and practices and the strength or potency of cultural values may vary based on the interplay with all other motivational factors. When teaching learners

from other cultures, it is important to promote authentic engagement that allows for connection and dialogue between the teacher and the learner as well as an opportunity to provide supportive services for ethnically and linguistically diverse learners (Hammond, 2015). Cultural beliefs may be of particular importance when working on health behavior changes (Spector, 2017).

The current context of an individual's relationship systems, external influences from others, and the fluctuating situational variables are considerations when working with learner motivations, goals, and self-beliefs. Collectively, these factors interact to impact on the motivation of the learner to facilitate or block the desire to learn. The valence of the relationship with others as well as the commitment to personal beliefs, values, and goals affect each other in a dynamic flux. An understanding of the learner's current emotional state is imperative.

Self-Regulation Learning Activities

The most integrative construct of motivation revolves around the intersectionality of self-regulated learning activities. **Self-regulated learning (SRL)** is an action-oriented approach to learning whereby the learner takes responsibility for their learning rather than just reacting to teaching situations (Zimmerman, 2002). SRL is a cyclical process consisting of three phases: (1) forethought (focus is on goal setting, (2) performance, and (3) self-reflection.

In Phase #1, forethought revolves around planning, including task analysis (setting goals and strategies for meeting the goals) and self-motivational beliefs (comprised of self-efficacy, outcome expectations, intrinsic values/beliefs, and learning goal orientation). Evidence indicates that individuals benefit from proactively establishing goals and determining strategies to meet those goals (Schunk & Zimmerman, 2007; Zimmerman, 2002).

In Phase #2, performance includes two categories: self-control and self-observation. Self-control is the doing, which involves imagery of

making a task happen through self-instruction, focused attention, and implementation of the preplanned strategies. Self-observation is monitoring the effectiveness of the task strategies, which involves self-experimentation (trial and error) to determine what is and is not effective. Thus, Phase #2 is acting and seeing how the action is working while it is happening (Schunk & Zimmerman, 2007; Zimmerman, 2002).

In Phase #3, self-reflection includes the evaluation of achievement or lack thereof following the performance. It consists of two activities, self-judgment and self-reaction. First, self-judgment involves self-evaluation or critiquing the outcome. Secondly, it also looks at causal attributes or rationale for achievement or nonachievement—what worked and what did not work. Self-reaction is the affective response to the results. How do I, as the learner, feel about the actions and outcome? Am I satisfied or disappointed with the results? Satisfaction increases motivation for future learning or is adaptive in moving forward while disappointment can either encourage an individual to revise goals for future endeavors or it decreases self-efficacy about one's abilities, which is a defensive reaction (Schunk & Zimmerman, 2007; Zimmerman, 2002).

SRL is cyclical in nature and is a process that can be acquired. Educators have opportunities to promote goal setting activities and help learners develop new strategies as well as assist learners to reflect and self-evaluate their planning, performance, and self-reflection activities. Authentic accountability for actions and evaluation of learning are life-long skills that afford learners the ability to transfer these skills to a variety of situations. Results of SRL include increased motivation, improved self-efficacy, and deeper learning (Schunk & Zimmerman, 2007; Zimmerman, 2002).

Motivational Axioms

Axioms are premises on which an understanding of a phenomenon is based. Health professionals need to understand the premises involved in promoting motivation of the learners they are instructing.

Motivational axioms are rules that set the stage for motivation. They include (1) the state of optimal anxiety, (2) learner readiness, (3) realistic goal setting, (4) learner satisfaction/success, and (5) uncertainty-reducing or uncertainty-maintaining dialogue.

State of Optimal Anxiety

Learning occurs best when a state of moderate anxiety exists. In this optimal state for learning, the learner's ability to observe, focus attention, learn, and adapt is operative (Peplau, 1979). Perception, concentration, abstract thinking, and information processing are enhanced. Behavior is directed at a learning or challenging situation. Above this optimal level, at high or severe levels of anxiety, the learner becomes increasingly self-absorbed (Seltzer, 2016; Shapiro et al., 1992), and the ability to perceive the environment, concentrate, and learn is reduced. If at less than the optimal level, the learner who has low anxiety is not very driven to act. Thus, a moderate state of anxiety can be comfortably managed and is known to be most effective in promoting learning (Kessels, 2003; Ley, 1979; Stephenson, 2006). See Chapter 4, Figure 4-1 for the effect of anxiety on an individual's emotional readiness to learn.

For example, a patient who has been recently diagnosed with breast cancer and who has a high level of anxiety will not respond at an optimal level of retention of information when instructed about treatment options. When health professionals assist the patient in reducing anxiety through techniques such as guided imagery, use of humor, words of reassurance, or relaxation tapes, the patient will likely respond with a higher level of information retention.

Learner Readiness

The desire to move toward a goal and readiness to learn are factors that influence motivation. While desire cannot be imposed on learners—whether they be patients, clients in the community, staff members, or students—it can be significantly influenced by external forces and promoted by health professionals. Incentives are specific

to the individual learner. An incentive for one individual can be a deterrent to another. For example, suggesting a method of weight reduction that includes physical exercise may be an incentive for one client and totally unappealing for another. Incentives in the form of reinforcers and rewards can be tangible or intangible, external or internal.

Acting as a facilitator to the learner, the health professional offers positive perspectives and encouragement, which shape the desired behavior toward goal attainment. Health professionals can enhance motivation of individuals to learn by ensuring that learning is stimulating, information is relevant and accessible, and the environment is conducive to learning.

Realistic Goals

Goals that are realistic, or within a person's grasp and possible to achieve, will likely be something toward which an individual will work. In contrast, goals that are significantly beyond the person's reach are frustrating and counterproductive. Setting unrealistic goals that lead to loss of valuable time can set the stage for learners to give up.

Establishing realistic goals is an important motivating factor and depends on determining what the learner wants to change. The belief that one can achieve the task set before them facilitates behavior geared toward reaching that goal. Goals should parallel the extent to which behavioral changes are needed. Mutual goal setting between the learner and the health professional in a shared decision-making approach reduces the negative effects of hidden agendas or the sabotaging of educational plans.

Learner Satisfaction/Success

Learners are motivated by success. Success is self-satisfying and feeds a learner's self-esteem (Kupcewicz et al., 2020). In a spiraling manner, success and self-esteem escalate, moving the learner toward accomplishment of additional goals. When a learner feels

good about step-by-step accomplishments, motivation is enhanced. For example, in the instructor–student relationship, evaluations can be a valuable method of promoting learner success. Clinical evaluations, when focused on the demonstration of positive behaviors, can encourage movement toward performance goals. Focusing on successes as a means of positive reinforcement promotes learner satisfaction and instills a sense of accomplishment. Conversely, focusing on weak clinical performance can reduce students' self-esteem. The link between satisfaction and self-esteem (self-confidence) has been tested in studies on use of simulation as a teaching approach to prepare students for the role of professional nursing (Alsalamah, 2020; Omer, 2016; Zapko et al., 2018).

Uncertainty Reduction or Maintenance

Uncertainty is a common experience in the healthcare arena. Healthcare consumers and health professionals alike are often asked to make decisions about treatments and care options for which outcomes are unclear. An individual's response to this type of uncertainty may vary depending on the individual's characteristics and circumstances (Hillen et al., 2017; Politi et al., 2007).

Uncertainty (as well as certainty) can be a motivating factor in the learning situation. Individuals may have ongoing internal dialogues that can either reduce or maintain uncertainty. Individuals carry on self-talk; they think things through. When a person wants to change a state of health, behaviors often follow a dialogue that examines uncertainty, such as, "If I stop smoking, then my chances of getting lung cancer will be reduced." When the probable outcome of health behaviors is more uncertain, behaviors may maintain uncertainty. The person might say, "I am not sure that I need this surgery because the survival rates are no different for those who had this surgery and those who did not." Some learners may maintain current behaviors, given probabilities of treatment outcomes, thereby maintaining uncertainty.

Sufficient uncertainty influences choices and decision making, and it can capitalize on the receptivity or readiness for change. Uncertainty can move patients to seek more information and alternatives (Politi et al., 2007). However, reducing uncertainty prematurely can be counterproductive for the learner when they have not sufficiently explored available options.

Assessment of Motivation

How does the nurse know when the learner is motivated? Redman (2001) views motivational assessment as a part of general health assessment and states that it includes such areas as level of knowledge, client skills, decision-making capacity of the individual, and screening of target populations for educational programs. The educator can pose several questions of the learner, such as those focusing on previous attempts, curiosity, goal setting, self-care ability, stress factors, survival issues, and life situations. Motivational assessment of the learner needs to be comprehensive, systematic, and conceptually based. Cognitive, affective, physiological, experiential, environmental, and learner relationship variables need to be considered. **Box 6-1** shows parameters for a comprehensive motivational assessment of the learner.

Box 6-1 Comprehensive Parameters for Motivational Assessment of the Learner

Cognitive Variables

- Capacity to learn
- Readiness to learn
    - Expressed self-determination
    - Constructive attitude
    - Expressed desire and curiosity
    - Willingness to contract for behavioral outcomes
- Facilitating beliefs

Affective Variables

- Expressions of constructive emotional state
- Moderate level of anxiety

Physiological Variables

- Capacity to perform required behavior

Experiential Variables

- Previous successful experiences

Environmental Variables

- Appropriateness of physical environment
- Social support systems
    - Family
    - Group
    - Work
    - Community resources

Educator–Learner Relationship System

- Prediction of positive relationship

These multitheory-based parameters incorporate several perspectives, including Bandura's (1986) construction of incentive motivators; Ajzen and Fishbein's (1980) intent and attitude; Becker et al.'s (1974) notion of likelihood of engaging in action; Pender's (1996) commitment to a plan of action; and Barofsky's (1978) focus on alliance in the learning situation. Additionally, the presence of cognitions in the form of facilitative beliefs proposed by Wright et al. (1996) provides a comprehensive and multidimensional assessment. This multidimensional guide allows for assessment of the level of learner motivation. If responses to dimensions are positive, the learner is likely to be motivated.

Assessment of learner motivation involves the judgment of the educator because teaching–learning is a two-way process.

Motivation can be assessed through both subjective and objective means. A subjective means of assessing level of motivation is through dialogue. By being present and using therapeutic communication skills, the nurse can obtain verbal information from the learner, such as “I really want to learn . . .” or “I want to be able to make a change. . . .” Both statements indicate an energized desire with direction of movement toward a positive outcome. Nonverbal cues also can indicate motivation, such as when the nurse sees the learner reading about healthy diets. Likewise, a staff member or student may express a verbal desire to know more about a specific procedure. A nonverbal motivational cue might be expressed by the staff member or student carefully observing a senior nurse or clinical specialist performing an advanced technique.

Measurement of motivation is another aspect to be considered. Subjective self-reports indicate the level of motivation from the learner’s perspective. If desired, self-report measurements could be developed for educational programs. Objective measurement of motivation—an indirect measurement—can be quantified through observation of expected behaviors, which are derived from a learner’s level of motivation. Behaviors that can be observed as the learner moves toward achieving preset realistic goals can serve as objective measures of motivation.

One measurement tool for motivation is the Motivated Strategies for Learning Questionnaire (MSLQ) (Pintrich et al., 1991). This self-reporting scale focuses on cognitive aspects of motivation, learning strategies, goals, and value beliefs for specific educational sessions or courses. The questionnaire is most applicable for student self-reporting and is composed of two parts: the motivational section and the learning strategies component (Jackson, 2018; Soemantir et al., 2018).

Relationships exist between motivation and learning; between motivation and behavior; and among motivation, learning, and behavior. Each theory presented in this chapter attempts to address the complex and somewhat elusive quality of motivation.

Motivational constructs of neurocognitive changes with learning, motivational states, personal factors and beliefs including self-efficacy and LOC, context with social interactions and cultural beliefs, and SRL are an amalgamation of concepts that influence and are influenced by motivation.

In summary, motivation is an antecedent to learning and a crucial factor in the learning process. Sparking interest in the learner, gaining and maintaining their attention, and increasing their engagement promote deeper learning. Assessing learner experiences, motivational beliefs, and goals; developing relational connections; and fostering learner self-reflection regarding goal achievement intersect in the motivation, achievement, and learning paradigm. Nurse educators have opportunities throughout the interactions with learners to influence motivational states, resulting in a successful learner trajectory.

Past research on motivation has profiled its credence in influencing learning, resulting in a change in thinking or behavior. But sustained behavior change is a challenge. Considering change theory as it relates to altering behavior is another essential element in relationship to either learning goals or patient health behaviors.

Motivational Strategies

Finding the spark that motivates the learner to learn is challenging for the nurse educator. The question remains, how does an educator motivate a seemingly unmotivated individual or help a motivated person to remain motivated (Hardcastle et al., 2015)? Incentives (personal attributes, environment influences, relationship systems) viewed as appeals or inducements to motivation can be either intrinsically or extrinsically generated and can be stimuli to action.

For example, Bandura (1986) associates motivation with incentives. He notes, however, that intrinsic (internal) motivation, although highly appealing, is elusive. Only rarely does motivation occur without extrinsic (external) influence. Green and Kreuter (1999) note that

“strictly speaking we can appeal to people’s motives, but we cannot motivate them” (p. 30). A combination of intrinsic and extrinsic incentives is used for motivational strategizing in most educational situations.

Schunk (2020) puts forth a structure for managing educational strategies as pretask, during-task, and posttask. For this section, this structure will be integrated with both motivational and change strategies to capitalize on the dual influences necessary to optimize learning and behavior change. Overarching themes permeating the strategies are that the learner has accountability for learning and behavior change and that the nurse educator is in a collaborative role to provide information, resources, emotional and relational support, and authentic feedback to assist the learner in creating meaningful goals, monitoring actions, and sustaining change throughout the process.

Pretask Strategies

This type of strategy occurs prior to the learning that will take place. Assessing the learner’s prior experiences, self-efficacy, fears, and goals, for example, help to understand their perspectives prior to engaging in the learning situation (Bandura, 1997; Dweck, 2019; Jensen, 2005; Schunk, 2020). Also, understanding a learner’s motivational state is important to assess immediately prior to a learning session since it is so fluid (Jensen, 2005).

Creating a safe, relational atmosphere prior to learning activities enhances motivation and self-efficacy (Dweck, 2019; Jensen, 2005). Expectancy and accountability information also provide a neuro stimulus prior to actual engagement with learning. Setting the stage for action gains the learner’s attention prior to actual involvement (Owens & Tanner, 2017; Renninger & Hidi, 2011).

During-Task Strategies

This type of strategy happens while learning is taking place. Cognitive evaluation theory (Ryan & Deci, 2000) posits that knowing how to foster motivation is essential because educators cannot rely on intrinsic motivation to promote learning. They note, however, that autonomy and competence are intrinsic motivators that can be enhanced by selected teaching strategies. Active learning strategies, such as problem-based learning (PBL), simulations, and collaborative learning activities, have shown positive results in motivating individuals for the achievement of deeper learning (Al-Harthy, 2016; Cook & Artino, 2016; Dweck, 2019; Schunk et al., 2014; Zepke & Leach, 2010).

One contemporary nursing educational strategy suggested as a way to promote motivation is **concept mapping**, which enables the learner to integrate previous learning with newly acquired knowledge through diagrammatic schemas that outline relationships between concepts. As a motivational technique, concept mapping facilitates the acquisition of complex new knowledge through visual links that acknowledge previous learning. Learner interest is sustained by perceived competence and autonomy. Concept mapping, as a less instructor-regulated learning activity, promotes interest and value on behalf of the learner. A review of the health professions' literature indicates that students and faculty find concept mapping to be a valuable learning exercise for better understanding and retention of information (Hunter Revell, 2012; Taylor & Littleton-Kearney, 2011; Torre et al., 2007).

In an educational setting, clear communication, including clarification of directions and expectations, is critical. Organization of material in a way that makes information meaningful to the learner, environmental manipulation, positive verbal feedback, and provision of opportunities for success are proposed motivational strategies (Glynn et al., 2005; Owens & Tanner, 2017). Reducing or eliminating barriers to achieve goals is an important aspect of maintaining motivation.

Relational presence of the educator facilitates motivation, self-efficacy, and achievement (Dweck, 2019; Froneman et al., 2016; Ingraham et al., 2018; Roorda et al., 2011; Weimer, 2005, 2011a, 2011b). In addition, caring about the learner can be demonstrated by awareness of their motivational state. For example, when assessing that the learner is very anxious, introducing breathing or relaxation techniques in a nonintrusive way may both address the less-than-optimal emotion state as well as demonstrate caring for the individual (Meyers, 2007; Stephenson, 2006).

One model developed by Keller (1987), known as the attention, relevance, confidence, and satisfaction (ARCS) model, focuses on creating and maintaining motivational strategies that can be used for designing instruction. This model emphasizes strategies that the educator can apply to effect changes in the learner by creating a motivating learning environment:

- **A**ttention: introduces opposing positions, case studies, and variable instructional presentations.
- **R**elevance: capitalizes on the learners' experiences, usefulness, needs, and personal choices.
- **C**onfidence: deals with learning requirements, level of difficulty, expectations, attributions, and sense of accomplishment.
- **S**atisfaction: pertains to timely use of a new skill, use of rewards, praise, and self-evaluation.

In motivational strategizing, it would also be beneficial to consider Damrosch's (1991) proposal, which is still relevant today, that client health beliefs, personal vulnerability, efficacy of proposed change, and ability to effect the change are important in-patient education efforts.

Motivational interviewing (MI) is another motivational strategy the nurse educator can use with learners (Droppa & Lee, 2014). It is a learner-centered, directive counseling method in which clients' intrinsic motivation to change is enhanced by exploring and resolving their ambivalence toward behavior change (Miller & Rollnick, 2013).

The purpose of MI is strengthening the motivation of an individual to change.

MI is a useful collaborative communication technique that facilitates engagement of patients in changing health behaviors (Howard & Williams, 2016). Collaborative conversations are arranged in MI in a way that facilitates an individual talking oneself into changing (Miller & Rollnick, 2013). Dart (2011) states that "motivational interviewing fits perfectly into the nursing profession" (p. 23) and represents a caring, respectful tool with which to promote behavior change. MI is a rapidly diffusing, empirically supported approach to health behavior change (Antiss, 2009). Both as an assessment strategy and as an intervention, MI supports client self-esteem and self-efficacy though emphasis on the client's own reasons and values for change (Miller, 2004).

According to Miller (2010), the theoretical underpinnings of MI include Festinger's (1957) cognitive dissonance theory, Bem's (1967) self-perception theory, Bandura's (1977b) self-efficacy theory, and Carl Rogers's (1951) work on nondirective counseling. Also, the FRAMES set of data about the effective components of brief interventions for change (Bien et al., 1993) provide foundational relevancy for this counseling method (Miller, 2010), as does self-determination theory (Markland et al., 2005). The MI approach integrates well with two health behavior models discussed later in this chapter: the transtheoretical model of change (Prochaska & DiClemente, 1982) and the therapeutic alliance model (Barofsky, 1978).

MI was initially used in substance abuse treatment with adults, where it was developed as a reaction to the confrontational methods used in that field in the 1970s and 1980s. In this counseling approach, the nurse as educator avoids telling a patient what they need to do. Rather, the interview is a collaborative venture between nurse and patient whereby a positive atmosphere is created through a partner-like relationship. The nurse guides rather than directs the patient. This approach stands in contrast to the classic relationship

of expert provider and passive recipient (Miller, 2004) that is often seen in the traditional medical model.

With MI, the learner has more autonomy, and the nurse is less of an authority figure. Nurses can ask patients useful questions that guide the direction of this counseling approach, such as asking about what changes are most important to them, how confident they are in being able to make changes, what they see as the benefits or drawbacks in making changes in their lives, and how their lives might be different if they carried through with one or more of the changes (Rollnick et al., 2010).

According to Miller and Rollnick (2013), the spirit of MI includes collaboration (as opposed to confrontation), evocation (as opposed to education), and autonomy (as opposed to authority). Because change is ultimately the patient's responsibility, this approach encourages motivation for change to come from within rather than being imposed from the outside. Overall, MI is a form of patient empowerment, with the goal of helping patients gain control over the most important lifestyle management decisions affecting their well-being (Soderlund et al., 2008). It consists of two phases: in the first phase, the nurse helps the patient enhance intrinsic motivation for change; in the second phase, commitment to change is strengthened (Miller, 2010; Miller & Rollick, 2013).

The five general principles of MI (Miller & Rollnick, 2013) are arranged to form the mnemonic **READS**, which helps nurses remember the key concepts of this approach. The following principles are not applied in a specific order, and all the techniques should be used throughout the interview:

1. **R**oll with resistance
2. **E**xpress empathy
3. **A**void argumentation
4. **D**evelop discrepancy
5. **S**upport self-efficacy

Rolling with resistance refers to a strategy of acknowledging to the patient that ambivalence is natural and, rather than oppose the resistance, the nurse “rolls” or flows with it. Resistance is expected and should not be viewed as a negative occurrence by the nurse. It can take several forms, including blaming, excusing, minimizing, arguing, challenging, interrupting, and ignoring. When the patient displays resistance, the nurse should actively involve the patient in the process of problem solving and attempt to explore the reasons behind the resistance.

Expressing empathy communicates to patients that they are understood, and they are accepted as they are and where they are, which helps to facilitate change. As part of this technique, it is important that the nurse not judge, criticize, or blame the patient. Specifically, the nurse needs to employ excellent active and reflective listening skills throughout the interview to establish a therapeutic rapport.

Avoiding arguments decreases instances of confrontation, which usually make patients feel defensive. Defensiveness often leads to further resistance rather than instilling motivation for change. When the urge to argue arises, the nurse should instead change strategies to help the patient self-identify important issues and problem areas.

Developing discrepancy involves helping patients understand how their current behavior is inconsistent with their personal goals and/or values. This realization acts as a source of motivation for change by the patient. The objective is for patients, rather than the nurse, to identify why change is necessary after seeing the inconsistencies between their behaviors and their goals.

Supporting self-efficacy involves building the patient’s confidence that change is possible. The nurse can do this by providing support and recognition for small steps the patient has made toward their goals, helping the patient set reachable goals, and demonstrating belief in the patient’s ability to succeed.

In addition, the MI approach includes specific strategies that the nurse can use for building motivation to change in the early phases of treatment and continuing throughout the treatment. Miller and Rollnick (2013) suggest the mnemonic **OARS** to describe these strategies:

1. **O**pen-ended questioning
2. **A**ffirmations of the positives
3. **R**eflective listening
4. **S**ummaries of the interactions

Open-ended questions facilitate discussion between nurse and patient and encourage the patient to do most of the talking, particularly about the reasons why change is necessary or desirable. To encourage a patient-centered dialogue, the nurse should avoid closed-ended questions for which a simple “yes” or “no” answer could limit further discussion (Levensky et al., 2007).

Affirming the positives involves the nurse making statements that support and encourage the patient, particularly in areas where the patient may see only failure. Affirmations can take the form of complimenting efforts made by the patient, acknowledging small successes, or stating appreciation and understanding (Levensky et al., 2007). This approach promotes self-efficacy, builds rapport, and reinforces the efforts the patient is making toward change.

Reflective listening involves restating the patient’s own comments in a concise manner, which demonstrates that the nurse understands what the patient is saying. The goal of this technique is to keep the conversation moving forward so the patient can see the need for change and begin to move in that direction.

Summarizing links and reinforces the information that has been discussed. It helps to build rapport with patients and demonstrates that the nurse has heard the patient. Summaries are important ways to emphasize significant parts of the discussion and to review the plan of action. It is also an opportunity to welcome the patient’s corrections, clarifications, and comments. **Box 6-2** provides

examples of OARS questions and statements that the nurse educator might use in an MI session.

Box 6-2 Examples of OARS Questions and Statements

Open-Ended Questions

Could you share with me what has worked for you in the past when faced with a similar situation?

What are your current plans to accomplish your goal?

What do you believe you can accomplish at this time?

How do you believe it will feel to accomplish your goal?

Affirmation

You have worked very hard to get to this point.

You should be commended for all your positive efforts in meeting your goals.

It is obvious you have invested a lot into making these changes.

You have faced many challenges along the way, but you did not give up and now you are reaping the rewards.

Reflection

Previously you said you wanted to . . . but truly you are afraid of making the changes to reach that goal. On the one hand, you are happy with your current lifestyle, but on the other hand, you realize that some changes need to be made.

You have worked on . . . in the past and have been unsuccessful and now you are afraid to try again because you could fail.

Making a change is never easy, and you realize that you will have to put forth quite a bit of effort to accomplish your goals.

Summary

Throughout our conversation, you have said you would like to . . . and will accomplish this by . . . in this amount of time.

I would like to review what we talked about today.

To summarize what you just said. . . .

We covered a lot today, and I would like to review what we discussed.

MI can be a useful tool for helping nurses as educators achieve success in one of their major roles—namely assisting learners to change negative health behaviors. Nurses need to exercise patience when learning MI, however, because this approach requires them to adjust to a new way of thinking. They need to be open minded and willing to let go of the tendency to give advice and offer expert opinions (Brobeck et al., 2011; Soderlund et al., 2008). With time and practice, nurses will also be able to let go of the "righting reflex," which is the tendency to identify a problem and solve it for the patient (Rollnick et al., 2010; Rollnick et al., 2008). Instead, they ideally will use MI to empower and motivate patients to do the work themselves.

Posttask Strategies

Posttask strategies come in many forms and combinations. Among the most effective are self-evaluation of collaboratively developed goals, of rewards or incentives, and of feedback (Hattie & Timperley, 2007; Schunk et al., 2014). Mutually determined metrics to monitor posttask strategies are more commonly applied now, particularly with the advent of self-monitoring equipment available for the learner to have in their own setting. Most importantly is the often-neglected

aspect of follow-up for evaluation of relational support and sustained change behavior.

Motivational strategies for the nurse as educator are extrinsically generated using specific incentives. The critical question for the nurse as educator to ask is, “Which specific behavior, under which circumstances, in which time frame, may be desired by this learner?” Strategizing begins with a systematic assessment of learner motivation, like that outlined in Box 6-1. When a variable is absent or reduced, incentive strategizing is likely to move the individual away from the desired outcome. When considering strategies to improve learner motivation, Maslow’s (1943) hierarchy of needs also can be taken into consideration. An appeal can be made to the innate need for the learner to succeed, known as achievement motivation (Atkinson, 1964).

In an extensive review of the literature on feedback, Hattie and Timperley (2007) conclude that feedback is more meaningful when it focuses on what is correct rather than incorrect and is most impactful when it provides options for future goals and challenges. Simple praise alone is not viewed as effective.

Monitoring and consistent follow-up have demonstrated significant effectiveness when used by educators and nurse coaches (Higgins & Scott, 2019; Jiang et al., 2018; Ross et al., 2018; Southard et al., 2021; Stelter & Anderson, 2018). Whether with telehealth (m-health) education or in person teaching, staying connected with the learner over time has a significant impact on changing behavior (Bevington et al., 2021; Schorr et al., 2021).

Adherence

The terms *compliance* and *adherence* are often used interchangeably in the literature when referring to the measurement of health outcomes. However, these two terms are not synonymous because they imply different views about the relationship between the learner and the educator (Gardner, 2015). Compliance implies coercion or a willingness to yield to the demands or expectations of others (Merriam-Webster, 2015). Thus, it has an authoritarian, controlling undertone and suggests that the learner is in a submissive role. When the term *compliance* is applied to health care, the provider or educator is viewed as the authority and the patient or learner is passively following recommendations or advice.

In the 1990s, the terminology in the healthcare literature began to shift from compliance to adherence (Gardner, 2015), supporting a more inclusive, active patient role that acknowledges the patient's right to make their own healthcare decisions in choosing whether or not to follow treatment regimens. Thus, in this chapter, only adherence will be discussed with the emphasis on patient-centered or learner-centered planning with the support of the nurse educator.

Adherence, according to the World Health Organization, is "the extent to which a person's behavior corresponds with agreed recommendations from a health care provider" (Sabaté, 2003, p. 3), such as taking medication, following a diet, and/or executing lifestyle changes. Mihalko et al. (2004) define adherence as a "level of participation achieved in a behavioral regimen once an individual has agreed to the regimen" (p. 448), and Hernshaw and Lidenmeyer (2006) describe adherence as the degree to which the patient follows the plan of care formulated in conjunction with the healthcare provider. These definitions address the need for patients to be involved in treatment decisions, which is quite different from passively following the healthcare providers' prescriptions. The

presumption with adherence is that the patient agrees with a recommendation put forth (Brown & Bussell, 2011).

Adherence refers to the ability to maintain health-promoting regimens, which are determined collaboratively by the patient and healthcare provider. It is possible, though, for an individual to initially agree to follow a regimen but not necessarily be committed to it. For example, a patient who is experiencing sleep disturbances may take a medication as directed for a short period of time. The same patient, however, may not continue to adhere to the regimen for an extended time, even though their sleep disturbances continue. In this situation, there is temporary support of the plan but no commitment to follow through. A similar example can be used with students. For instance, a nursing student needing remedial work meets with a faculty member and they develop a remediation plan to which the student initially subscribes, but then their efforts begin to wane. Adherence is more likely successful if both the student and the faculty member monitor the situation and have continued contact related to the planned interventions.

Nonadherence occurs when the person does not follow the planned recommendations that are mutually agreed upon (Resnik, 2005). Lack of follow through may be intentional or unintentional. According to the World Health Organization, nonadherence can be determined by the interplay of five sets of factors or dimensions—socioeconomically related, patient related, condition related, therapy related, and healthcare team or system related (Sabaté, 2003). Patient factors that contribute to nonadherence include stress, forgetfulness, substance abuse, having multiple medical conditions, uncertainty about health beliefs and practices, and real or perceived stigma associated with the conditions for which the patient is being treated (DiMatteo, 2004; Pignone & Salazar, 2014).

A patient's nonadherence to medical treatment recommendations can affect their health status as well as the healthcare system, resulting in unnecessary health risks and increased medical expenditures (Heiby et al., 2005; Kim et al., 2018; Martin et al.,

2005). For example, a patient's nonadherence to medications for diabetes has been identified as contributory to health complications and preventable hospitalizations (Schwartz et al., 2017). In many disease conditions, including diabetes, approximately 40% of patients were at high risk because of nonadherence resulting from factors such as misunderstanding, forgetting, or ignoring recommended health regimens (Martin et al., 2005; Quan, 2016). Specifically related to medication noncompliance or nonadherence, 50% of prescription drugs are taken incorrectly or not at all, 75% of patients do not always take their medications as directed, 125,000 deaths per year are attributed to poor medication compliance, and poor drug compliance is estimated to cost the healthcare system $290 billion per year through unnecessary hospitalizations, rehospitalizations, and premature death (Chesanow, 2014).

However, as Ofri (2012) clearly points out, health professionals need to seriously consider economic factors that may lead patients to try to save money by reducing the prescribed dosage, horde medications rather than taking them, share medications with others, or believe they are unable to adhere to a treatment regimen because of limited or no insurance coverage or copays that are too expensive. In addition, they may perceive a recommended regimen as simply impossible for them to adhere to for a variety of other reasons. It is important for health professionals to find out why patients are not following their medical instructions. As Ofri (2012) states when recognizing the many recommendations made by health providers that patients are asked to follow, "Be compassionate. . .understand what a complicated balancing act it is for patients. . .work together to figure out what is reasonable and realistic, prioritizing which measures are most important. Improving adherence is a team sport" (pp. 2–3).

Research, as evidenced by the multidisciplinary healthcare literature, has focused on the compliance or adherence and noncompliance or nonadherence of healthcare consumers to their healthcare plans (Chesanow, 2014; Jimmy & Jose, 2011; Jin et al., 2008). The number of studies on the level of adherence reflects the importance

of this concept to patient health and to the healthcare industry. This phenomenon may result from an emphasis on cost-effective health care, as seen, for example, in shorter lengths of hospital stays when there is less time to teach. Without follow up, the likelihood of sustained change or adherence drops. Future educational planning needs to incorporate educator monitoring and follow up to improve outcomes and promote adherence.

Health Behavior Models and Theories

Motivation and adherence are concepts central to understanding and changing the health behaviors of the learner. Health behavior frameworks are blueprints and, as such, serve as tools for the nurse as educator that can be used to maintain desired behaviors or promote changes (Syx, 2008; Teixeira & Marques, 2017). As a result, a familiarity with models and theories that describe, explain, or predict health behaviors can increase the range of health-promoting strategies for the nurse as educator. When the educator understands these frameworks, the principles inherent in each can be used either to facilitate motivation or promote adherence with a health regimen (Glanz et al., 2015; Hayden, 2017). What follows is an overview of the selected models and theories: health belief model, health promotion model, self-efficacy theory, protection motivation theory, change theory and model, theory of reasoned action and theory of planned behavior, therapeutic alliance model, and social ecological models.

Health Belief Model

The original **health belief model (HBM)** was developed in the 1950s from a social psychology perspective to examine why people did not participate in health screening programs (Rosenstock, 1974). This model was modified by Becker et al. (1974) to address compliance with therapeutic regimens. According to Vermandere et al. (2016), the HBM frequently guides the development of interventions related to health.

The HBM explains and predicts health behaviors based on the patients' beliefs about the health problem and the health behavior. The model relies on the assumptions that patients are willing to participate and that they believe that health is highly valued (Becker, 1990). Both these premises need to be present for the model to be relevant in explaining health behavior. This model is grounded on the supposition that it is possible to predict health behavior given three major interacting components: individual perceptions, modifying factors, and likelihood of action. **Figure 6-1** shows the direction and flow of these components, each of which is further divided into subcomponents:

1. *Individual perceptions:* These include the subcomponents of perceived susceptibility or perceived severity of a specific disease.
2. *Modifying factors:* These include the demographic variables (age, sex, race, ethnicity), sociopsychological variables (personality, locus of control, social class, peer and reference group pressure), and structural variables (knowledge about and prior contact with disease). These variables, in conjunction with cues to action (mass media, advice, reminders, illness, reading material), influence the subcomponent of perceived threat of the specific disease.
3. *Likelihood of action:* This includes the subcomponents of perceived benefits of preventive action minus perceived barriers to preventive action.

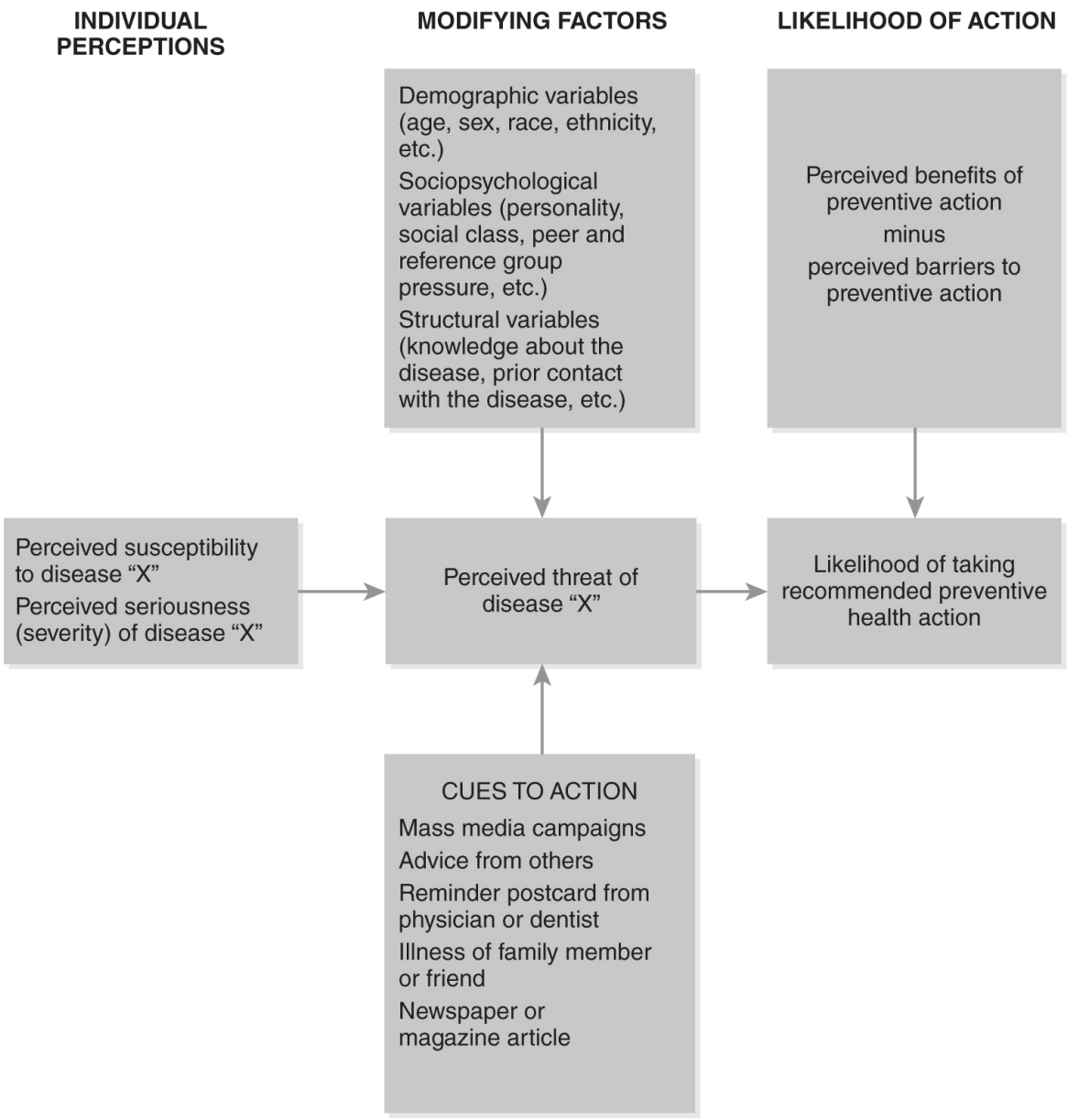

Figure 6-1 Health belief model used as a predictor of preventative health behavior.

Reproduced from Becker, M. W., Drachman, R. H., & Kirscht, J. P. (1974). A new approach to explaining sick-role behavior in low-income populations. *American Journal of Public Health, 64*(3), 205–216. https://doi.org/10.2105/ajph.64.3.205. Copyright by American Public Health Association. Reprinted with permission.

Description

These components and subcomponents are directed toward the likelihood of taking recommended preventive health action as the final phase of the model. In sum, individual perceptions and modifying factors interact. An individual appraisal of the preventive action occurs, which is followed by a prediction of the likelihood of action.

The HBM has been the predominant explanatory model since the 1970s for explaining differences in preventive health behaviors as well as use of preventive health services. It stands out as one of the most frequently cited and researched psychosocial models to determine health-related screening behavior (Wong et al., 2013). It has been used widely in health behavior research across disciplines such as medicine, psychology, social behavior, and gerontology to predict preventive health behavior and to explain sick-role behavior in acute and chronic illnesses. It has even been used to explain nursing students' willingness to seek treatment for test anxiety (Markman et al., 2011) and in evaluating the impact of an H1N1 flu vaccine initiative (Jones et al., 2015).

Over time, research studies have supported the validity of the HBM. For instance, Jachna and Forbes-Thompson (2005) studied health belief constructs in an assisted living facility and found that healthcare providers can influence residents' health beliefs relative to osteoporosis, which has implications for gerontology nursing education. As an illustration in China, Wang et al. (2013) successfully used a nursing intervention based on the HBM to enhance patients' health beliefs and self-efficacy toward the disease management of COPD. Saunders et al. (2013) determined the HBM provided an appropriate framework for examining hearing behaviors. Findings from studies such as these, as well as from additional studies (Adams et al., 2014; Baghianimoghadam et al., 2013; Bishop et al., 2014), can be operationalized through educational programs specific to high-risk populations.

In a historical 10-year review of the HBM literature, Janz and Becker (1984) found that the model strongly predicted health behaviors, with perceived barriers being the most influential factor. More recently, Jones et al. (2014) evaluated research that used the HBM in interventions to predict health-promoting behavior for those with a variety of diseases. Of 18 studies that employed the HBM, 78% found significant improvement in adherence, and 39% reported moderate-to-large effects. However, these authors noted that only six studies incorporated the entire HBM model,

and they strongly recommended that all components of the model needed to be considered to permit the identification of precisely what was effective and to encourage greater replications of these studies. Orji et al. (2012) proposed an extension of the HBM to include four new variables (self-identity, perceived importance, consideration of future consequences, and concern for appearance) that significantly enhanced the predicative capacity of the original HBM model, according to these researchers.

As the HBM applies today, the nurse as educator needs to take into consideration the availability of technology-driven educational resources. In this technology-driven society, Dutta-Bergman (2004) suggests a relationship between health beliefs, information seeking, and active versus passive learners with implications for the mode in which health education is delivered. Health educators, this author suggests, need to be concerned with consumer health-seeking behaviors in this information age.

Health Promotion Model (Revised)

The **health promotion model (HPM)**, originally developed by Pender in 1987 and revised in 1996, has been primarily used in the discipline of nursing (Pender, 1996). The purpose of the model is to assist nurses in understanding the major determinants of health behaviors as a basis for behavioral counseling to promote healthy lifestyles (Pender et al., 2019). The HPM describes major components and variables that influence health-promoting behaviors. This model helps to provide an understanding of whether people choose to engage in health-promoting behaviors (Pender et al., 2019) and strongly supports the partner relationship between healthcare provider and patient. Its emphasis on actualizing health potential and increasing the level of well-being is based on using approach behaviors rather than avoidance of disease behaviors, which distinguishes this model from others because of its focus on health promotion rather than disease prevention.

The sequence of major components and variables is outlined as follows:

1. Individual characteristics and experiences, which consist of two variables—prior related behavior and personal factors;
2. Behavior-specific cognitions and affect, which consist of perceived benefits of action, perceived barriers to action, perceived self-efficacy,

activity-related affect, interpersonal influences, and situational influences;
3. Behavioral outcomes, which consist of health-promoting behavior partially mediated by commitment to a plan of action and influenced by immediate competing demands and preferences.

In Figure 6-1 the HBM and the HPM share several schematic similarities and one major difference. Both models describe the use of factors or components that influence perceptions that may lead to positive health outcomes. However, the HBM targets the likelihood of engaging in preventive health behaviors whereas the revised HPM targets the likelihood of engaging in health promotion activities. Support for the HPM has been demonstrated by many research studies on a number of different population groups (Aqtam & Darawwad, 2018; Ho et al., 2010; Khodaveisi et al., 2017; Mohamadian et al., 2011). One conclusion supported by the HPM literature is that perceived self-efficacy is an important determinant of participation in health-promoting behavior and achievement of an improved health-related quality of life (Ho et al., 2010; Mohamadian et al., 2011; Sevinc & Argon, 2018).

As for nurses involved in promoting an individual's or group's health status, Laverack (2017) discovered that single interventions targeted at specific behaviors are not effective for people at risk for poor health. Instead, he advocates for a comprehensive strategy, which includes three core components: (1) a behavior change approach; (2) a strong policy framework that creates a supportive environment; and (3) empowerment of individuals to gain more control over making their own health lifestyle decisions. This three-pronged recommendation is consistent with the findings of Van Achterberg and colleagues (2011) who discovered that a combination of self-monitoring behavior, risk communication, and use of social support was the most effective technique for promoting healthy behaviors in patients.

Self-Efficacy Theory

Developed from a social–cognitive perspective, **self-efficacy theory** is based on a person's expectations relative to a specific course of action (Bandura, 1977a, 1977b, 1986, 1997). It is a predictive theory in the sense that it deals with the belief that one is competent and capable of accomplishing a specific behavior. The belief of competency and

capability relative to certain behaviors is a precursor to expected outcomes.

Self-efficacy has been defined as each individual's personal beliefs regarding the capacity to take action toward achieving a goal (Bandura, 1997). This theorist explains that people "function as contributors to their own motivation, behavior, and development within a network of reciprocally interacting influences" (p. 169). Self-efficacy is one major component of social cognitive theory (SCT), which centers on motivation and goal attainment. The four key aspects are: self-observation, self-efficacy, self-reaction, and self-evaluation. For this discussion, self-efficacy related to motivation and goal attainment will be the focus.

Bandura (1986, 1997) notes that the most influential source of efficacy information is previous performance accomplishments. Efficacy expectations—that is, expectations relative to a specific course of action—are induced through certain modes. Modes of induction include, but are not limited to, desensitization, self-instruction, exposure, suggestion, and relaxation. As with other aspects of motivation, an individual's perspective of self-efficacy can have a positive or negative effect related to self-beliefs. An individual with prior accomplishments may have high self-efficacy, promoting higher motivation and beliefs in the ability to accomplish a future task. In contrast, an individual with lower motivation and experiences with success may have a lower self-efficacy or lack of belief in the ability to accomplish a task or goal (Bandura, 1997).

Self-efficacy can be viewed as driving motivation which leads to deeper learning and stronger commitment to change. Nurse educators may enhance learners' self-efficacy, and, therefore, motivation, effort, learning, and persistence, the four components of self-efficacy (Bandura, 1997).

According to Bandura (1986, 1997), self-efficacy is cognitively appraised and processed through four principal sources of information:

1. Performance accomplishments, as evidenced in self-mastery of similarly expected behaviors
2. Vicarious experiences, such as observing successful expected behavior through the modeling of others
3. Verbal persuasion by others, who present realistic beliefs that the individual is capable of the expected behavior

4. Emotional arousal, resulting from self-judgment of physiological states of distress

Bachmann and colleagues (2016) concluded after researching perceived health competence in patients with cardiovascular disease that those with a low sense of competence in caring for themselves after hospitalization were at risk for a decline in health-related quality of life post discharge. Self-efficacy also has been linked with self-management of hypertension and diabetes mellitus (Jang & Yoo, 2012) and patient recovery after acute injury (Connolly et al., 2014). Self-efficacy theory also has been used to address conflict within healthcare teams. Sexton and Orchard (2016) reported three central components appear to influence healthcare professionals' perceived ability to reduce conflict: communication competence, the ability to problem solve, and conflict resolution and training.

The use of self-efficacy theory by the nurse as educator is particularly relevant in developing educational programs. The behavior-specific predictions of this theory can be used for understanding the likelihood of individuals participating in existing or future educational programs. Educational strategies such as modeling, demonstration, and verbal reinforcement parallel modes of self-efficacy induction.

Protection Motivation Theory

Protection motivation theory (PMT) explains behavioral change in terms of threat and coping appraisals (Prentice-Dunn & Rogers, 1986) and are beneficial for understanding why individuals participate in behaviors that are unhealthy (MacDonell et al., 2013). A threat to health is considered a stimulus to protection motivation. This linear theory includes sources of information (environmental and intrapersonal) that are cognitively processed by appraisal of threat and coping to engender protective motivation, which leads to intent and ultimately to action.

Influenced by crisis and self-efficacy theories, PMT has been used to test antecedents to health behaviors such as drug abuse, AIDS, smoking, sun protection, and drinking behaviors. Wu et al. (2005) found that adolescent drug trafficking can be predicted by the overall level of health protection motivation. These authors suggest that the theory be considered in the design of drug-trafficking prevention programs. Prentice-Dunn et al.

(2009) found that protection motivation theory was useful in creating "readiness to change" sun-protective intentions among young women. Wong et al. (2015) addressed the utility of this framework for understanding sedentary behavior, and Orbell et al. (2020) applied PMT to screening behaviors to reduce the risk of disease.

Evidence-based research can uncover motivational information that can be used to inform health educators in the design of educational programs that specifically target high-risk individuals or groups for selected risk behaviors. PMT goes beyond the likelihood of action in the HBM and self-efficacy intent to promote actual health behavior action.

Change Theory and Model

The following presents a classic change theory as well as a current change theory model. Mounting evidence indicates that memory, beliefs, and behavior change are contiguous processes that develop and strengthen over time (Schunk, 2020; Wolfe, 2010). Initial change in behavior rarely results in sustained change without intentional periodic interventions. Motivation and learning are mute without change that is lasting. Educational practices that incorporate follow up are currently viewed as necessary to make change endure.

Lewin's Change Theory

Lewin (1935) was a pioneer in the development of change theory. While this theorist's work centered around group and organizational change, the theory is transferable to change with individuals as well. His three-stage process involves unfreezing, change, and refreezing.

Unfreezing is the first stage in the process and involves analyzing old or current behaviors or processes (personal or external factors that need to be adjusted) and identifying where change is needed. In the second stage, *change* (also known as the moving phase) needs to happen and involves new practices or strategies that can be challenging to the learner. *Refreezing* is the third and final step where failure can happen if the change is not practiced and reinforced.

A powerful additional aspect to Lewin's theory is the force field analysis. Driving and restraining forces are identified and evaluated. Then, strategies for increasing the driving forces and decreasing the restraining forces are explored to develop a plan for actual change. These driving and restraining forces also can be used if change is not moving forward during the refreezing phase to adjust the forces influencing the desired change (Lewin, 1951).

The use of the force field analysis process helps the learner evaluate the positives and negatives that might be missed in developing a feasible plan for change. It also helps remove some of the emotion while soliciting beliefs that underlie the desire for change. Lastly, it provides a shared language to use between the learner and educator that is personal, which individualizes the process to help promote learner-centered planned change.

Stages of Change Model

A newer model that sheds light on the phenomenon of health behaviors of the learner is the **stages of change model**, also known as the transtheoretical model (TTM) of behavioral change (Prochaska & DiClemente, 1982). Originating from the field of psychology, this model was developed around addictive and problem behaviors. Prochaska (1996) describes six distinct time-related stages of change:

1. *Precontemplation:* Individuals have no current intention of changing. Strategies involve simple observations, confrontation, or consciousness raising.
2. *Contemplation:* Individuals accept or realize that they have a problem and begin to think seriously about changing it. Strategies involve increased consciousness raising.
3. *Preparation:* Individuals are planning to act within the time frame of 1 month. Strategies include a firm and detailed plan for action.
4. *Action:* Behavior is overtly/visibly modified. This is the busiest stage, and strategies include commitment to the change, self-reward, countering (substitute behaviors), creating a friendly environment, and engaging in supportive relationships.
5. *Maintenance:* Maintenance is a difficult stage to achieve and may last 6 months to a lifetime. There are common challenges to this stage,

including overconfidence, daily temptation, and relapse self-blame. The strategies in this stage are the same for the action stage.
6. *Termination:* This stage occurs when the problem no longer presents any temptation. However, some experts note that termination does not occur; instead, maintenance simply becomes less vigilant.

The extent to which people are motivated and ready to change is an important construct. It is useful in health care to stage the client's intentions and behaviors for change as well as to determine those strategies that will enable completion of a specific stage of change. More recent use of the stages of change model in health research has focused on its value in health promotion and the processes by which people decide to change (or not to change) behaviors.

The stages of change model has been used to investigate health behaviors, such as using sun protection (Prentice-Dunn et al., 2009), managing weight loss (Lacey & Street, 2017; Mastellos et al., 2014), and exercising (Lowther et al., 2007). It also has been used as a method of outcome evaluation in continuing education for nurses (Randhawa, 2012). This popular model can be used with children and adults, which has implications for a variety of educational settings and audiences of learners. However, it must be noted that although research on the TTM in relation to changing one adverse behavior has shown high success rates, studies that have attempted to use this model for treatment of multiple (three or more) adverse behaviors have shown limited results in achieving significant change (Raihan & Cogburn, 2021).

Theory of Reasoned Action and Theory of Planned Behavior

The **theory of reasoned action (TRA)** emerged from a research program that began in the 1950s and is concerned with predicting and understanding any form of human behavior within a social context (Ajzen & Fishbein, 1980). It is based on the premise that humans behave in a rational way that is consistent with their beliefs (Fishbein, 2008). This theory suggests that a person's behavior can be predicted by examining the individual's attitudes about the behavior as well as the individual's beliefs about how others might respond to the behavior. For example, when using this theory to predict how a client might respond to a weight-

reduction plan, it would be vital not only to consider the client's beliefs about food and exercise but also to examine what the client thinks about how the people around him would view his attempts to lose weight. It is important to note that reasoned action in this theory is not emotion free but rather based on beliefs that are influenced by emotion and mood (Fishbein, 2008).

In a two-pronged linear approach, specific behavior is determined by (1) beliefs, attitude toward the behavior, and intention; and (2) motivation to comply with influential persons (known as referents), subjective norm, and intention. The person's intention to perform can be measured by relative weights of attitude and subjective norm.

As the TRA began to be applied in the social sciences, Ajzen and other researchers realized the theory had several limitations (Godin & Kok, 1996). One of the strongest limitations was use of the theory with people who felt they had little power over their behaviors. To remedy this, in 1985, Ajzen proposed a new model—the **theory of planned behavior (TPB)**. The TPB added a third element to the TRA model—the concept of perceived behavioral control (Ajzen, 1991). This theory is depicted in **Figure 6-2**.

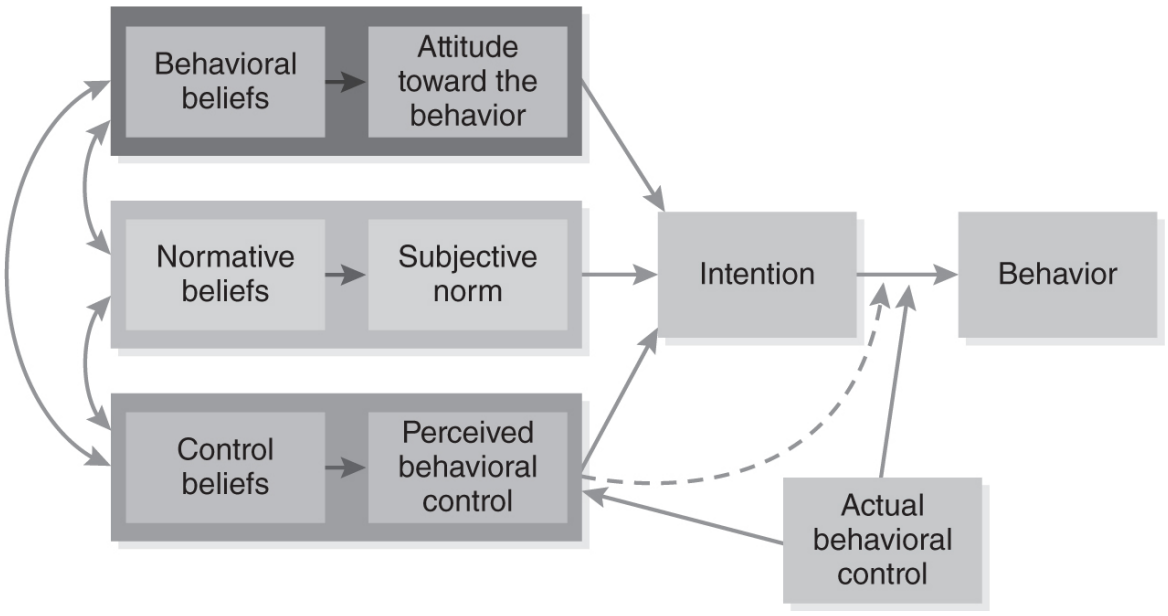

Figure 6-2 Theory of planned behavior.

Reproduced from Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*(2),179–211. https://doi.org/10.1016/0749-5978(91)90020-T. Copyright 1991, p. 182, with permission from Elsevier.

Description

The TRA and the TPB have been used to determine nurses' attitudes toward teaching particular health education topics (Mullan & Westwood, 2010), for designing interventions to reduce heterosexual risk behavior (Asare, 2015; Tyson et al., 2014), to understand intentions to receive human papillomavirus vaccine (Fisher et al., 2013), and to study health professionals' shared decision-making behaviors (Thompson-Leduc et al., 2014). TPB even has been widely used to predict behavior related to the use of technology (Ajzen, 2020). The TRA and TPB are useful theories in predicting behaviors, which is particularly helpful for educators who want to understand the attitudinal context within which health behaviors are likely to change. Nurses as educators need to take beliefs, attitudinal factors, and subjective norms into consideration when designing educational programs intended to change specific health behaviors.

Therapeutic Alliance Model

Barofsky's (1978) **therapeutic alliance model** addresses a shift in power from the provider to a learning partnership in which collaboration and negotiation with the consumer are key. A therapeutic alliance is formed between the caregiver and the care receiver whereby the participants are viewed as having equal power. The patient is viewed as active and responsible, with an outcome expectation of self-care. The shift toward self-determination and control over one's own life is fundamental to this model (**Figure 6-3**).

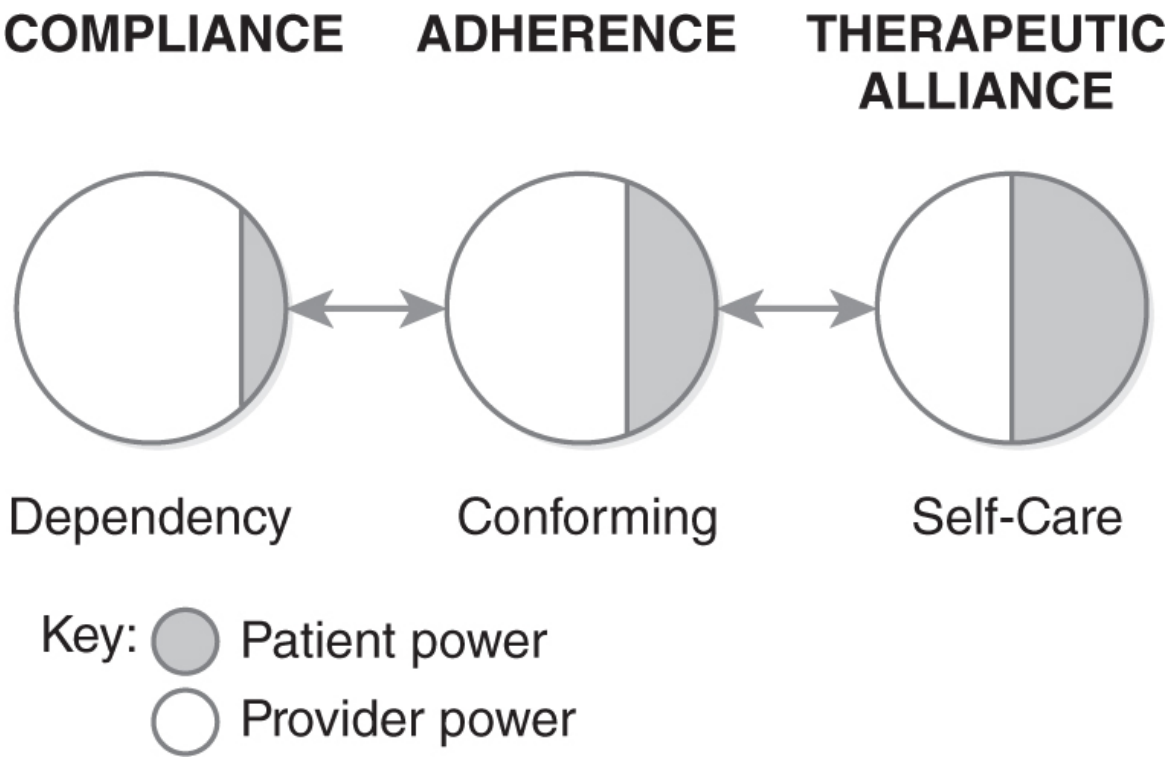

Figure 6-3 Continuum of the therapeutic alliance model.

Description

The therapeutic alliance model compares the components of compliance, adherence, and alliance. According to Barofsky (1978), change is needed in treatment determinants—change from coercion in compliance and from conforming in adherence to collaboration in alliance. The power in the relationship between the participants is equalized by alliance. The role of the patient in this therapeutic model is neither passive nor rebellious but rather active and responsible. The expected outcome is neither compliant dependence nor adherent conformity but responsible self-care resulting from an alliance between the nurse and the patient.

Although not originally developed as an educational model, the usefulness of this model to the nurse as educator is nevertheless acknowledged in the partnership of learning. This interpersonal model is appropriate in the educational process when shifting the focus from the patient as a passive-dependent learner to the patient as an active learner. It serves as a guide to refocus education efforts on collaboration rather than on compliance. The nurse as educator and the patient as learner form an alliance with the goal of self-care.

Hobden (2006), in an exploration of the concepts of compliance and adherence, notes that these terms have a negative connotation. Instead, this author suggests emphasizing the consultative process known as **concordance**, which is "consultation that allows mutual respect for the patient's and professional's beliefs and allows negotiation to take place about the best course of action for the patient" (p. 258). She notes there is a shift in the balance of power from the professional to the patient. Although concordance should lead to improved health outcomes, the focus is on the process of achieving agreement and harmony between the patient and the professional.

Kim et al. (2001) developed the Kim Alliance Scale (KAS), which was later revised by Kim et al. (2008) as the Kim Alliance Scale Refined (KAS-R) to measure the quality of the therapeutic alliance between patient and provider. The refined scale includes collaboration, integration, empowerment, and communication subscales. In these authors' study, the KAS-R was shown to be valid and reliable and, when it was used to measure the relationship between therapeutic alliance and general patient satisfaction, therapeutic alliance was a significant predictor variable (36%) for patients' general satisfaction. The link between therapeutic alliance and patient satisfaction underscores the significance of the quality of the provider–patient relationship.

As mentioned earlier, MI may be combined with the therapeutic alliance model. Resnicow and McMaster (2012) point out that successful MI takes place in an atmosphere in which the client feels understood and respected, and it is collaborative in nature, with the highest priority placed on the client's autonomy and freedom of choice.

The significance of the therapeutic alliance between caregiver and patient as it relates to adherence has been studied in patients with mental health issues (Allen et al., 2017; Ardito & Rabellino, 2011; Arnow et al., 2013; Byrne & Deane, 2011; Jaeger et al., 2014; Sylvia et al., 2013). Del Re et al. (2012) found that therapist behavior in the alliance partnership is more important than patient behavior in achieving the goal of improved outcomes. The therapeutic alliance also has been studied relative to weight gain in patients with anorexia nervosa (Bourion-Bedes et al., 2013; Brown et al., 2013), although its impact has been mixed.

Social Ecological Models

A central principle in the social sciences is that human development and behavior occur within a specific societal and historical context. Therefore, in trying to understand or change health behaviors, explicit attention needs to be given to the larger environment and how it may influence or affect the health and decisions made by individuals and groups in particular social settings.

Sometimes also termed ecological models, **social ecological models** give direct focus to the societal context or environment of individuals within which their health behaviors occur. Most would agree that individuals who may be motivated to change their behavior will find it is much more difficult if their social situation and environment work against health behavior change. A positive social environment, however, encourages such changes and may even motivate individuals who initially had no interest in changing their health behavior to break bad habits or improve their health.

Social ecological models were developed to meet public health, health policy, and community health needs in trying to change people's health behaviors (Sallis & Owen, 2015; Simpson, 2015). They have been used to increase physical activity, decrease cigarette smoking, and encourage patients with diabetes to adhere to their medical instructions and lead a healthier lifestyle. However, the environment alone is not sufficient to explain people's wide-ranging health behaviors.

When trying to change unhealthy habits and improve human health, social ecological models were designed to include **multiple levels of influence**. Five levels of influence on health behaviors are often used in these models, with these influences considered to be interrelated (Centers for Disease Control and Prevention [CDC], n.d.; Sallis & Owen, 2015; Simpson, 2015):

1. *Intrapersonal or Individual Factors*: Individual characteristics, such as age, biological and personal history factors, education, income, health information and knowledge, attitudes and beliefs, religion, and a host of other psychological and social factors that are pertinent to the particular health behavior goal to be achieved.
2. *Interpersonal and Relationship Factors*: Personal relationships that are likely to exert an influence (positive or negative) on health behavior, such as friends, family, and close group affiliations.

3. *Organizational and Institutional Factors*: Religious organizations, workplace organizations, and other organizations and institutions that may have a bearing on health behavior.
4. *Community Factors*: Community norms, neighborhoods, safety, and relationships among institutions in the community.
5. *Societal or Public Factors*: Public policies and laws regarding health behaviors, public recreation facilities, legislative and government support for healthy policies and facilities, and advocacy organizations concerned with health behaviors.

According to the social ecological approach, the individual's health behavior can be influenced by specific factors in each of these levels and, in turn, the individual's health behavior also is considered influential in these factors. Each of these levels and factors may serve to encourage or inhibit the desired health behavior or activity. In formulating a social ecological model, health providers, educators, and policy makers in communities and governments identify influential factors within the multiple levels to aid in the design of interventions, campaigns, and programs to change specific health behaviors. It should be noted that there is no single agreed-upon social ecological model. Instead, these models are developed and tested based on the purpose and goals of the needed health interventions. As a result, some ecological models may have five levels, whereas others may have four or perhaps six.

As an illustration, in the interest of preventing violence in communities, the CDC (n.d.) developed a four-level social ecological model. The four levels were identified as follows:

- *Individual*: Personal factors that increase the likelihood of being a victim or perpetrator of violence, such as age, education, income, or substance abuse. Prevention strategies may include education and life-skills training.
- *Relationships*: Close relationships that may increase the risk of experiencing violence (victim or perpetrator), such as closest peers and family members' influences. Prevention strategies include parenting or family-focused prevention programs, mentoring and peer programs designed to reduce conflict, the development of problem-solving skills, and the promotion of healthy relationships.
- *Community*: Schools, workplaces, and neighborhoods where relationships occur, with the need to identify the characteristics of

these settings that are associated with becoming a victim or perpetrator of violence. Prevention strategies that impact the social and physical environment include reducing social isolation, improving economic and housing opportunities, and establishing or adhering to policies and practices in the school and workplace settings.
- *Societal*: Broad societal factors that encourage a climate of violence. Prevention strategies involve countering social and cultural norms that support violence as an acceptable way to resolve conflicts. Policies related to health, education, economics, and social life can serve to alleviate or maintain inequality between groups in society.

This model is intended to encourage the identification and understanding of factors that put people at risk of violence or protect them from violence. The assumption is that violence in the community needs to be addressed at multiple levels, not only at one or two levels. The need also is to identify how factors at one level affect factors at other levels.

Social ecological models are most often used at the macro level for health policy, education, public health, and other community efforts to understand and change health behaviors. Individually focused health behavior models, such as those summarized previously in this chapter, are more likely to be used in clinical and educational settings. Social ecological models are considered most effective when they are directed at changing a specific behavior, such as physical activity, opioid drug use, condom use, eating more nutritious foods, and reducing obesity in community settings.

However, research indicates that including multiple levels of analysis in social ecological models is more likely to be advocated or promised than done. For example, Golden and Earp (2012) identified 157 articles related to health promotion interventions and reported that most described interventions at the intrapersonal and interpersonal levels. However, those that focused on specific health behaviors in particular settings and also included institutional, policy, and community factors as part of their intervention more accurately reflected a true social ecological approach to improving the health of individuals and communities. Toward that end, they concluded, more effort needs to be devoted to modifying social and political environments when dealing with health behavior change. In an interesting study of women dealing with drug problems, Morse et al. (2014) used the social ecological model as a guide for focus group

discussions with these women and identified four levels that played a role in their experiences (intrapersonal, interpersonal, institutions, and community resources).

Models for Health Education

It is worth noting that research on the use of these models to intervene in changing health behaviors indicates that interventions informed by specific healthcare models did, in fact, result in behavioral changes (Barley & Lawson, 2016). One question facing health professionals is which models to use for any given intervention to change health behaviors? The selection of models for educational use can be made based on the following considerations: (1) similarities and dissimilarities in the available models, (2) the nurse as educator's agreement with a model's conceptualizations, and (3) the functional utility of the model(s).

Similarities and Dissimilarities of Models

Models may be viewed as so similar that there would be a negligible difference in choosing one over the other. Or they may be considered so dissimilar that one would be inappropriate for a specific educational purpose. A cursory comparative analysis of the different frameworks reveals that the HBM and the HPM are similar. Each uses comparable salient factors of individual perceptions and competing variables. The differences appear in the models' basic premises and outcomes. The HBM emphasizes susceptibility to disease and the likelihood of preventive action, whereas the HPM emphasizes health potential and health-promoting behaviors.

The self-efficacy theory, the TRA, and the TPB are similar in that they focus on the predictions or expectations of specific behaviors. These theories lend themselves more easily to less complex model testing than either the HBM or the HPM because the former theories are more linear in conceptualization. Specificity of behaviors may aid in targeting outcomes of educational programs.

The stages of change model is similar to the self-efficacy theory, the TRA, and the TPB in the sense that these models focus on intent.

The stages of change model, though, appears to be less complicated and does not account for personal characteristics or experiences. It differs from self-efficacy theory, protection motivation theory, the TRA, and the TPB in that change is time relevant, which has implications for educational interventions. Protection motivation theory is similar in construct to the TRA and the TPB in the sense that information is cognitively processed, followed by intent or commitment to action and the health behavior.

The HBM, HPM, self-efficacy theory, protection motivation theory, TRA, and the TPB are similar in that they acknowledge factors such as experiences, perceptions, or beliefs relative to the individual and factors external to the individual that can modify health behaviors. These frameworks also recognize the multidimensional nature, complexity, and probability of health behaviors. One major difference between the HBM and the protection motivation theory is that the latter includes a component of fear appraisal and focuses on a specific vulnerability rather than general susceptibility to illness (Prentice-Dunn & Rogers, 1986).

All the models acknowledge the importance of the patient in decision making with respect to health behaviors. The differences relate to patient focus, the relative importance of modifying factors, specificity of behavior, and outcomes. The most inclusive model is the social ecological model. It incorporates a number of factors specified in the other theories and models at the intrapersonal and interpersonal levels but also adds influential factors in the patient's or community member's environment that affect health behaviors.

The most dissimilar model is the therapeutic alliance model. Although it is relatively narrow in scope, its simplicity and parsimony are strengths. When this model is applied to the educational arena, the educator–learner relationship is the critical factor. Addressing potentially frustrating patient education situations such as noncompliance (nonadherence), Hochbaum (1980) noted early on that patient educators, when frustrated, "are unable to understand the apparently irrational and self-destructive action of their patients,

and sometimes throw their hands up in despair, bedeviled by the seeming irrationality of the patient's behavior. . . . But this behavior may be altogether rational from the patient's perspective" (p. 7). Understanding of the patient as learner can be uncovered in the therapeutic alliance model.

Educator Agreement With Model Conceptualizations

Nurses as educators have their own belief systems, which may or may not agree with some of the tenets of each of the models presented. The choice of a model, therefore, can be based on the educator's level of agreement with salient factors in each framework.

The likelihood of action is best addressed by the HBM, whereas attaining positive health outcomes is the focus of the protection motivation theory. Attitude and intention are best viewed through the TRA and the TPB. Belief in one's capabilities is best addressed by self-efficacy theory, and the therapeutic alliance model is best used for reduction of nonadherence through an educator–learner collaboration. Staging the individual's readiness for change and developing strategies for interventions are helpful in designing educational programs with the stages of change model. The social ecological model is well suited to designing health education campaigns and addressing community health problems.

Through in-depth analysis of each model, the attention of the educator may be drawn to other factors as well. Ultimately, the model or models that fit best with the nurse's own beliefs are most likely to be chosen. But it should be the goals of the health behavior intervention that drive the selection of suitable models and theories, not the health professional's personal opinions and biases.

Functional Utility of Models

Model selection for educational purposes also can be based on functional utility. The following questions may be asked to determine functional utility:

- Who is the target learner?
- What is the focus of the learning?
- When is the optimal time?
- Where is the process to be carried out?

The question of *who* the learner is deals with whether the target learner is the individual, family, group, or community. The HBM, HPM, self-efficacy theory, protection motivation theory, change theories, TRA and TPB, and social ecological models can be used across the range of these target learners. The important notion for the nurse as educator to remember is the likelihood of individual variation. Another consideration is the various demographic groups that can be distinguished, such as those target learners considered at high risk and those target learners diagnosed with acute or chronic illnesses.

The functional utility of the models also can be determined by the content needed, the timing of the educational experience, and the setting in which the learning is to take place. *What* is needed reflects the focus of the learning and addresses the content to be taught, such as disease processes, specific disease treatment, adaptation techniques, health problems in the community, the promotion of wellness, expectations of specific health practices, or focus on self-care.

The question of *when* deals with optimal timing and refers to the readiness of the learner, a mutually convenient time, and prevention of untimely delays in moving toward a desired goal. Although considered important in the context of health education, this critical factor has received little specific reference in terms of HPMs. Except for the stages of change model, timing often is a neglected factor in the models discussed in this chapter. It is apparent that determining optimal time can be a motivational incentive in terms of meeting the health needs of the learner.

Addressing the question of *where* the educational process is to be carried out is another aspect of functional utility. The home, workplace, school, institution, and specific community locations are all options as settings. Every model discussed in this chapter lends itself to these diverse settings.

Integration of Models for Use in Education

Theories provide blueprints for interventions (Molisani, 2015). From the previous discussion, clearly the integration of various components of health behavior models is advantageous in the educational process. When salient factors are taken into consideration in relation to the specific developmental stage of the learner, an integrated motivational model of learning in health promotion could emerge.

Over two decades ago, Gebhardt and Maes (2001) proposed model integration by advocating for a multitheory approach to promote learner behaviors. Cautioning against the use of unidirectional and nondynamic views of behavioral change, they suggested an integrative approach using goal theories and stages of change. At this same time, Poss (2001) developed a model synthesizing the HBM and the TRA, noting that a synthesized model is appropriate for the study of persons from varying cultural backgrounds. Chiu (2005) investigated the previously untested Bruhn and Parcel (1982) model of children's health promotion in adolescents with type 1 diabetes using structural equation modeling analysis. Finding only partial support for this model, this researcher suggested a new model that would incorporate self-efficacy as well as locus of control. The development of new models, the revision of older models, and the integration of multiple models are necessary steps in the evolution and delivery of health care as it pertains to the nurse educator and other health professionals who are concerned with motivational behaviors of the learner.

Salient health promotion factors that nurse educators can use in a multitheory approach to health education include, but are not limited

to, level of knowledge, attitudes, values, beliefs, perceptions, level of anxiety, self-confidence, skills mastery, past experiences, intention, physiological capacity, sociocultural enablers, environment, educator–learner alliance, resources and reinforcements, mutual and realistic goal setting, hierarchy of needs, quality of life, and voluntary participation in learning.

Developmental stages of the learner incorporate principles of pedagogy (teaching children), andragogy (teaching adults), and geragogy (teaching older adults) to meet the needs of the learner. A more comprehensive and holistic model for the nurse as educator could emerge when learning is viewed along a unidirectional developmental continuum, in combination with personal factors and beliefs, for health promotion and disease prevention.

Role of Nurse as Educator in Behavioral Change

Nurses as educators are in a key position to promote healthy behaviors and lifestyles. Combining content specific to the discipline of nursing with knowledge from psychological, sociological, and educational theories, health behavior models allow for an integrated approach to shaping the health behaviors of individuals through education. In this sense, nurses as educators occupy multiple roles that include facilitator/coach, contractor, organizer, and evaluator.

Facilitator/Coach

The goal of the nurse as educator is, of course, to support learning that leads to a change in behavior. Health education and health promotion are integral to this effort. At the same time, the nurse as educator is an important facilitator of change. When teaching is viewed as an intervention, it needs to be considered in the context of other nursing interventions that will effect change. As far back as 1987, deTornay and Thompson proposed that facilitating change in the learning situation rests on explaining, analyzing, dividing complex skills, demonstrating, practicing, asking questions, and providing closure.

Nurse coaching has moved to the forefront of health promotion and changing health behaviors. Distinctions between traditional nurse educator roles and those of the nurse coach focus on the learner guiding the planning and developing of goals with an emphasis on the nurse coach involved with routine follow up, support, and evaluation (Southard et al., 2021; Stelter & Anderson, 2018). Research demonstrates that effective outcomes are related to coaching strategies and consistent follow up by nurse coaches (Higgins & Scott, 2019; Jiang et al., 2018; Ross et al., 2018).

Collaborator

Collaboration has become a popular means of enhancing learning. Informal or formal planning can delineate and promote learning objectives. Similar in steps to the nursing process, collaboration involves stating mutual goals to be accomplished, devising an agreed-upon plan of action, evaluating the plan, and deriving alternatives. The plan of action needs to be as specific as possible and include the who, what, when, where, and how of the learning process. Responsibilities that are clearly stated aid in evaluating the plan and directing plan revisions.

In light of the changing healthcare system, a greater emphasis is needed on patient–nurse partnerships. This is because patients are expected to take increasingly more responsibility for and control of the decisions that affect their own health. Educational collaboration is the key to informed decision making.

When education is viewed in the context of the learner, rather than the learner in the context of education, learning is individualized. The fit between the learner and the nurse as educator has the capacity to facilitate learning. Indeed, the goodness of fit between these two educational participants can be a motivating factor. Do the learner and the educator share an understanding of backgrounds or language? Is there a mutual understanding of goal setting? Are personal beliefs respected?

Collaboration involves a trusting relationship. In a mutually satisfying teacher–learner relationship system, trust is a key ingredient. For example, students trust that the nurse as educator possesses a respectable, current body of theoretically based and clinically applicable knowledge (Froneman et al., 2016; Ingraham et al., 2018; Roorda et al., 2011). When the learner is a patient, the nurse educator needs to be approachable, trustworthy, and culturally sensitive because the learner's own health status is at stake and is often valued as a private matter. In turn, no matter who the learners are, the nurse trusts that when they agree to collaborate in the

teaching-learning process, they will demonstrate behaviors that are growth promoting. Newman and Brown (1986) list the following elements as part of an ideal relationship that are still highly relevant today: both parties have trust and respect, the teacher assumes the learner can learn and is sensitive to individual needs, and both parties feel free to learn and make mistakes.

Organizer

Organization of the learning situation includes the manipulation of materials and space, the sequential organization of content from simple to complex, and a determination of the priority of subject matter. These organizational tasks are part of the nurse's responsibility when in the role of educator. The organization of learning material decreases obstacles to learning. To facilitate the learning process and promote motivation to learn, educational programs or individual sessions need to be organized around the target learner as well as significant others.

Evaluator

Educational programs, like other healthcare projects, need to be accountable to the learner or consumer of the health service. Accountability can be documented by evaluations that measure outcomes. Self-evaluation, learner evaluation, organization evaluation, and peer evaluation are not new concepts. Indeed, evaluative processes are an integral part of all learning. What is measured is the application of knowledge and skills and whether they improve the health of individuals, families, groups and/or communities.

State of the Evidence

Unfortunately, the evidence is less than adequate when it comes to implementing nursing interventions that specifically address the variables of motivation and adherence as they relate to changing the behaviors of the learner. With the explosion of interest in evidence-based practice, additional conceptually based research needs to be conducted that identifies, describes, explains, and predicts behaviors of the learner.

Healthy People 2030 (U.S. Department of Health and Human Services, 2021) has established five major overarching goals:

- Attain healthy, thriving lives and well-being free of preventable disease, disability, injury, and premature death.
- Eliminate health disparities, achieve health equity, and attain health literacy to improve the health and well-being of all.
- Create social, physical, and economic environments that promote attaining the full potential for health and well-being for all.
- Promote healthy development, healthy behaviors, and well-being across all life stages.
- Engage leadership, key constituents, and the public across multiple sectors to take action and design policies that improve the health and well-being of all.

This document sets the stage for the nurse as educator to use theoretically based strategies to promote effective learning that leads to desirable patient health behaviors.

The concepts of motivation and adherence are useful in predicting the course of learning that can result in changes in health behaviors (Schunk & DiBenedetto, 2020). As Michaelsen and Esch (2021) point out, an understanding of what motivates people to change their health behavior and discovering effective interventions that

successfully support lifestyle modifications is imperative given the increasing worldwide prevalence of chronic diseases that are lifestyle-related. Although many cognitive theories exist to describe, explain, and predict health behaviors, Michaelsen and Esch (2021) contend that few studies to date have explored the noncognitive aspects of behavior, such as emotions, to account for the initiation and maintenance of behavioral change. These two authors propose a seven-stage process as it relates to motivation and rewards systems.

Motivational interviewing (MI) also has been heavily researched as it has shown to influence behavioral change in a broad range of health issues, such as substance abuse, mental illness, obesity, cardiovascular disease, and diabetes (American Addiction Centers, 2019; Barrett et al., 2018; Hardcastle et al., 2013; Kvarnstrom, 2017; Laakso, 2012; Li et al., 2020; Lundahl et al. 2013; O'Halloran et al., 2014; Reims & Ernst, 2016; Salimi et al., 2016; VanBuskirk & Wetherell, 2014). Most of the current evidence related to MI use comes primarily from studies with adults, but this technique may be particularly useful with the adolescent population because its collaborative, nonconfrontational approach fits well with the developmental need for identity and autonomy that characterizes this stage of growth (Jackman, 2011; Mutschler et al., 2018).

Neurocognitive studies are seen as the future of research to unveil answers as to how the brain functions. Di Domenico and Ryan (2017) have scratched the surface by exploring the intricacies of intrinsic motivation via neuroimaging. Through these types of studies being incorporated with qualitative and quantitative results, it is possible to further understand these complex human experiences.

Recently, a clarion call has been sounded for both qualitative and quantitative conceptually grounded research to be infused into the teaching–learning process. Forums for evidence-based learning ought to be widely established and should include discussion relative to motivation for behavior change of the learner (Gleasman-DeSimone, 2012). In addition, at a time when health care represents

an ever-growing sector of our economy yet nursing workforce shortages and critical nursing faculty shortages persist, motivational factors should be a paramount focus of research in nursing recruitment and education as well as in workforce cooperation and performance in healthcare organizations (Afolabi et al., 2018; Bhatnagar, 2017; Lagarde et al., 2019).

Summary

Critical components of this chapter included a discussion of constructs of motivation relevant to learning; premises (axioms) that set the stage for motivation to learn; assessment of the level of learner motivation; identification of incentives and obstacles that affect motivation; and exploration of theories and models central to promoting motivation and adherence for behavior change. Also, a comparison was made between the selected health behavior frameworks, and the multiple roles of nurse as educator were outlined that promote healthy behaviors and lifestyles. The information and evidence presented in this chapter clearly indicate that when people are motivated and know that they can make a difference in their own lives, the foundation is set for change in their behaviors.

Review Questions

1. What are the five primary constructs of motivation (internal and external) that influence learners' interest in achieving a goal of behavior change?
2. How do self-efficacy and locus of control play a role in motivation?
3. What are the axioms (premises) on which an understanding of the phenomenon of motivation is based?
4. What are the six parameters for a comprehensive motivational assessment of the learner?
5. What are examples of pretask, during-task, and posttask strategies that motivate learners by gaining their attention and engagement?
6. What are the five general principles of motivational interviewing (MI)?
7. Why is MI considered effective in many situations to strengthen an individual's desire to change their behavior?
8. Is adherence a necessary step in achieving behavior change? Explain.
9. Which theories/models can be used to predict the likelihood of action by individuals or groups to prevent injury or acute or chronic illness and which are used to promote adherence to therapeutic healthcare regimens?
10. What roles of the nurse educator can be applied to sustain change in the learner?

CASE STUDY

Natasha is a nurse educator for a large, urban prenatal clinic. She has a well-grounded understanding of patient education from her master's degree in the principles of teaching and learning and also has acquired skills in MI. Recently, Natasha attended a workshop on educating mothers prior to their third trimester of pregnancy to daily count and record at least 10 movements of their baby during a

typically active time when the baby moves. This program, which is funded by her state, is titled “Count the Kicks” (countthekicks.org), which has demonstrated nearly a 33% decrease in stillbirths in Iowa, where the program originated.

Natasha is scheduled to meet with Tracy, a mother of a 2-year-old, who is approaching her third trimester. Natasha plans to introduce the Count the Kicks idea to Tracy and work with her to develop a daily plan to count the movements of her baby. Tracy is 21 years old and has been receiving prenatal care at the clinic throughout her pregnancy. Despite her demanding full-time job as well as her busy role in caring for her family, Tracy has managed to come regularly for her scheduled visits from the very beginning of her prenatal care. She also has tried hard to adhere to all the recommendations (diet, weight control, exercise, taking vitamins) shared by Natasha and the obstetrician.

With this as the backdrop, Natasha is considering the methods she will incorporate into the “Count the Kicks” educational session.

1. What three MI questions/statements could Natasha use to work collaboratively with Tracy on this new program?
2. Considering the three phases of self-regulated learning (SRL), what one method for each of the SRL components could Natasha use to support Tracy in setting personal goals that would incorporate Count the Kicks into her daily life?
3. Nearing the end of their time for this teaching session, what mutually agreed upon follow up options might Natasha offer that would help to promote Tracy’s sustained utilization of the plan?

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CHAPTER 7

Literacy in the Adult Client Population

Susan B. Bastable

Gina M. Myers

Chapter Highlights

- Definition of Terms
  - Literacy Relative to Oral Instruction
  - Literacy Relative to Computer Instruction
- Scope and Incidence of the Problem
- Those at Risk
- Myths, Stereotypes, and Assumptions
- Assessment: Clues to Look For
- Impact of Illiteracy on Motivation and Adherence
- Ethical, Financial, and Legal Concerns
- Readability of Printed Education Materials
- Measurement Tools to Test Literacy Levels
- Formulas to Measure Readability of Printed Education Materials
  - Flesch Reading Ease and Flesch–Kincaid Reading Grade Level
  - Fog Index
  - Fry Readability Graph—Extended
  - SMOG
  - Computerized Readability Software Programs
- Tests to Measure Comprehension of Printed Education Materials
  - Cloze Test
  - Listening Test
- Tests to Measure General Reading Skills and Health Literacy Skills of Clients
  - WRAT (Wide Range Achievement Test)
  - REALM (Rapid Estimate of Adult Literacy in Medicine)
  - TOFHLA (Test of Functional Health Literacy in Adults)
  - NVS (Newest Vital Sign)

    - eHEALS (eHealth Literacy Scale)
    - SAM (Instrument for Suitability Assessment of Materials)
- Simplifying the Readability of Printed Education Materials
- Teaching Strategies to Promote Health Literacy
- State of the Evidence

KEY TERMS

comprehension

computer literacy

e-health literacy

functional illiteracy

functional literacy

health literacy

illiterate

infodemic

information literacy

literacy

literate

low literacy

medicalese

numeracy

organizational health literacy

personal health literacy

readability

reading

OBJECTIVES

After completing this chapter, the reader will be able to:

1. Define the terms *literacy*, *illiteracy*, *health literacy*, *low literacy*, *functional illiteracy*, *reading*, *readability*, *comprehension*, *numeracy*, e-health literacy, medicalese, and infodemic.
2. Identify the magnitude of the literacy problem in the United States.
3. Describe the characteristics of those individuals at risk for having difficulty with reading and comprehension of written and oral language.
4. Discuss common myths and assumptions about people with illiteracy.
5. Identify clues that are indicators of reading and writing deficiencies.
6. Assess the impact of illiteracy and low literacy on patient motivation and adherence with healthcare regimens.
7. Recognize the role of the nurse as educator in the assessment of clients' literacy skills.
8. Use specific formulas and tests to critically analyze the readability and comprehension levels of printed materials and the reading skills of clients.
9. Describe specific guidelines for writing effective education materials.
10. Outline various teaching strategies useful in educating clients with low literacy skills.
11. Recognize the research and policymaking issues that must be addressed to solve the health literacy problem.

Over the past few decades, educators as well as government officials, employers, and media experts have focused interest on and expressed concern about literacy in the U.S. population. The level of illiteracy and low literacy in adults continues to be a major problem in the United States despite public and private efforts at all levels to address the issue through testing of literacy skills and development of literacy training programs.

Today, the fact remains that many individuals do not possess the basic literacy abilities required to function effectively in a technologically complex society (Rampey et al., 2016). Many adult citizens have difficulty reading and comprehending information well enough to be able to perform such common tasks as filling out job and insurance applications, interpreting bus schedules and road signs, completing tax forms, applying

for a driver's license, registering to vote, and ordering from a restaurant menu (ProLiteracy, 2020a; Weiss, 2003).

In the early 1980s, President Ronald Reagan launched the National Adult Literacy Initiative, which was followed by the United Nations' declaration of 1990 as International Literacy Year (Belton, 1991; Wallerstein, 1992). In 1992, the U.S. Department of Education conducted the National Adult Literacy Survey (NALS), which revealed a shockingly high prevalence of illiteracy in the United States (Weiss, 2003; Weiss et al., 2005; Zarcadoolas et al., 2006). For many decades prior to this, Literacy Volunteers of America and Laubach Literacy International served as advocates for the most marginalized adult populations both in the United States and around the globe. Today, ProLiteracy (https://www.proliteracy.org), which was formed in 2002 from the merger of these two entities, is the world's largest organization targeting adult literacy. It supports 1,000 literacy programs across the United States and in 32 countries worldwide (ProLiteracy, 2020a).

Particularly in the past 20 years resulting from the NALS report, nursing and the health professions literature have focused significant attention on the effects of patient illiteracy on healthcare delivery and health outcomes. Today, the emphasis is on health literacy—that is, the extent to which Americans can read and comprehend health information well enough to function successfully in a healthcare environment and make appropriate decisions for themselves. Although a great deal more research needs to be done on the causes and effects associated with low health literacy as well as the methods available to screen and teach patients, much has been learned about the magnitude and consequences of the health literacy problem (Cutilli et al., 2018; Friedman & Hoffman-Goetz, 2008; Paasche-Orlow & Wolf, 2007a; Peltzer et al., 2020; Pignone et al., 2005; Wu et al., 2016).

Healthy People 2010 and *Healthy People 2020* both identified limited health literacy as one of the nation's top public health agenda concerns (U.S. Department of Health and Human Services [USDHHS], 2000, 2014). In the *Healthy People 2030* update, this concern was elevated with the addition of six health literacy-related objectives. These new objectives speak to clear communication of health information between patients and their healthcare providers, especially for those with limited English

capabilities, as well as the ease of use of electronic medical records (USDHHS, n.d.-a)

In the fall of 2010, a workgroup of USDHHS released the *National Action Plan to Improve Health Literacy*, also known as NAP or the "Action Plan" (Baur, 2011). The NAP was created to provide guidance to organizations, professionals, policymakers, communities, individuals, and families in identifying actions to take to improve the widespread pandemic of limited health literacy facing not only the United States but other countries worldwide (USDHHS, 2010). The NAP is not just a report on the state of the problem—it is an urgent request to identify, select, and use strategies that have the greatest potential to produce effective, measurable improvements in health literacy (Speros, 2011).

Many of the NAP strategies highlight actions that organizations or professions can take to further these goals. Nurses are in a unique position that enables them to act as advocates for and empower each client to obtain, understand, and act on information provided to them. By focusing on health literacy issues and working together, nurses can improve the accessibility, quality, and safety of the health care they provide, reduce costs, and improve the health and quality of life for millions of people in the United States.

The NAP envisions a society that (1) provides everyone with access to accurate and actionable health information, (2) delivers person-centered health information and services, and (3) supports lifelong learning and skills to promote good health. Furthermore, the Action Plan highlights seven goals that will improve health literacy (USDHHS, 2010):

1. Develop and disseminate health and safety information that is accurate, accessible, and actionable.
2. Promote changes in the healthcare system that improve health information, communication, informed decision making, and access to health services.
3. Incorporate accurate, standards-based, and developmentally appropriate health and science information and curricula in childcare as well as education through the university level.
4. Support and expand local efforts to provide adult education, English-language instruction, and culturally and linguistically appropriate health information services in the community.

5. Build partnerships, develop guidance, and change policies.
6. Increase basic research and the development, implementation, and evaluation of practices and interventions to improve health literacy.
7. Increase the dissemination and use of evidence-based health literacy practices and interventions

These goals cannot be achieved by a single group or organization. Instead, meeting the goals of the NAP requires intense collaboration, both challenging and empowering individuals and communities to change the health system to meet the needs of specific populations. **Table 7-1** highlights the recent strides made in the United States in relation to health literacy.

Table 7-1 Recent National initiatives to Improve Health Literacy (HL)

Initiative	Date	Purpose
Healthy People 2020, USDHHS	2010	Includes HL objectives to achieve the nation's health goals
Patient Protection and Affordable Care Act, CHCS	2010	Outlines key provisions that incorporate HL approaches to care
Plain Writing Act, Public Law 111-274	2010	Requires federal agencies to use clear, concise communications to improve public understanding of government documents
Health Literacy for Public Health Professionals, CDC	2012	Introduces public health professionals to fundamentals and importance of HL

Initiative	Date	Purpose
Health Literacy Universal Precautions Toolkit, AHRQ	2015	Helps primary care practices reduce complexity of health care
Health Literacy Toolkit, NNLM	2015	Supports efforts of libraries to use key messages, data, and marketing materials to promote HL
Clear Communication Index, CDC	2016	Provides criteria to develop and assess public communication products to aid understanding of information
Ask Me 3, NPSF	2016	Empowers patients to become more involved in their health care by asking providers 3 key questions
Health Literacy: Hidden Barriers and Practical Strategies, AHRQ	2017	Offers providers practical strategies to enhance care of patients with low literacy
Healthy People 2030, USDHHS	2020	Developed with consideration of HL throughout the document and added six related objectives

Data from Agency for Healthcare Research and Quality. (n.d.). *AHRQ health literacy universal precautions toolkit*. Retrieved June, 30, 2021, from https://www.ahrq.gov/health-literacy/improve/precautions/index.html; Agency for Healthcare Research and Quality. (n.d.). *Health literacy: Hidden barriers and practical strategies*. https://www.ahrq.gov/health-literacy/improve/precautions/1stedition/tool3.html; Centers for Disease Control and Prevention. (n.d.). *Find training*. Retrieved June, 30, 2021,

from https://www.cdc.gov/healthliteracy/gettraining.html; Centers for Disease Control and Prevention. (n.d.). *Healthy People 2020*. Retrieved June, 30, 2021, from https://www.cdc.gov/dhdsp/hp2020.htm; Centers for Disease Control and Prevention. (n.d.). *The CDC Clear Communication Index*. Retrieved June, 30, 2021, from https://www.cdc.gov/ccindex/index.html; Institute for Healthcare Improvement. (n.d.). Ask Me 3: *Good questions for your good health*. Retrieved July 2, 2021, from http://www.ihi.org/resources/Pages/Tools/Ask-Me-3-Good-Questions-for-Your-Good-Health.aspx; Libraries Transform. (n.d.). *Health literacy toolkit*. Retrieved July 2, 2021, from http:www.ilovelibraries.org/librariestransform/health-literacy-toolkit-intro; Office of Disease Prevention and Health Promotion. (n.d.). *Healthy People 2030 framework*. Retrieved June, 30, 2021, from https://www.healthypeople.gov/2020/About-Healthy-People/Development-Healthy-People-2030/Framework; Plain Writing Act of 2010, Public Law 111-274. (2010, October 13). https://www.govinfo.gov/app/details/PLAW-111publ274; Somers, S. A., & Mahadevan, R. (2010). *Health literacy implications of the Affordable Care Act*. Center for Health Care Strategies. https://www.chcs.org/media/Health_Literacy_Implications_of_the_Affordable_Care_Act.pdf

With respect to the subject of literacy, the nurse educator's attention specifically focuses on adult client populations. Literacy levels are not an issue in teaching staff nurses or nursing students because of their level of formal education. However, literacy levels remain a concern if the audience for inservice programs includes culturally and socioeconomically diverse support staff with less formal education (Wong, 2012), or if members of the audience have been diagnosed with a learning disability, such as dyslexia.

What must be particularly concerning to the healthcare industry are the numbers of consumers who are illiterate, functionally illiterate, or marginally literate. Researchers have discovered that people with limited reading and comprehension skills, as well as lower health literacy, have disproportionately higher medical costs, increased number of hospitalizations and readmissions, higher mortality rates, and more perceived physical and psychosocial problems than do literate persons (Eichler et al., 2009; McNaughton et al., 2015; Parnell, 2015; Peltzer et al., 2020; Sudore, Yaffe, et al., 2006; Wu et al., 2016).

In today's world of managed care, the literacy problem is perceived to have grave consequences. Clients are expected to assume greater responsibility for self-care and health promotion, yet this expanded role depends on increased knowledge and skills. If people with low literacy abilities cannot fully benefit from the type and amount of information they are typically given, they cannot be expected to maintain health and manage independently. The result is a significant negative impact on the cost of health care and the quality of life (Dickens & Piano, 2013; Gualteros, 2018; Levy & Royne, 2009; Macabasco-O'Connell et al., 2011; Weiss, 2014).

Traditionally, healthcare professionals have relied heavily on printed education materials (PEMs) as a cost-effective and time-efficient means to communicate health messages. An assumption was made that the written materials commonly distributed to patients were sufficient to ensure informed consent for tests and procedures, to promote adherence with treatment regimens, and to guarantee adherence to discharge instructions. Today, many patient educational resources also are provided in an electronic format with the assumption that these materials are provided at a reading level accessible to the average reader, when in reality they are not (Lipari et al., 2019; Sare et al., 2020).

Healthcare providers have begun to recognize that the scientific and technical terminology inherent in the ubiquitous printed and online teaching aids constitutes a bewildering set of written instructions little understood by many people (Ache, 2009; Lipari et al., 2019; McClure et al., 2016; Sare et al., 2020). Kessels (2003) points out that 40% to 80% of medical information provided by health professionals is forgotten immediately, not just because medical terminology is too difficult to understand but also because delivery of too much information leads to low recall. Furthermore, half of the information that the patient can recall is remembered incorrectly (Parnell, 2015). Unless education materials are written at a level and style appropriate for their intended audiences, clients cannot be expected to be able or willing to accept responsibility for self-care.

An essential prerequisite for implementing health education programs is to know the literacy skills of audiences for whom these programs are intended (Quirk, 2000). Yet calls for assessment of literacy and recommendations for appropriate interventions for clients with low literacy

skills have largely been ignored. Health professionals, including nurses, are sometimes reluctant to conduct a clinical assessment of literacy skill or place this information in the health record for fear of embarrassing or stigmatizing the patient (Easton et al., 2013; Paasche-Orlow & Wolf, 2007b; Ylitalo et al., 2018). Therefore, even though illiteracy and low literacy are quite prevalent in the U.S. population, problems with literacy frequently continue to go undiagnosed (Hersh et al., 2015; Lambert et al., 2014; Weiss, 2007; Zarcadoolas et al., 2006).

This chapter examines the magnitude of the literacy problem, the myths associated with it, and the factors that influence literacy levels. It emphasizes the important role that nurses play in assessing clients' literacy skills and the effects of reading and health illiteracy on the well-being of the public. In addition, the formulas and tests used to evaluate readability of printed tools and to assess clients' comprehension and reading skills are reviewed, specific guidelines are put forth for writing effective health education materials, and teaching strategies are recommended as a means for breaking down the barriers of illiteracy.

Definition of Terms

For many years, there was no clear agreement of what it meant to be literate in American society. A literate person was loosely described as someone who possessed socially required and expected reading and writing abilities, such as being able to sign their name and read and write a simple sentence. Over time, performance on reading tests in school became the conventional method to measure grade-level achievement.

Because it is difficult, if not impossible, to measure reading abilities on a population-wide basis, the number of years of schooling attended has been used for years to define literacy levels in the United States as well as internationally (Badarudeen & Sabharwal, 2010; Giorgianni, 1998; Ortiz-Ospina & Beltekian, 2018). This method remains an imprecise means of estimating someone's true reading skills because much of the data gathered nationally and globally has depended on self-reporting by individuals and heads of households and on indirect evidence based on educational attainment (Ortiz-Ospina & Beltekian, 2018). Many researchers have found that the reported grade level achieved in school is an inadequate predictor of reading ability (Chew et al., 2004; Doak et al., 1996; O'Bryant et al., 2007; Weiss, 2003; Winslow, 2001).

In the 1992 NALS report, the U.S. Department of Education defined **literacy** as "the ability to use printed and written information to function in society, to achieve one's goals, and to develop one's knowledge and potential" (National Center for Education Statistics [NCES], 1993, p. 6). NALS categorized literacy into three types of tasks: prose (reading newspapers, magazines, books), document (interpreting insurance reports, consent forms), and quantitative (computing bills, taxes, paycheck stubs, calorie counts).

More recently, the NAP defined literacy as being able to demonstrate skills in reading, writing, basic math, interpreting speech, and

comprehending information as well as skills in **numeracy**, which implies an aptitude with basic probability and numerical concepts (Baur, 2011). Those persons with limited literacy often also have limited ability in numeracy (Centers for Disease Control and Prevention [CDC], 2019, November 13; Griffey et al., 2014; Smith et al., 2015; Sterling et al., 2018).

Although no precise cut-off point defines the difference between literacy and illiteracy, the commonly accepted working definition of what is meant by **literate** is the ability to write and to read, understand, and interpret information written at the eighth-grade level or above. On the other end of the continuum, **illiterate** is defined as being unable to read or write at all or having reading and writing skills at the fourth-grade level or below.

Low literacy, also termed *marginally literate* or *marginally illiterate*, refers to the ability of adults to read, write, and comprehend information between the fifth- and eighth-grade levels of difficulty. Persons with low literacy have trouble using commonly printed and written information to meet their everyday needs, such as reading a TV schedule, taking a telephone message, or filling out a relatively simple application form (Doak et al., 1996).

Functional illiteracy means that adults lack the fundamental reading, writing, and comprehension skills that are needed to perform the tasks of everyday life (Vágvölgyi et al., 2016). They do not read well enough to understand and interpret what they have read or use the information as it was intended (Doak et al., 1996). For example, someone who is functionally illiterate may be able to read the simple words on a label of a can of soup that directs them to “Pour soup into pan. Add one can water. Heat until hot.” However, they cannot comprehend the meaning and sequence of the words to carry through with these directions.

Conversely, **functional literacy** refers to skills in reading, writing, and numeracy needed by people to function effectively in their community. Functional literacy is necessary for a country to have a functional society. In other words, functional literacy equals a

functional society (Cocchiarella, 2018). The levels of both functional illiteracy and functional literacy vary from culture to culture and place to place. For example, a person living in a rural, agrarian community in the developing world may be able to carry out daily tasks well without advanced reading skills, but a person living in an urban setting that relies highly on technology must have higher literacy skills to complete required tasks of daily living (Lattier, 2015).

Conventional grade-level definitions of literacy are considered conservative because even an adult with the ability to read at the eighth-grade level will encounter difficulties in functioning in today's advanced society. However, although an individual may have limited reading skills, this does not necessarily imply a lack of intelligence. Low literacy or illiteracy cannot be equated with IQ level; a person who is illiterate or has low literacy is most often intellectually within normal IQ range (Doak et al., 1996).

Health literacy is defined by the Patient Protection and Affordable Care Act of 2010, Title V, as the "degree to which an individual has the capacity to obtain, communicate, process, and understand basic health information and services to make appropriate health decisions" (CDC, 2020, September 19, para. 2). Health literacy requires a person to do more than simply read patient education materials or make an appointment. A health-literate individual must, for example, be able to read a medication label and then compute the correct dose and frequency of taking the medication. They must be able to fill out lengthy health insurance forms, know when to vaccinate their child or have a mammogram, or give informed consent for a lifesaving procedure. Although literacy and health literacy are closely related, they are different concepts (McCray, 2005). Health literacy is complex, such that even those people with strong reading and writing skills, high levels of education, and affluence can face challenges with health literacy. In fact, 45% of high school graduates have limited health literacy skills (USDHHS, 2010).

Health literacy level cannot be determined from stereotypes, generalizations, or assumptions, or by simply looking at a patient. Furthermore, health literacy levels change over time with education, aging, social interactions, language, culture, and life experiences with health and disease (Baker, 2006; Nguyen et al., 2013; Speros, 2011). An individual's functional health literacy is likely to be significantly worse than their general literacy skills because of the complicated language used in the healthcare field, known as **medicalese** (American Medical Association, 1999; Whitehurst, 2006).

Health literacy is a complex issue, and many variables have the potential to influence an individual's capacity to obtain, process, and understand information. Some have suggested that "if health literacy is the ability to function in the health care environment, it must be dependent upon the characteristics of both the individual and the health care system" (Baker, 2006, p. 878). Health literacy should be considered context specific and, as such, is influenced by the patient, the complexity of the condition and treatment, and the environment in which the treatment takes place (Volandes, 2007). To this point, *Healthy People 2030* further defines health literacy as **personal health literacy** and **organizational health literacy**. "Personal health literacy is the degree to which individuals have the ability to find, understand, and use information and services to inform health-related decisions and actions for themselves and others. Organizational health literacy is the degree to which organizations equitably enable individuals to find, understand, and use information and services to inform health-related decisions and actions for themselves and others" (USDHHS, n.d.-a, para 3).

With the expectations, economics, and complexities of the healthcare system today, which require individuals to take more responsibility for self-care and symptom management, health literacy is becoming an important determinant of health status. Low health literacy may lead to serious negative consequences, such as increased morbidity and mortality, when a person is unable to read and comprehend instructions for medications, follow-up

appointments, diet, procedures, and other regimens. Patients cannot be expected to be adherent, autonomous, and self-directed in navigating the healthcare system if they do not have the ability to follow basic instructions (Bennett et al., 2009; Davis et al., 2006). Further, low health literacy can result in increased healthcare costs due to more emergency department visits, longer hospital stays, and an increase in hospital admissions and readmissions, with the elderly experiencing poorer health status with increased mortality (Chesser et al., 2016; Cutilli, 2018; Palumbo, 2017; Stevens, 2015; Sudore, Yaffe, et al., 2006; USDHHS, 2020a). As an example, Wright et al. (2018) found that low health literacy was associated with an increased hospital length of stay with abdominal surgery patients. It also affects use of preventive services such as mammography and flu vaccination and lessens the likelihood a person will take medications or follow health instructions correctly (Berkman et al., 2011).

Reading, *readability*, and *comprehension* also are terms frequently used when determining levels of literacy. Fisher (1999) defines **reading** or word recognition as "the process of transforming letters into words and being able to pronounce them correctly" (p. 57). Word recognition test scores, which can be misleading because they indicate only a person's ability to *identify* words, not understand them, are usually three grade levels higher than comprehension scores (Fisher, 1999). Hirsch (2001) addresses the public's confusion between reading in the sense of being able to decode words fluently and reading in the sense of being able to comprehend the meaning of words.

Readability is defined as the ease with which written or printed information can be read. It is based on a measure of several different elements within a given text of printed material, such as the level of language being used and the layout and design of the page (Hasselkus, 2009). These variables influence with what degree of success a group of readers will be able to read the style of writing of a selected printed passage.

Comprehension, in comparison, is the degree to which individuals understand what they have read (Fisher, 1999; Koo et al., 2005). It is the ability to grasp the basic meaning of a message—perhaps not to a detailed level, but at least in a general sense. A healthcare professional can determine whether comprehension of health instruction has occurred by noting whether clients are able to demonstrate correctly or recall in their own words the message that was provided (Caplin & Saunders, 2015).

The ability to read does not, by itself, guarantee reading comprehension. Comprehension is affected by the amount, clarity, and complexity of the information presented. If the elements of logic, language, and experience in health instruction are compatible with and culturally appropriate to the clients' background, the message likely will be clear and relevant to them (Doak et al., 1996). Conversely, a mismatch will likely make the message confusing, incomprehensible, and useless to the individual.

Also, comprehension can be significantly affected by learner variables in health status, such as illness, medication, and treatments that can interfere with mental alertness and concentration, or disruptive life situations that may cause stress and anxiety. The ability to take in medical information, store it in memory, and recall it when necessary is influenced by many other factors as well, such as the learner's motivation, energy levels, and visual and auditory acuity; the length of time between information disclosure and the need to remember the information; the nature of the information (how threatening); and the method of presentation (Doak et al., 1996; Doak et al., 1998; Kessels, 2003; Stephenson, 2006; Stevens, 2015).

Readability and comprehension, therefore, are particularly complex activities involving many variables with respect to both the reader and the actual written material. Both are commonly determined by using one or more measurement formulas. See discussions of measurement tools later in this chapter.

Literacy Relative to Oral Instruction

The inability to comprehend the spoken word or oral instruction above the level of understanding simple words, phrases, and slang words should be considered an important element in the definition or assessment of health literacy (Baker, 2006). Most health information can be provided verbally, and many clients prefer to learn in a face-to-face encounter (Morrow et al., 2007). However, oral instruction alone is not a very successful method of teaching. “Written information is better remembered and leads to better treatment adherence” (Kessels, 2003, p. 221).

Doak et al. (1985) address the fact that there is no universally accepted way to test the degree of difficulty with oral language. However, as these authors observe, “It is believed that some of the same characteristics that are critical for written materials will also affect the comprehensibility of spoken language” (p. 40). Much more research needs to be done on “iloralacy,” or the inability to understand oral language, as a generic concept of illiteracy (Hirsch, 2001; Zarcadoolas et al., 2006). Also, with respect to oral literacy, Komesidou and Hogan (2020) explain the important relationship between the development of early language skills and the risk for later reading problems. With specific respect to health literacy, Baker (2006) addresses the critical importance of spoken instructions in relationship to patients’ ability to comprehend health-related information and Nouri and Rudd (2015) found that oral exchange (involving both oral and aural abilities) is an important factor influencing patient health outcomes.

Literacy Relative to Computer Instruction

The literacy issue has traditionally been examined from the standpoint of readability and comprehension of printed materials. The use of computer technology has emerged as an increasingly popular way to present information, making it an important dimension of the literacy issue. To a much greater extent, educators

and consumers are relying on computers as educational tools, transforming the way healthcare information is accessed and shared. Clients who are well educated and career oriented are likely to own a computer and be computer literate. It is important to assess and accommodate those with limited resources, literacy skills, and technological know-how so they are not left behind (Merriam & Bierema, 2014; Zarcadoolas et al., 2006).

Computers not only are used to convey instructional messages, but they also serve as valuable tools for accessing a wide array of additional sources of health information. However, clients may not have the skills necessary to assess the quality and validity of the information they discover. This new concern speaks not only to having skills to operate a computer, which is known as **computer literacy**, but skills to know how to assess the accuracy, reliability, and validity of web sources and apply relevant information to meet their needs, which is known as **information literacy** (Landry, 2015; Merriam & Bierrema, 2014; National Network of Libraries of Medicine, 2017). See Chapter 13 for further information on the use of technology for educational purposes.

The opportunity to expand clients' knowledge base through telecommunications and virtual resources requires nurse educators to attend to computer literacy levels of their audiences. In the same way that they now recognize the negative effects that illiteracy and low literacy have had on restricting the information base of consumers of health care when printed materials are relied upon, nurses must begin to advocate for computer literacy in the public they serve (Duren-Winfield et al., 2015; Moore et al., 2009). Computer software programs can be made suitable for use by learners who have limited literacy skills if these individuals have the basic capacity to access and operate computers and the information is simplified for readability and comprehension (Egbert & Nanna, 2009, Harris et al., 2019; Heath, 2017).

The concept of e-health and informatics has grown globally to encompass use of the internet and other virtual resources, such as

telehealth and electronic health records, for the delivery and organization of care. Patients also are using smartphone applications, text reminders, blogs or online communities, and health websites to manage their health (Landry, 2015). This innovative approach requires that patients have additional skills to communicate with healthcare providers and understand their treatment plan. Thus, electronic health literacy must be an additional concern to the nurse. Norman and Skinner (2006b) define **e-health literacy** as "the ability to seek, find, understand, and appraise health information from electronic sources and apply the knowledge gained to addressing or solving a health problem" (para. 6). These authors draw attention to the knowledge and complex skill set that is often taken for granted when people interact with technology to access and share information. Nurses now must focus their attention on learning and usability issues, whether it be in an acute care setting or at the population health level. E-health tools include digital resources designed to help patients, consumers, and caregivers find health information, store and manage their personal health information, make decisions, and manage their health (CDC, 2019; Harris et al., 2019).

The use of e-health tools and interventions by healthcare professionals and patients appears to hold promise for increasing transparency and expanding both parties' knowledge base. Like health literacy, however, e-health literacy levels are complex and can change based on technological advances. Therefore, undertaking an assessment of not only health literacy but also e-health literacy is an important action the nurse can take to determine whether the use of technology will be useful or detrimental to the client's understanding of health information (Brega et al., 2015; Collins et al., 2012; Neter & Brainin, 2012). Del Giudice et al. (2018) have found a positive correlation between an individual's health literacy and e-health literacy.

Scope and Incidence of the Problem

Illiteracy and low literacy have been termed the “silent epidemic,” the “silent barrier,” the “silent disability,” and “the dirty little secret” (Conlin & Schumann, 2002; Doak & Doak, 1987; Kefalides, 1999). Based on available statistics over the past 30 years, the United States clearly has significant literacy problems. In fact, this country ranked only among the middle of industrialized nations on most measures of adult literacy—yet many of its educators, elected representatives, and social advocates have persistently overlooked this significant problem (Kogut, 2004). At a loss of $2.2 trillion annually, “America’s low literacy crisis is largely ignored, historically underfunded and woefully under-researched, despite being one of the greatest solvable problems of our time” (Barbara Bush Foundation for Family Literacy, 2020, p. 2).

In 1985, the U.S. Department of Education undertook the first national assessment of adult literacy, known as the Young Adult Literacy Survey. Since then, the federal government has conducted two subsequent large-scale assessment surveys (USDHHS, 2003). These two national surveys are described as follows.

The 1992 NALS, considered to be a highly accurate and detailed profile on the condition of English-language literacy in the United States, revealed surprising statistics. NALS researchers interviewed and collected data from a representative sample of 26,000 individuals aged 16 years and older. Based on the findings from an assessment of literacy skills in three areas (prose, document, and quantitative), literacy abilities were categorized into five levels, with Level 1 being the lowest and Level 5 being the highest.

Some 21% to 23% (approximately 40 to 44 million) of the 191 million adults in the country at that time scored in the lowest level of the three skill areas. They were considered functionally illiterate. Another 25% to 28%, or approximately 50 million adults, scored in the Level

2 category; that is, they were considered to have low literacy skills. Thus, the number of adults in the United States who are illiterate or have low literacy was conservatively estimated to be approximately 46% to 51% of the population (or 90 to 94 million in total).

This indicated that roughly half of the U.S. adult population had deficiencies in reading, writing, and math skills (Fisher, 1999; Weiss, 2003). The researchers found that those individuals with low literacy skills (Levels 1 and 2) were disproportionately more often from minority populations, from lower socioeconomic groups, and had poorer health status (Andrus & Roth, 2002; Fisher, 1999; Weiss, 2003).

In 2003, building on the NALS of 10 years earlier, the National Assessment of Adult Literacy (NAAL) became the first study to identify the literacy of America's adults in the 21st century. New, more sensitive instruments were designed to enhance measurement of the literacy abilities of the least literate adults. Most important, this evaluation included a health literacy component to assess adults' understanding of health-related materials and forms (NCES, 2006).

The NAAL categorized literacy skills into four levels, and the findings revealed the following percentages and total numbers: below basic, 14% (30 million); basic, 29% (63 million); intermediate, 44% (95 million); and proficient, 13% (28 million). Of the overall 216 million adults in the U.S. population in 2003, 43% (93 million) fell into the lowest two categories (NCES, 2006).

The average score results indicated no significant change in prose and document literacy and only a slight increase in quantitative literacy between 1992 and 2003. However, a higher proportionate percentage of several population groups, such as those who did not graduate from high school, Hispanics, and those older than 65 years of age, fell into the below basic level of prose literacy (Kutner et al., 2006). The NAAL's Health Literacy Report specifically found that 36% (47 million) of adults had basic or below basic health literacy, and that older adults (65 years and older) had the lowest health literacy levels (Baer et al., 2009; Kutner et al., 2006; NCES, 2006).

For more detailed information on the NAAL survey, visit the NCES website at https://nces.ed.gov/naal/.

In 2004, the Institute of Medicine, the Agency for Healthcare Research and Quality (AHRQ), and the American Medical Association (AMA) issued their own reports on the status of health literacy in the United States. All three reports revealed that as many as 50% of all American adults lack the basic reading and numerical skills essential to function adequately in the healthcare environment (Aldridge, 2004; IOM, 2004; Weiss et al., 2005).

Most recently, competencies of adults from 40 countries, including the United States, were surveyed through the Program for the International Assessment of Adult Competencies (PIAAC), which is supported by the Organisation for Economic Cooperation and Development (OECD). The goal of PIAAC is to assess and compare the basic skills and the broad range of competencies of adults around the world. The assessment focuses on cognitive and workplace skills "needed for successful participation in 21st-century society and the global economy" and assesses literacy, numeracy, and digital problem solving (NCES, n.d.-b, para. 2). In 2012, 2014, and 2017, data were collected from 5,000, 3,660, and 3,660 U.S. participants, respectively, in three waves (NCES, n.d.-b). Literacy was quantified on a scale of 0–500 and categorized into levels (below Level 1, Level 1, Level 2, Level 3, and Level 4/5). In this assessment, those who scored below Level 1, although not considered illiterate, could do no more than enter simple information into a form or locate simple information in a text document to answer a question. In contrast, those at Level 4/5 could find and synthesize information across multiple high-level texts. On the average, American participants scored at Level 2, significantly below the average of seven participating countries; only 14% of American adults scored at Levels 4/5. For numeracy, just 10% of Americans participating scored at the highest Levels 4/5 with the average American participant scoring at Level 2 (NCES, n.d.-a; ProLiteracy, 2020b; Rampey et al., 2016).

The PIAAC also assessed digital problem solving that involved technology, defined as "ability to access and interpret information in digital environments to perform practical tasks" (NCES, n.d.-a., para 5). This area is scored on four levels (below Level 1, Level 1, Level 2, and Level 3). Those below Level 1 have limited technology skills and can solve problems using only one simple technology-related task at a time, whereas those at Level 3 can use multiple technology functions and tools simultaneously while problem solving. In the U.S. sample, only 5% of participants scored at the highest proficiency of Level 3, which was lower than the international average of 8%, and more participants scored at Level 1 or lower (64%), compared to the international average (55%) (ProLiteracy, 2020b; Rampey et al., 2016).

Although this newest measure does not seamlessly translate with those of the past, it demonstrates that the problem of low literacy remains, especially in areas of technology. The PIAAC provides updated international standards on which to track and compare literacy progress not only in the United States but worldwide. The next round of PIAAC assessments is planned for 2021 (NCES, n.d.-b). See Rampey et al. (2016), the NCES (nces.ed.gov/surveys/piaac/), and ProLiteracy (https://www.proliteracy.org/What-We-Do/Advocacy/PIAAC) for more detailed information on findings of the PIAAC. **Box 7-1** lists websites that provide even more information on health literacy.

Box 7-1 Health Literacy Online Resources

- AHRQ Health Literacy Universal Precautions Toolkit: https://www.ahrq.gov/health-literacy/improve/precautions/index.html
- Center for Health Care Strategies, Inc. Health Literacy Fact Sheets: http://www.chcs.org/resource/health-literacy-fact-sheets/
- Centers for Disease Control and Prevention, Health Literacy: https://www.cdc.gov/healthliteracy/
- Centers for Disease Control and Prevention, *Simply Put: A Guide for Creating Easy-to-Understand Materials*:

https://www.cdc.gov/healthliteracy/pdf/simply_put.pdf
- Harvard T.H. Chan School of Public Health, Health Literacy Studies: https://www.hsph.harvard.edu/healthliteracy/
- *Health Literacy and Patient Safety: Help Patients Understand*. (2007). American Medical Association, Chicago. Discusses scope of low health literacy issue and integrates patient case studies (23 minutes): https://www.youtube.com/watch?v=cGtTZ_vxjyA
- Health Literacy Consulting: http://www.healthliteracy.com
- National Center for Education Statistics: https://nces.ed.gov/naal/
- National Center for Education Statistics. What Is PIAAC?: https://nces.ed.gov/surveys/piaac/
- Pfizer Health Literacy: http://www.pfizerhealthliteracy.com
- U.S. Department of Health and Human Services, National Action Plan to Improve Health Literacy: https://health.gov/our-work/health-literacy/national-action-plan-improve-health-literacy

Because of the difficulty inherent in defining and testing literacy, the lack of inclusion of undocumented immigrants in the United States in the national sample populations studied, and the fact that few people with limited reading skills admit to having any difficulty, the scope of the literacy problem is thought to be much greater than the estimates found in formal studies (Doak et al., 1996; Weiss, 2003). The COVID-19 pandemic has highlighted the underestimation of low health literacy not only in the United States but on a global scale (Paakkari & Okan, 2020). Zarocostas (2020) labels the complex, contradictory, and false information about the pandemic as an **infodemic**—a global pandemic of misinformation spreading rapidly via social media platforms—that is hindering the World Health Organization's efforts, as well as those of individual nations, to slow the spread of the virus. The infodemic has seriously interfered with people being able to "acquire, understand, and use this information in a sound and ethical manner—ie, to be health literate" (Paakkari & Okan, 2020, p. e249).

Limited literacy in general, and low health literacy in particular, lead to poor health outcomes. In fact, literacy skills are “a stronger predictor of an individual’s health status than income, employment status, education level, and racial or ethnic group” (Weiss, 2007, p. 13). Individuals with limited literacy skills are less knowledgeable about their health problems and have higher hospitalization rates, more emergency department visits, higher healthcare costs, less healthy behaviors, and poorer health status (Berkman et al., 2011; Cutilli et al., 2018; Eichler et al., 2009; Weiss, 2007; Weiss et al., 2005; Wright et al., 2018). For example, McNaughton et al. (2015) found that acute heart failure patients with low health literacy scores were at higher risk for death after hospital discharge.

The rates of illiteracy and low literacy generally and the low rates of health literacy particularly continue to pose a major threat to many segments of society. This problem is expected to grow worse because of the many trends, such as an increase in poverty, aging of the population, increasing amount and complexity of information, and increasing sophistication of technology, that are operating in the United States and worldwide unless specific measures are taken to curb the tide. To be literate 100 years ago meant that people could read and write their own name. Today, being literate means that one can learn new skills, think critically, solve problems, and apply general knowledge to various situations (Weiss, 2003).

Those at Risk

Illiteracy has been described as an invisible, silent disability that knows no boundaries and exists among persons of every race and ethnic background, socioeconomic class, and age category (Parnell, 2015; Weiss, 2003). It is true, however, that illiteracy and low literacy are rare in the higher socioeconomic classes, for example, and that certain segments of the U.S. population are more likely to be affected than others by lack of literacy skills. With respect to health literacy, it also is true that limited health literacy is more prevalent among those who are elderly, of racial and ethnic minority, and of lower socioeconomic status (Rikard et al., 2016).

Multiple research studies (Cole, 2000; Hayes, 2000; Kogut, 2004; Montalto & Spiegler, 2001; Sainato, 2017; Schillinger et al., 2002; Smith et al., 2015; Weiss, 2007; Winslow, 2001) show that the following populations have been identified as having lower reading and comprehension skills than the average American:

- Those who are economically disadvantaged
- Older adults
- Immigrants, particularly those who are undocumented/unauthorized
- Those with English as a second language
- Racial minorities
- Those who did not complete high school
- Those who are unemployed
- Those who are incarcerated
- Inner-city and rural residents
- Those with poor health status resulting from chronic mental and physical problems
- Those on Medicaid

Of course, not every member of an at-risk population suffers from low literacy. Further, some people do not fall into an “at risk” category

yet still lack literacy skills (Baur, 2011; Weiss, 2007).

With respect to demographics, statistics indicate that 38.1 million Americans are presently living in poverty (Semega et al., 2019) and that nearly half (43%) of all adults with low literacy live in poverty (ProLiteracy, 2020a). Although those who are disadvantaged represent many diverse cultural and ethnic groups, including millions of non-Hispanic White Americans who live in poverty, a larger percentage of minorities fall into the disadvantaged category when compared to their White counterparts (Kaiser Family Foundation, 2019).

In the 21st century, the major growth in the U.S. population is predicted to come from the ranks of minority groups. By 2045, over 50% of the people in the United States are projected to belong to a racial or ethnic minority, and one in five will be foreign born (Frey, 2018). The U.S. Census Bureau (2019) reported that population estimates show a much more diverse nation with almost 45 million immigrants (13.7%) residing in this country, more than quadruple the number in 1965 (Budiman, 2020). Of the 1,000 community-based adult literacy programs supported by ProLiteracy, 89% teach English as a second language (ESL; M. Diecuch, personal communication, October 22, 2020). Nurse educators must recognize how these demographic changes will affect the way in which services need to be rendered, educational materials need to be developed, and information needs to be marketed (Parnell, 2015).

Many minority and economically disadvantaged people, as well as the prison population—which has the highest concentration of adult illiteracy (Sainato, 2017)—are not usually the beneficiaries of mainstream health education activities, which often fail to reach them. They may not be active seekers of health information because English often is not their primary language and most printed education materials are written in English. However, verbal skills and fluency in another language do not guarantee that the individual has functional literacy even in that native language (Horner et al., 2000). Thus, when providing written materials in someone's native

language, one should not assume that they can read the information. Whether English-speaking or native language-speaking, when functionally illiterate or low literate individuals need medical care, they tend to require more resources, have longer hospital stays, and have a greater number of readmissions (Levy & Royne, 2009; Weiss, 2007). The challenge now and in the future will be to find improved ways of communicating with marginalized population groups and to develop innovative strategies in the delivery of quality health care to them.

Due to the high rate of low health literacy in the older adult population in the United States, they are at risk for undesirable health outcomes, such as increased mortality, decreased physical and cognitive functioning, worse mental health, less preventive care, and less health-promoting behaviors (Cutilli, 2007, Cutilli et al., 2018). In fact, older age "is one of the highest correlates of low health literacy" (Chesser et al., 2016, p.1). This is a significant concern because older adults often have increased needs for health information and health services to maintain or improve their health and well-being (Kobayashi et al., 2015). Also, the number of older adults is rapidly growing. Individuals 65 years or older currently constitute approximately 52.4 million of the U.S. population, but by 2060, their number will increase to approximately 94.7 million Americans, nearly doubling in size. Those aged 85 and older make up the fastest-growing segment of the population in the country today, and that segment is expected to see a 123% increase to approximately 14.4 million people by 2040 (USDHHS, 2019). Children born today can expect to live to an average age of at least 80 years (Crandell et al., 2019). Thus, it is likely that a greater overall number of older adults will have problems with functional literacy and health literacy (Kobayashi et al., 2015).

With respect to educational level, in 1960 only 20% of older people were high school graduates; in 2019, 88% were educated at the high school level (USDHHS, 2019). Thus, members of the older population will be more educated and demand more services as time goes on. Although these statistical trends indicate the U.S.

population will include a more highly educated group of older adults in the future, the information explosion and rapid technological advances may cause them to fall behind relative to future standards of education. Today, the illiteracy problem in older adults is caused by the fact that not only did these individuals have less education in the past, but their reading skills also have declined over time because of disuse. If a person does not use a skill, they lose that skill, and reading ability can deteriorate over time if not exercised regularly (Hanemann, 2015; Lane & Murray, 2019; National Endowment for the Arts, 2007).

In addition, cognition and some types of intellectual functioning are affected by aging (Crandell et al., 2019; Kessels, 2003; Santrock, 2019). A significant number of older people have some degree of cognitive changes and sensory impairments, such as vision and hearing loss. On the average, 28% of people age 65 and 38% of those older than 75 years of age have serious hearing impairment; women fare better than men in this regard (Crandell et al., 2019). Along with these normal physiological changes, many older adults suffer from chronic diseases, and large numbers are taking prescribed medications. These conditions can interfere with the ability to learn or can negatively affect thought processes, which contributes to the high incidence of illiteracy and low health literacy in this population group (CDC, 2019; Kobayashi et al., 2015; Nguyen et al., 2013; Sequeira et al., 2013; Sudore, Yaffe et al., 2006).

Beyond the issue of prevalence, illiteracy presents unique psychosocial problems for the older adult. Because older persons tend to process information more slowly than do young adults, they may become more easily frustrated in a learning situation (Crandell et al., 2019; Kessels, 2003). Furthermore, many older individuals may have developed ways to compensate for missing skills through their support network. For many, lifelong routines and coping strategies have developed into set behavior patterns, such that they may now lack the motivation to improve their literacy skills (Strough et al., 2015). Today and in the years to come, nurses involved with

providing health education will be challenged to overcome these obstacles to learning in the older adult.

Cultural diversity, although not considered to be directly related to illiteracy, may also serve as a barrier to effective client education. According to the NAAL's 2003 statistics, most adults with illiteracy problems in the United States are non-Hispanic White, native-born, English-speaking individuals (NCES, 2006). However, when examining the proportion of the population that has limited literacy skills, minority ethnic groups are at a disproportionately higher risk (Andrus & Roth, 2002).

When healthcare providers communicate with clients from cultures different from their own, it is important for them to be aware that their clients may not be fluent in English. Furthermore, even if people speak the English language, the meanings of words and their understanding of facts may vary significantly based on life experiences, family background, and culture of origin, especially if English is the client's second language (Purnell, 2020). In conversation, an individual must be able to understand undertones, voice intonations, and the context (slang, terminology, or customs) in which the message is being delivered.

Educators must be aware of these potential barriers to communication when interacting with clients from other cultures whose literacy and health literacy skills may be limited (El-Toukhy, 2018). Given the increasing diversity of the U.S. population, most currently available written materials are considered inadequate based on the literacy levels of minority groups and the fact that many PEMs are available only in English or Spanish. Pérez-Stable and El-Toukhy (2018) found that health disparities can be decreased, and that health equity is promoted by effective patient-clinician communication when working with members of racial and ethnic minorities.

Thus, individuals with less education, whose number often includes persons with low economic status, older adults, racial minorities, and people for whom English is a second language, are likely to have

more difficulty with reading and comprehending written materials as well as with understanding oral instruction (Baker, 2006; Winslow, 2001). This profile is not intended to stereotype people who are illiterate or low literate but rather to give a broad picture of who most likely lacks literacy skills. When carrying out assessments on their patient populations, it is essential that nurses and other healthcare providers be aware of those susceptible to having literacy problems, while remaining conscious of the pitfalls of labeling or stereotyping their individual patients.

Myths, Stereotypes, and Assumptions

Rarely do people voluntarily admit that they are illiterate. Illiteracy carries a stigma that creates feelings of shame, inadequacy, fear, and low self-esteem (Block & Peñaloza, 2018; McCune et al., 2016; Paasche-Orlow & Wolf, 2007b; Weiss, 2007; Wolf et al., 2007). Most individuals with limited literacy skills have learned that it is dangerous to reveal their illiteracy because of fear that others such as family, strangers, friends, or employers would consider them less intelligent or incapable of functioning responsibly. In fact, the majority of people with literacy problems have never told their spouse or children of their lack of literacy skills (Block & Peñaloza, 2018; Lattier, 2015; Quirk, 2000).

People also tend to underreport their limited reading abilities because of embarrassment or lack of insight about the extent of their limitation. The NALS report revealed that most adults performing at the two lowest levels of literacy skill describe themselves as proficient in being able to read and/or write English (AMA, 1999). Because self-reporting is so unreliable and because illiteracy and low literacy are so common, many experts suggest that all patients should be screened to identify those who have reading difficulty to determine the extent of their impairment (Lee et al., 2013; Safeer & Keenan, 2005; Weiss, 2007; Weiss et al., 2005). Nurses must recognize that many patients would approach such testing reluctantly and be fearful of having their literacy report recorded in their health record (Paasche-Orlow & Wolf, 2007b; Wolf et al., 2007).

Most people with limited literacy abilities are masters at concealment. Typically, they are ashamed of their limitation and attempt to hide the problem in clever ways. Often, they are resourceful and intelligent about trying to conceal their illiteracy and have developed remarkable memories to help them cope with family and career situations (Davis, 2018; Doak et al., 1996; Easton et al., 2013; Lattier, 2015). Many have discovered ways to function quite

well in society without being able to read by memorizing signs and instructions, making intelligent guesses, or finding employment opportunities that are not heavily dependent on reading and writing skills.

An important thing to remember is that many myths about illiteracy exist. It is very easy for healthcare providers to fall into the trap of labeling someone as illiterate or, for that matter, assuming they are literate based on stereotypical images. Some of the most common myths about people who struggle with literacy skills are outlined in **Table 7-2** (Andrus & Roth, 2002; Doak et al., 1996; Weiss, 2007; Williams et al., 2002; Winslow, 2001).

Table 7-2 Myths and Truths About Those Who Struggle With Literacy

Myth	Truth
They are intellectually slow learners or incapable of learning at all.	Many have average or above-average IQs.
They can be recognized by their appearance.	Appearance alone is an unreliable basis for judgment; some very articulate, well-dressed people have no visible signs of a literacy disability.
The number of years of schooling completed correlates with literacy skills.	Grade-level achievement does not correspond well to reading ability. The number of years of schooling completed overestimates reading levels by four to five grade levels.

Myth	Truth
Most are foreign born, have low income, and belong to an ethnic or racial minority.	They come from very diverse backgrounds and the majority are non-Hispanic White, native-born Americans.
Most will freely admit that they do not know how to read or do not understand.	Most try to hide their reading deficiencies and will go to great lengths to avoid discovery, even when directly asked about their possible limitations.

Assessment: Clues to Look For

Thus, the question remains: How does one recognize an illiterate person? Identifying illiteracy is not easy because there is no stereotypical pattern. This impairment is easily overlooked because illiteracy is not visible and affects people of all ages, socioeconomic levels, and nationalities (Cole, 2000; Hayes, 2000; USDHHS, 2010).

Nurses, because of their role with healthcare consumers, are in an ideal position to determine the literacy levels of individuals (Cawthon et al., 2015; Cornett, 2009; Cutilli, 2005; Monsivais & Reynolds, 2003). Because of the prevalence of illiteracy, nurses must never assume that a client is literate. Knowing a person's ability to read and comprehend is critical in providing teaching–learning encounters that are beneficial, efficient, and cost effective. One potential source of help in assessing patients is the feasibility of incorporating health literacy screening into the electronic health record (EHR) (Sand-Jecklin et al., 2016).

Nurses need to watch for informal clues or red flags that indicate reading and writing deficiencies. A caveat applies, however: *Do not rely on the obvious, but look for the unexpected*. In so many instances when someone does not fit the stereotypical image, nurses and other health professionals have never even considered the possibility that an illiteracy problem exists. In fact, they tend to overestimate patients' literacy skills. Instead, nurses should assume that all patients and their families have difficulty understanding health information and should take a "universal precautions" approach to meeting patients' health literacy needs (Wittenberg et al., 2018). In other words, "we must close the gap between what health care professionals know and what the rest of America understands" (Dr. Richard Carmona as cited in Agency for Healthcare Research and Quality [AHRQ], 2015a, slide 6).

Overlooking the problem has the potential for grave consequences in treatment outcomes and has resulted in frustration for both patients and caregivers (Cawthon et al., 2015; Cole, 2000; USDHHS, 2020a; Weiss, 2007). Unfortunately, healthcare providers are often hesitant to infer that a patient may have low literacy skills because there is an implication of personal inadequacy associated with the failure to have learned to read (Quirk, 2000). If healthcare providers become aware of a client's literacy problem, they must convey sensitivity and maintain confidentiality to prevent increased feelings of shame (Quirk, 2000).

During assessment, the nurse educator should take note of the following clues that patients with illiteracy or low literacy may demonstrate (Andrus & Roth, 2002; Carol, 2007; Davis et al., 1998; Literacy Foundation, n.d.; Weiss, 2007):

- Reacting to complex learning situations by withdrawal, complete avoidance, or being repeatedly nonadherent
- Using the excuse that they were too busy, too tired, too sick, or too sedated with medication to maintain their attention span when given a booklet or instruction sheet to read
- Claiming that they just did not feel like reading, that they gave the information to their spouse to take home, or that they lost, forgot, or broke their glasses
- Camouflaging their problem by surrounding themselves with books, magazines, and newspapers to give the impression they can read
- Circumventing their inability by insisting on taking the information home to read or having a family member or friend with them when written information is presented
- Asking you to read the information for them under the guise that their eyes are bothersome, they lack interest, or they do not have the energy to devote to the task of learning
- Showing nervousness because of feeling stressed by the possibility of getting caught or having to confess to illiteracy
- Acting confused, talking out of context, holding reading materials upside down, or expressing thoughts that may seem

totally irrelevant to the topic of conversation
- Showing a great deal of frustration and restlessness when attempting to read, often mouthing words aloud (vocalization) or silently (subvocalization), substituting words they cannot decipher (decode) with meaningless words, pointing to words or phrases on a page, or exhibiting facial signs of bewilderment or defeat
- Standing in a location clearly designated for authorized personnel only
- Listening and watching very attentively to observe and memorize how things work
- Demonstrating difficulty with following instructions about relatively simple activities such as breathing exercises or operating the TV, electric bed, call light, and other simple equipment, even when the operating instructions are clearly printed on them
- Failing to ask any questions about the information they received
- Turning in registration forms or health questionnaires that are incomplete, illegible, or not attempted
- Revealing a discrepancy between what is understood by listening and what is understood by reading
- Missing appointments or failing to follow up with referrals
- Not taking medications as prescribed or being otherwise nonadherent
- Presents handwritten materials such as a bill or note with several spelling errors

In summary, although it has been clearly pointed out that the level of completed formal education is an inaccurate presumption by which to predict reading level, it is certainly one estimate that nurses should incorporate into their methods of assessment. Also, negative feedback and clues from the client in the form of puzzled looks, inappropriate behaviors, excuses, or irrelevant statements may give the nurse the intuitive feeling that the message being communicated has neither been received nor understood. Not only do illiterate people become confused and frustrated in their attempts to deal with the complex system of health care, which is so dependent on written

and verbal information, but they also become stressed in their efforts to cover up their disability.

Nurses, in turn, can feel frustrated when persons who have undiagnosed literacy problems seem at face value to be unmotivated and nonadherent in following self-care instructions. Many times, nurses wonder why patients make caregiving so difficult for themselves as well as for the provider. It is not unusual for nurses to conclude, “He’s too proud to take anyone’s advice,” “She’s in denial,” or “He’s just being stubborn—it’s a control issue.”

Nurses in their role as educators must go beyond their own assumptions, look beyond a patient’s appearance and behavior, and seek out the less than obvious by conducting a thorough initial assessment of variables to uncover the possibility that a literacy problem exists. An awareness of this possibility and good skills at observation are key to diagnosing illiteracy or low literacy in learners. Early diagnosis enables nurses to intervene appropriately to avoid disservice to those who do not need condemnation but rather support and encouragement.

Impact of Illiteracy on Motivation and Adherence

In addition to the fact that low literacy affects the ability to read as well as to understand and interpret the meaning of written and verbal instructions, a person with illiteracy or low literacy may struggle with other significant interrelated limitations with communication that can negatively influence healthcare teaching (Doak et al., 1998; Vágvölgyi et al., 2016). The person's organization of thought, perception, vocabulary and language/fluency development, memory, and problem-solving skills can be adversely affected, too (Giorgianni, 1998; Huettig & Mishra, 2014; National Network of Libraries of Medicine, 2017).

Vágvölgyi et al. (2016) conducted a comprehensive review of the literature to define what it means to be functionally illiterate and to uncover answers to questions about deficits in abilities, such as sensory, cognitive, and neurological, of those identified with one or more causes of illiteracy. Huettig and Mishra (2014) explored how illiteracy and literacy affect the human mind with respect to cognitive processing and brain functioning. These two groups of researchers found that among the functionally illiterate, the most common deficiencies found were in phonics, comprehension, and perception. Difficulties in perception were evident in reversing letters and words, miscalling letters, and adding and omitting letters. Also, a major problem was comprehension—that is, identification of words without knowing their meaning. Some individuals needed to read aloud to understand, and others read so slowly that they lost the meaning of a paragraph before they had finished it. Still other subjects perceived difficulty in remembering as a factor in their lack of reading skill.

People with limited reading skills often have difficulty analyzing instructions, assimilating and correlating new information, and formulating questions (Giorgianni, 1998; Katz et al., 2007; Koster et al., 2018; National Patient Safety Foundation, 2016). They may be

reluctant to ask questions because of concerns that their inquiries will be regarded as incomprehensible or irrelevant. Frequently they do not even know what to ask, but they fear if they try, others will think of them as ignorant or lacking in intelligence. These individuals have great difficulty navigating the healthcare delivery system, which relies on written information and printed forms at every juncture. Studies have shown that Health Insurance Portability and Accountability Act (HIPAA) privacy notices, informed consent forms, drug warning labels, and insurance forms all present obstacles for individuals with limited reading skills (Davis et al., 2006; McCormack et al., 2009; Sudore, Landefeld et al., 2006; Walfish & Ducey, 2007).

Most nurses can recount a situation in which a patient was nonadherent with a prescribed medication regimen due to not understanding the instructions that were given; research has connected low literacy with lack of medication adherence (Chopra, 2020). Hussey and Guilliland (1989) provide a poignant example, which remains as relevant today as it was then, of a young pregnant girl prescribed antiemetic suppositories to control her nausea. When she had no relief of symptoms, questioning by the nurse revealed that she was swallowing the medication. Obviously, not only did she not understand how to take the medicine, but she also likely had never seen a suppository and was not even able to read or understand the word. She did not ask what it was, probably because she did not know what to ask in the first place, and she may have been reluctant to question the treatment out of fear that she would be regarded as ignorant.

If their past experiences with learning have been less than positive, some people may prefer not knowing the answers to questions and may withdraw altogether to avoid awkward or embarrassing learning situations. Also, they may react to complicated, fast-paced instruction with discouragement, feelings of low self-esteem, and refusal to participate because they perceive their own process of interpretation to be “too slow” compared to the nurse’s apparent expectations. Even when questioned about their understanding, persons with low literacy skills will most likely claim that they

understood the information even when they did not (Doak et al., 1996).

Another characteristic of illiterate individuals is that they have difficulty synthesizing information in a way that fits into their behavior patterns. If they are unable to comprehend a required behavior change or cannot understand why it is needed, they will disregard any health teaching (Vanderhoff, 2005; Weiss, 2007). For example, patients recovering from fractured hips who are taught via demonstration and written instructions how to climb stairs and how to do strengthening exercises may fail to adhere to this regimen because of lack of understanding of the information and ways to go about incorporating these changes into their lifestyle (Schultz, 2002).

Persons with limited literacy skills may also think in only concrete, specific, and literal terms. An example of this limitation is the patient with diabetes whose glucose levels were out of control despite his insistence that he was taking his insulin as instructed—because the use of an orange as a demonstration tool for injection training gave the patient the mistaken impression that he should inject insulin into an orange and then eat the fruit (Hussey & Guilliland, 1989).

The person with limited literacy also may experience difficulties handling large amounts of information and classifying it into categories. Particularly, older adults who need to take several different medications at various times and in different dosages may either become confused with the schedule or ignore the instruction. If asked to change their daily medication routine, a great deal of retraining may be needed to convince them of the benefits of the new regimen (Kessels, 2003; MacLeod et al., 2017). A meta-analysis by Miller (2016) demonstrated the importance of health literacy, especially in vulnerable patient groups, such as low-income populations and racial/ethnic minorities.

Another major factor in nonadherence is the lack of adequate and specific instructions about prescribed treatment regimens. Unfortunately, low literacy skills are seldom assessed by healthcare personnel when, for example, teaching a patient about medications

(Sawkin et al., 2015). Literacy problems tend to limit the patient's ability to understand the array of instructions regarding medication labels, dosage scheduling, adverse reactions, drug interactions, and complications (Chopra, 2020; Davis et al., 2006; Mauk, 2018; Wong, 2016). No wonder those who lack the required vocabulary, organized thinking skills, and ability to formulate questions, and who also receive inadequate instruction, become confused and easily frustrated to the point of taking medications incorrectly or refusing to take them at all.

Thus illiteracy, functional illiteracy, and low literacy significantly affect both motivation and adherence levels. What is often mistaken for intentional nonadherence is, instead, the simple inability to adhere (AHRQ, 2015a). Although almost half of the adult population is functionally illiterate, this statistic is overlooked by many healthcare professionals as a major factor in nonadherence with prescribed regimens, follow-up appointments, and measures to prevent medical complications (Andrus & Roth, 2002; Doak et al., 1996; McCray, 2005; Weiss, 2007; Williams et al., 2002).

A significant number of studies have correlated literacy levels with nonadherence (Brown & Bussell, 2011; Chopra, 2020; Doak et al., 1998; Jin et al., 2008; Quan, 2016; Weiss, 2007). Individuals who have both limited literacy skills and inadequate language skills often have difficulty following instructions and providing accurate and complete health histories, which are vital to the delivery of good health care. The burden of illiteracy leads patients into nonadherence not because they do not want to adhere, but rather because they are unable to do so (Easton et al., 2013; Hayes, 2000; Quan, 2016).

The impact of illiteracy is broader than just the inability to read; it alters the way a person organizes, interprets, analyzes, and summarizes information (Giorgianni, 1998). Caregivers often overestimate an individual's ability to understand instructions and are quick to label someone as "uncooperative" and "noncompliant." In reality, the underlying problem may be limited cognitive processing

that impedes comprehending and following written and oral communication (Vágvölgyi, 2016).

Ethical, Financial, and Legal Concerns

Sources of PEMs include healthcare facilities, commercial vendors, government services, voluntary health agencies, nonprofit charitable organizations, pharmaceutical firms, and medical equipment supply companies. These materials are distributed primarily by nurses and other health professionals and are the major sources of information for clients participating in health programs in many settings.

Written health information materials are intended to reinforce learning about health promotion, disease prevention, illness management, diagnostic procedures, drug and treatment modalities, rehabilitative course, and self-care regimens. Unfortunately, many of these sources fail to account for the educational level, preexisting knowledge base, cultural influences, language barriers, or socioeconomic backgrounds of persons with limited literacy skills (Deupree, 2017).

It is estimated that the total impact of low health literacy on the U.S. economy is as much as $236 billion each year (Center for Health Care Strategies, 2013). A systematic review done by Eichler et al. (2009) determined that a higher expenditure of financial resources is associated with low health literacy on both institutional and individual levels. Low health literacy can account for 3% to 5% of healthcare costs, and individuals with low health literacy incur additional charges from health service use. Older adults and minorities—specifically those who have English as a second language—are especially vulnerable to low health literacy, which ultimately translates into higher healthcare costs for these groups (Levy & Royne, 2009).

Unless patients are competent in reading and comprehending the literature given to them, these instructional tools are useless as adjuncts for health education. They are neither a cost-effective nor a time-efficient means for teaching and learning. Materials that are

widely distributed, but little or not at all understood, pose not only a health hazard for clients but also an ethical, financial, and legal liability for healthcare providers (Agarwal et al., 2015; Gazmararian et al., 2005; Ryhanen et al., 2008; Vallance et al., 2008; Weiss et al., 2007).

Materials that are too difficult to read or comprehend serve little purpose. Health education cannot be considered to have taken place if the written information that has been distributed to clients does not enhance their knowledge and requisite skills necessary for self-care. Ultimately, indiscriminate, inconsistent, or nonselective use of PEMs can result in complete or partial lack of communication between healthcare providers and consumers, leaving patients to feel as if they are on their own in finding clear information to manage their condition (Andrus & Roth, 2002; Maneze et al., 2019; Villaire & Mayer, 2007; Weiss, 2007, 2014; Winslow, 2001).

Initial standards for health education were put forth in 1993 by The Joint Commission on Accreditation of Healthcare Organizations—now known as The Joint Commission. Many of their current standards address health literacy as a component and require that patients and families receive information necessary for their care in a language and form that is best for their learning (Cordero, 2018).

Emphasis on such standards has prompted healthcare agencies and providers to reexamine their teaching practices, educational materials, and systems of documenting evidence of teaching interventions to better match the reading levels and cultural diversity of the clients being served. Current Joint Commission standards further specify that education relevant to a person's healthcare needs must be understandable and culturally appropriate to the patient and/or significant others. Therefore, PEMs must be written in ways that are culturally relevant and assist clients in comprehending their health needs and problems to undertake self-care regimens involving elements such as medications, diet, exercise therapies, and use of medical equipment. Using the patient's preferred language is optimal (Cordero, 2018; Weiss, 2007).

Furthermore, the federally mandated Patient's Bill of Rights has established the rights of patients to receive complete and current information regarding their diagnoses, treatments, and prognoses in terms they can understand (USDHHS, n.d.-b). It is imperative that the reading levels of PEMs match the patients' reading abilities and vice versa. Compounding the need for appropriately written materials is the fact that people forget almost immediately at least half of any instruction they receive orally (Parnell, 2015). Failure to retain information combined with inappropriate reading levels of materials used to reinforce or supplement verbal teaching methods decreases adherence, increases morbidity, and results in misuse of healthcare facilities (Weiss et al., 2005).

Encouraging self-care through client education for purposes of health promotion, disease prevention, health maintenance, and rehabilitation is not a new concept to either consumers or providers of health care. However, the trends in the current healthcare system in the United States have hindered the professional ability of nurses to provide needed information to ensure self-care that is both safe and effective. Patient education has assumed an even more vital role in assisting clients to independently manage their own healthcare needs given the following factors:

- Early discharge
- Decreased reimbursement for direct care
- Increased emphasis on delivery of care in the community and home setting
- Greater demands on nursing personnel in all settings
- Increased technological complexity of treatment
- Assumption by caregivers that printed information is an adequate substitute for direct instruction of patients

These constraints do not allow sufficient opportunities for patients in the home or various healthcare settings to receive the necessary education they need for self-management. Most outpatient care, such as that given in clinics, physician and other health professional offices, and same-day surgery centers, requires patients and their

families to understand both written and oral instructions (Weiss et al., 2005). Consequently, professional nurses are relying more than ever before on PEMs to supplement their teaching (Horner et al., 2000; Vanderhoff, 2005).

Thus, the burden of becoming adequately educated falls on the shoulders of patients, their families, and significant others. Often unprepared because of shortened hospital stays or limited contact with healthcare providers, consumers are being asked to assume a greater role in their own recovery and the maximization of their health potential (Parnell, 2015; Weiss, 2003).

It is only recently that research on written health education materials in relation to clients' literacy skills has examined and attempted to answer even the most basic questions, such as the following:

- Do consumers read the health education literature provided to them?
- Are they capable of reading it?
- Can they comprehend what they read?
- Are written materials appropriate and sufficient for the intended target audience?

In this increasingly litigious and ethically conscious society, growing attention is being paid by health professionals to informed consent and teaching for self-care via both verbal and written healthcare instruction (Gazmararian et al., 2005). The potential for misinterpretation of instructions not only can adversely affect treatment but also raises serious concerns about the ethical and legal implications with respect to professional responsibility and liability when information is written at a level incomprehensible to many patients (Weiss, 2007, 2014). A properly informed consumer is not only a legal concern in health care today but an ethical one as well.

Readability of Printed Education Materials

Many studies on literacy have attempted to document the disparity between the reading levels of consumers and the estimated readability demand of printed health information. Given that the health of people depends in part on their ability to understand information contained in food labeling, over-the-counter and prescription medication instructions, environmental safety warnings, discharge instructions, health promotion and disease prevention flyers, and the like, the focus of attention on identifying this discrepancy is more than warranted.

A substantial body of evidence in the literature indicates that a significant gap exists between patients' reading and comprehension levels and the level of reading difficulty of PEMs (Agarwal et al., 2015; Andrus & Roth, 2002; Eltorai et al., 2014; Lipari et al., 2019; McClure et al., 2016; Ryan et al., 2014; Vallance et al., 2008; Weiss, 2007; Wilson, 2009; Winslow, 2001). A variety of education materials available from sources such as health agencies, professional associations, health insurance companies, and industries are written beyond the reading ability of many clients.

Healthcare providers are beginning to recognize that the reams of written materials many of them rely on to convey health information to consumers are essentially closed to those with illiteracy and low literacy problems. For example, look at the following text on information about colonoscopy:

Your naicisyhp has dednemmocer that you have a ypocsonoloc. A ypocsonoloc is a test for noloc recnac. It sevlovni gnitresni a elbixelf gniweiv epocs into your mutcer. You must drink a laiceps diuqil the thgin erofeb the noitanimaxe to naelc out your noloc.

Does this passage make sense, or are you confused? If the words appear unreadable, that is what written teaching instructions may look like to someone who cannot read (Weiss, 2003).

Many researchers have assessed specific population groups in a variety of healthcare settings based on the ability of clients to meet the literacy demands of written materials related to their care. These investigators used commonly accepted readability formulas to test consumers' understanding of printed health information. Their findings revealed the following information:

- Emergency department instructional materials are written at a level of difficulty out of the readable range for most patients (Ginde et al., 2008; Lerner et al., 2000; McCarthy et al., 2012; Sheikh et al., 2018).
- A significant mismatch exists between the reading ability of older adults and the readability levels of documents essential to their gaining access to health-related services offered through local, state, and federal government programs (McGee, 2010; Sudore & Schillinger, 2009; Winslow, 2001).
- A large discrepancy exists between clients' average reading comprehension levels and the readability demand of PEMs used in ambulatory care and home care settings (Ache, 2009; Lerner et al., 2000; Schillinger et al., 2002; Walfish & Ducey, 2007; Williams et al., 2016).
- Standard consent forms used in hospitals, private physician offices, and clinics, as well as by institutional review boards (IRBs) to protect potential research subjects, require high school–to college-level reading comprehension (Eltorai et al., 2015; Gladue, 2014; Hadden et al., 2017; Muir & Lee, 2009; Paasche-Orlow et al., 2003; Sudore, Landefeld, et al., 2006).
- Physicians' letters to their patients required an average of 16th- to 17th-grade reading ability; likewise, health articles in newspapers ranged from 12th- to 14th-grade level (Conlin & Schumann, 2002; Wasike, 2016).
- The reading grade levels of 15 psychotropic medication handouts for patient education ranged from 12th to 14th grade,

well above the fifth-grade level recommended by the National Cancer Institute guidelines (Myers & Shepard-White, 2004).
- Sixteen different patient education materials publicly available on the American Association for Surgery of Trauma website were evaluated for readability. Researchers found the reading level of available materials ranged from grades 9.1 to 12.7, well over the recommended reading grade level for those with low literacy (Eltorai et al., 2014).
- An evaluation of 13 publicly available patient education materials for sickle cell disease fell between the 8th- and 12th-grade reading level, which is above the ability of the target audience (McClure et al., 2016).
- Sixty-one online sources of health information about COVID-19 were assessed for readability. All scored higher than a sixth-grade reading level (Szmuda et al., 2020).

As these examples demonstrate, numerous investigators have discovered that PEMs used to disseminate health information are written at grade levels that far exceed the reading ability of the majority of consumers. Results from these studies reveal that most health education literature is written above the eighth-grade level, with the average level falling between the 10th and 12th grades. Many PEMs exceed this upper range, even though the average reading level of adults falls at the eighth-grade level. Millions of people in the population read at considerably lower levels and need materials written at the fifth-grade level or lower (Brega et al., 2015; ProLiteracy, 2020a).

Furthermore, the health education literature indicates that people typically read at least two grade levels below their highest level of schooling and prefer materials that are written below their literacy abilities. In fact, contrary to popular belief, sophisticated readers find simplified PEMs acceptable and prefer them when ill because of low energy and concentration levels, and even when well because of the demands of their busy schedules and the fact that even highly educated people do not know the vocabulary of medicine, known as

medicalese (Giorgianni, 1998; Meppelink et al., 2015; Winslow, 2001).

The conclusion to be drawn is that complex and lengthy PEMs serve no useful teaching purpose if healthcare consumers are unable to understand them or unwilling to read them. Literacy levels of clients compared with literacy demands of PEMs, whether in hospital or community-based settings, are an important factor in poor health outcomes of those who are recipients of healthcare services.

Measurement Tools to Test Literacy Levels

Healthcare professionals continually struggle with the task of effectively communicating highly complex and technical information to their consumers, who often lack sufficient background knowledge to understand the sophisticated content of instruction relevant to their care. Whether they author or merely distribute printed education information, nurses and other healthcare practitioners are responsible for ensuring the appropriate literacy level of the materials given to their clients.

If the literacy level of education materials matches the readers' literacy skills, consumers may be better able to understand and adhere to healthcare regimens, thereby reducing the costs of care and improving their quality of life (AHRQ, 2015a; AMA, 1999; Weiss, 2014). Because nurses rely heavily on PEMs to convey necessary information to their clients, the usefulness and efficacy of these materials must be determined in relation to the readers' abilities to decipher information.

To objectively evaluate the difficulty of written materials, two basic measurement methods exist: formulas and tests. Various formulas measure readability of PEMs and are based on ascertaining the average length of sentences and words (vocabulary difficulty) to determine the grade level at which they are written. Standardized tests, which measure actual comprehension and reading skills, involve readers' responses to instructional materials or the ability to decode and pronounce words to determine their grade level (see Appendix A).

Both methods, although not ideal, are considered to have a sufficient relationship to literacy ability to justify their use. The most widely used readability formulas and standardized tests for comprehension and reading skill rate high on reliability and predictive validity. They

also do not require elaborate training to use, although they do vary in the amount of time required to administer them. In addition, the advent of computerized readability analysis (nearly all word-processing programs, such as Microsoft Word, will produce readability statistics as a standard feature) has made evaluating the reading grade level of written materials much easier, quicker, and more accurate. These methods are most useful to nurse educators for designing and evaluating PEMs.

Formulas to Measure Readability of Printed Education Materials

Readability is not a new concept but rather has been a concern of primary and secondary school educators and educational psychologists for years. In the 1940s, there was a great upswing in attempts by educators and reading specialists to develop systematic procedures by which to objectively evaluate reading materials. Readability is defined as “characteristics of reading materials that make material ‘easy’ or ‘difficult’ to read” (Kahn & Pannbacker, 2000, p. 3). Today, several dozen formulas are available to measure the readability levels of PEMs (AHRQ, 2015a).

Readability indices have been devised to determine the grade-level demand of specific written information. Although they can predict a level of reading difficulty of material based on an analysis of sentence structure and word length, they do not account for the inherent individual variables that affect the reader, such as interest in or familiarity with the subject itself or the actual content of the materials (Doak et al., 1996; Jarrett & Redish, 2019).

Even though materials may have similar readability levels as measured by some formula, not all readers will have equal competence in reading them. For example, a patient with a longstanding chronic illness may already be familiar with vocabulary related to the disease and, therefore, may be able to read specific grade-level materials much more easily than a newly diagnosed patient, even though both individuals may have equal literacy skill with other types of material (Doak et al., 1985).

As assessment tools, readability formulas are useful but must be employed with caution because the match between reader and material does not necessarily guarantee comprehension (Aldridge, 2004; Nordquist, 2019). Readability formulas originally were designed as predictive averages to rank the difficulty of books used

in specific grades of school—not to determine exactly which factors contribute to the difficulty of a text. Educators should exercise caution when assuming that people can or cannot read instructional material simply because a formula-based readability score does or does not match their educational level (Jarrett & Redish, 2019).

Even though these simple instruments are practical tools for assessment of literacy, their utility is limited because they cannot determine the cause or type of reading and learning problems (Davis et al., 1998). Therefore, although readability formulas are easily applied and have proved useful in determining the reading grade level of a text, when used alone they are not an adequate index of readability (AHRQ, 2015a; Badarudeen & Sabharwal, 2010; Davis et al., 1998; Doak et al., 1996; Doak & Doak, 2010; Jarrett & Redish, 2019).

Readability formulas are merely one useful step in determining reading ease relative to a specific document. Many researchers suggest using a multimethod approach to ascertain readability—that is, they suggest applying more than one readability formula to any given piece of written material as well as taking into consideration the reader and other material variables (Jarrett & Redish, 2019). Formula scores are simply rough approximations of text difficulty. Human judgment is always needed in conjunction with formula-based estimates to determine the quality of PEMs.

Readability formulas are mathematical equations derived from multiple regression analyses that measure the readability levels of PEMs by determining the correlation between an author's style of writing and a reader's ability to identify words as printed symbols within a context (Doak et al., 1996). Most of them provide quite accurate grade-level estimates, give or take one grade level, with 68% confidence on average. In many respects, a readability formula is like a reading test, except that it does not test people but rather written material (Fry, 1977).

The first guideline to remember is that readability formulas should not be the only tool used for assessing PEMs. The second rule is to

select readability formulas that have been validated in the reader population for whom the PEM is intended. Several formulas are geared to specific types of materials or population groups (Wang et al., 2013).

When readability of patient education materials was first being assessed, Ley and Florio (1996) and Meade and Smith (1991) conducted extensive studies of the most commonly used formulas and reported on their reliability and validity when used to measure health-related information. Particularly, the Flesch, Fog, and Fry formulas showed strong correlations with health-based literature (Horner et al., 2000). Further, the Flesch, Fog, and Simplified Measure of Gobbledygook (SMOG) formulas have proved successful in evaluating internet-based educational materials (Antonarakis & Kiliaridis, 2009; Laplante-Lèvesque et al., 2012; Szmuda et al., 2020). Raj et al. (2016) assessed the quality and readability of health information available on websites in India using some of these standard formulas. They found that most websites had average quality (usability and reliability) but were written at high readability levels. Since so many readability formulas are available for assessment of reading levels of PEMs and electronic forms of health information, only those that are relatively simple to work with, are accepted as reliable and valid, and are in widespread use have been chosen for review here.

Flesch Reading Ease and Flesch-Kincaid Reading Grade Level

The Flesch Reading Ease (FRE) formula was developed in 1948 as an objective, reliable measurement of readability of materials between grade 5 and college level. Its use has been validated repeatedly over more than 70 years for assessing news reports, school and adult education materials, and government publications. The Flesch formula is based on a count of two basic language elements: average sentence length (in words) of selected samples and average word length (measured as syllables per 100 words of

sample). The reading ease (RE) score is calculated by combining these two variables (Flesch, 1948; Spadero, 1983; Spadero et al., 1980). See Appendix A for formula details and Table A-1 to determine reading ease scores. In 1975, the Flesch-Kincaid (F-K) Reading Grade Level formula was developed under contract to the United States military to assess high-tech education manuals. It also is now commonly used to test readability of legal documents, such as insurance policies, as well as adult education materials. The two formulas use the same core measures (word length and sentence length), but they have different weighting factors and the results of the two formulas correlate inversely: a text with a high score on the FRE (higher scores indicate easier to read material) has a low score on the F-K (Wikipedia, 2020).

Fog Index

The Fog formula developed by Gunning (1968) is appropriate for use in determining the readability of materials from grade 4 to college level. It is calculated based on average sentence length and the percentage of multisyllabic words in a 100-word passage. The Fog index is considered one of the simpler methods because it is based on a short sample of words (100), it does not require counting syllables of all words, and the rules are easy to follow (Spadero, 1983; Spadero et al., 1980). Appendix A includes details about using the formula.

Fry Readability Graph–Extended

The contribution made by the Fry formula derives from the simplicity of its use without sacrificing accuracy, as well as its wide and continuous range of testing readability of materials (especially books, pamphlets, and brochures), which spans grade 1 through college (grade 17). This formula is well accepted by literature and reading specialists and is not copyrighted (Doak et al., 1996). A series of simple rules can be applied to plot on a graph two language elements—the number of syllables and the number of sentences in

three 100-word selections (Fry, 1968, 1977; Spadero et al., 1980). If a very long text is being analyzed, such as a book containing 50 or more pages, one should use six 100-word samples rather than three such samples (Doak et al., 1996). With some practice, this formula takes only about 10 minutes to determine the readability level of a document. See Appendix A for specific directions on using the formula and Figure A-1 for the Fry readability graph.

SMOG

The SMOG formula developed by McLaughlin (1969) is recommended not only because it offers relatively easy computation (simple and fast) but also because it is one of the most valid tests of readability (Wang et al., 2013). The SMOG formula measures readability of PEMs from grade 4 to college level based on the number of polysyllabic words within a set number of sentences (Doak et al., 1985). It evaluates the readability grade level of PEMs to within 1.5 grades of accuracy (Myers & Shepard-White, 2004). Thus, when using the SMOG formula to calculate the grade level of material, the SMOG results are usually about two grades higher than the grade levels calculated by the other methods (Spadero, 1983).

The SMOG formula has been used extensively to judge grade-level readability of patient education materials. It is one of the most popular measurement tools because of its reputation for reading-level accuracy, its simple directions, and its speed of use, which is a particularly important factor if computerized resources for analysis of test samples are not available (Meade & Smith, 1991; Wang et al., 2013). See Appendix A, Tables A-2 and A-3, and Figure A-2 for further information on using the SMOG formula.

In summary, Doak et al. (1985) state that it is critically important to determine the readability of all written materials at the time they are drafted or adopted by using one or more of the many available formulas. This recommended practice is demonstrated by Szmuda et al. (2020), who used SMOG, Flesch-Kincaid, the Fog Index, and the Coleman–Liau Readability Formula (discussed in the next section) to

assess online educational materials related to COVID-19. These authors contend that you cannot afford to “fly blind” by using health materials that are untested for readability difficulty. Pretesting PEMs before distribution with these simple formulas is one way the nurse can assess if printed materials fit the literacy level of the audience for which they are intended.

It is imperative that the formulas used to measure grade-level readability of PEMs are appropriate for the type of material being tested. Also, Jindal and MacDermid (2017) point out that it is important to recognize the limitations of these formulas. New readability measures recently have been developed to account for more complex document factors (pictures, charts, grammar, color, font size and style, and cultural appropriateness) as well as person factors (prior knowledge of disease, motivation, and anxiety) as they effect reading grade levels of written materials. However, to date these new complex algorithms are not yet used widely in healthcare research and clinical practice. In addition to using formulas, see detailed guidelines later in this chapter and in Appendix A for many other ways to simplify PEMs for readability.

Computerized Readability Software Programs

Computerized programs have greatly facilitated the use of readability formulas. Some software programs apply multiple formulas to analyze one text selection. In addition, some packages can identify difficult words in written passages that may not be understood by patients. Dozens of user-friendly, menu-driven commercial software packages can automatically calculate reading levels as well as provide advice on how to simplify text (Aldridge, 2004; Doak et al., 1996). To read about two powerful readability software applications, *Readability Calculations* and *Readability Plus*, that are compatible for Windows or Macintosh and are used widely by universities, corporations, hospitals, and individuals, to name a few, see https://readabilityformulas.com/ and https://readable.com/ to quickly analyze and compare the readability of many types of documents.

Computerized assessment of readability is fast and easy. Also, computer programs are more accurate in calculating reading levels because they eliminate human error in scoring and because entire articles, pamphlets, or books can be scanned (Mailloux et al., 1995). It is advisable to take an average across several pieces of literature, using several different formulas and software programs, when calculating estimates of readability. Unlike other readability software tools, the relatively new Coleman–Liau Readability Formula (also known as the Coleman–Liau Index) is a readability assessment tool that counts the number of characters (letters) instead of syllables per word. See https://readabilityformulas.com/coleman-liau-readability-formula.php. However, Zhou et al. (2017) warn of consistency problems in estimating readability using different formulas and computerized programs because readability scores typically differ by two grade levels. Issues such as how hyphenated and compound words, slashes, numbers, and abbreviations are counted result in grade level scoring discrepancies.

Tests to Measure Comprehension of Printed Education Materials

Comprehension implies that the reader has internalized the information found in PEMs (Aldridge, 2004). The two most popular standardized methods to measure comprehension of written materials are the cloze test and the listening test. These tests can be used to assess how much someone understands from reading or listening to a passage of text.

Usually pretests and posttests used in institutional settings measure recall of knowledge rather than comprehension. However, the determination of readers' abilities to understand information is essential. Health education materials must serve a useful purpose, from the standpoint of assisting patients to assume self-care as well as for protecting the health professional from legal liability.

The following two standardized tests have proved reliable and valid in measuring reader's comprehension levels (Doak et al., 1996; Klapwijk, 2013).

Cloze Test

The cloze test, derived from the term *closure* based on Gestalt psychology (McKamey, 2006), has been specifically recommended for assessing understanding of health education literature. Although it takes more time and resources to perform than do readability formulas, the cloze procedure has been validated for its adequacy in ranking reading difficulty of medical literature, which typically has a high concept load. This procedure is not a formula that provides a school grade-type level of readability like the formulas already described but rather is an assessment that takes into consideration the context of a written passage (Doak et al., 1996; Klapwijk, 2013).

The cloze test can be administered to individual clients who demonstrate difficulty comprehending health materials used for instruction. Nevertheless, it is suggested that this test not be administered to every patient in a health setting but rather to a representative sample of consumers. The cloze test should be used only with those individuals whose reading skills are at sixth grade or higher; otherwise, it is likely that the test will prove too difficult (Doak et al., 1996).

The cloze test is best used when reviewing the appropriateness of several texts of the same content for a certain audience. The reader may or may not be familiar with the material being tested. This procedure is designed so that every fifth word is systematically deleted from a portion of a text. The reader is asked to fill in the blanks with the *exact* word replacements. One point is scored for every missing word guessed correctly by the reader. The final cloze score is the total number of blanks filled in correctly by the reader.

To be successful, the reader must demonstrate sensitivity to clues related to grammar, syntax, and semantics. If the reader fills in the blanks with appropriate words, this process is an indication of how well the material has been comprehended—that is, how much knowledge was obtained from the set surrounding the blank spaces and how well the information was used to supply the additional information (Dale & Chall, 1978; Doak et al., 1996). The underlying theory is that the more readable a passage is, the better it will be understood even when words are omitted. Appendix A and Figure A-3 provide details on constructing, administering, and scoring a cloze test.

Listening Test

Unlike the cloze test, which may be too difficult for clients who read below the sixth-grade level—that is, for those persons who likely lack fluency and read with hesitancy—the listening test is a good approach to determining what a person with low literacy understands and remembers when listening to oral instruction (Doak et al., 1996).

Although it may take several hours to develop this test, it takes only 10 to 20 minutes to administer.

The procedure for administering the listening test is to select a passage from instructional materials that takes about 3 minutes to read aloud and is written at approximately the fifth-grade level. Formulate 5 to 10 short questions relevant to the content of the passage by selecting key points of the text. Read the passage to the person at a normal rate. Ask the listener the questions orally and record the answers (Doak et al., 1996).

To determine the percentage score, divide the number of questions answered correctly by the total number of questions. The instructional material will be appropriate for the client's comprehension level if the score is in the range of 75% to 89% (some additional assistance when using the material for teaching may be necessary to ensure full comprehension). A score of 90% or higher indicates that the material is easy for the client and can be fully comprehended independently. A score of less than 75% means that the material is too difficult and simpler instructional material will need to be used when teaching the individual. Doak et al. (1996) provide an example of a sample passage and questions for a listening comprehension test.

Tests to Measure General Reading Skills and Health Literacy Skills of Clients

The four most popular standardized methods to measure reading and health literacy skills are the Wide Range Achievement Test (WRAT), the Rapid Estimate of Adult Literacy in Medicine (REALM), the Test of Functional Health Literacy in Adults (TOFHLA), and the Newest Vital Sign (NVS). In addition, the eHealth Literacy Scale (eHEALS) assesses client comfort in using the internet and technology to obtain health information. The Suitability Assessment of Materials (SAM) assesses how well instructional materials are presented to clients.

WRAT (Wide Range Achievement Test)

The WRAT is an assessment designed to measure reading, spelling, and math skills in those aged 5 to 85, and can be administered in subsets. Specifically, the word reading subscale is used to assess a learner's ability to recognize and pronounce a list of words out of context as a criterion for measuring reading skills. Other word recognition tests are available, but the WRAT requires the least time to administer (approximately 5 minutes as compared with 30 minutes or more for the other tests).

Although the word reading subscale is limited to measuring only word recognition and does not test other aspects of reading such as vocabulary and comprehension of text material, this test is nevertheless useful for determining an appropriate level of instruction and for establishing a client's level of literacy. It is based on the belief that reading skill is associated with the ability to look at written words and put them into oral language, a necessary first step in comprehension (Pearson, 2017).

As designed, the WRAT should be used only to test people whose native language is English. It tests on two levels: Level I is designed for testing children 5 to 12 years of age, and Level II is intended for testing persons older than age 12. The WRAT scores are normed on age but can be converted to grade levels.

The WRAT consists of a graduated list of 42 words. Starting with the easiest and ending with the most difficult, the person taking the test is asked to pronounce the words from the list, starting from the top, where the easier words are located. The individual administering the test listens carefully to the patient's responses and scores those responses on a master score sheet. Next to those words that are mispronounced, a checkmark should be placed. When five words are mispronounced, indicating that the patient has reached their limit, the test is stopped.

To score the test, the number of words missed or not tried is subtracted from the total list of words on the master score sheet to get a raw score. A table of raw scores is then used to find the equivalent grade rating (GR). For more information on this test, see Doak et al. (1996), Davis et al. (1998), Quirk (2000), and Pearson (2017). Now in its fifth edition, the WRAT-5 is the latest version of the original instrument developed in 1946 and is available in both written and digital formats (Pearson, 2017). A reading comprehension subscale is also available as part of the WRAT-5 and may be combined with the word reading subscale for a reading composite score, if desired.

REALM (Rapid Estimate of Adult Literacy in Medicine)

The REALM test has advantages over the WRAT and other word tests because it measures a patient's ability to read medical and health-related vocabulary, it takes less time to administer, the scoring is simpler, and the test is well received by most clients (Davis et al., 1998). This instrument has been extensively field-tested and

validated on large populations in public health and primary care settings (Davis et al., 1993). This test, along with the TOFHLA discussed in the text that follows, remain the gold standard for health literacy testing (Collins et al., 2012).

The procedure for administering the test is to ask patients to read aloud words from three lists. Sixty-six medical and health-related words are arranged in three columns of 22 words each, beginning with short, easy words such as *fat*, *flu*, *pill*, and *dose*, and ending with more difficult words such as *anemia*, *obesity*, *osteoporosis*, and *impetigo*. Clients are asked to begin at the top of the first column and read down, pronouncing all the words that they can from the three lists. If they come upon a word they cannot pronounce, they are told to skip it and proceed to the next word. There is no time limit. The examiner keeps score on a separate copy of the list and places a plus sign next to words correctly pronounced and a minus next to those mispronounced or skipped (Davis et al., 1993). The total number of words pronounced correctly is the client's raw score, which is converted to a range of grade levels rather than an exact grade level, but this result correlates well with the WRAT reading scores. Grades range from third grade and below (score of 0–18) to ninth grade and above (score of 61–66). Those persons whose scores fall at sixth grade or below have literacy skills equivalent to NALS Levels 1 and 2 (Weiss, 2003).

The REALM-R, a revised shorter version (8-item) of the original instrument of 66 items, is designed to rapidly screen patients at risk for low literacy in a clinical setting. Studies have shown it to be a reliable and valid tool, as well as a practical one, for assessment of literacy. The delivery time is less than 2 minutes (Bass et al., 2003). The REALM-SF, a short-form version at seven items, correlates very strongly with the original REALM instrument in assessing patient literacy in diverse settings (Arozullah et al., 2007).

TOFHLA (Test of Functional Health Literacy in Adults)

The TOFHLA was developed in the mid-1990s for measuring patients' health literacy skills using actual hospital materials, such as prescription labels, appointment slips, and informed consent documents. The test consists of two parts: reading comprehension and numeracy. It has demonstrated reliability and validity, requires approximately 20 minutes to administer, and is available in a Spanish version (TOFHLA-S) as well as an English version (Collins et al., 2012; Parker et al., 1995; Quirk, 2000). An abbreviated version, known as the S-TOFHLA, was developed in 1999; it takes only 12 minutes to administer. Not only has this short version been tested for reliability and validity, but it is a more practical measure of functional health literacy to determine who needs assistance with achieving learning goals (Baker et al., 1999; Garcia et al., 2013). The TOFHLA instrument and directions can be accessed at http://www.peppercornbooks.com/catalog/information.php?info_id=5.

Readability formulas and standardized tests for comprehension and reading skills were never designed to serve as writing guides. Patient educators may be tempted to write PEMs to fit the formulas and tests, but they should be aware that doing so places emphasis on structure, not content, and that comprehensibility of a written message may be greatly compromised (Jarett & Redish, 2019). Formulas are merely methods to check readability, and standardized tests are merely methods to check comprehension and word recognition. Neither method guarantees good style in the form of direct, conversational writing.

NVS (Newest Vital Sign)

The NVS is a tool developed to identify those at risk for low health literacy. It is easy and inexpensive to administer, taking as little as 3 minutes from start to finish (Johnson & Weiss, 2008; Shah et al., 2010; Welch et al., 2011). Patients are asked to look at an ice cream label and answer questions in relation to the label, which also allows an assessment of numeracy (Collins et al., 2012; Kennard, 2016; Weiss, 2007). Each correct answer gives them one point. Patients are placed into one of three categories related to their literacy level:

1–2, likelihood of limited literacy; 3–4, possibility of limited literacy; and 5–6, adequate literacy (Johnson & Weiss, 2008). The NVS, which was developed by Weiss and colleagues (2005) with support from the Pfizer Clear Health Communication Initiative, is available in both English and Spanish versions. It is suggested that the tool be administered while the nurse is obtaining vital signs. Psychometric evaluation shows the NVS is comparable to other available health literacy tests such as REALM and S-TOFHLA and is recommended for use in the primary care environment (McCune et al., 2016; Patel et al., 2011). Recent research has supported remote administration of this assessment tool via telephone, opening opportunities to test its use in virtual healthcare environments (Russell et al., 2019). Instructions for the NVS can be found in Appendix A and more information on this tool, including the ice cream label and score sheet, can be found by going to https://cdn.pfizer.com/pfizercom/health/nvs_flipbook_english_final.pdf.

eHEALS (eHealth Literacy Scale)

The eHealth Literacy Scale, which was designed by Norman and Skinner (2006a), is one of only a few tools available to determine a patient's ability to find and navigate electronic health information. It consists of eight items that collectively measure patients' comfort level and perceived ability to address their health problems by finding and using electronic health information. Questions center on the client's use of the internet in relation to locating health information. Challenges to using electronic health information include not just the health message, but also the technology used to deliver that message. This scale offers a way to assess whether a client would be a good candidate to engage in eHealth materials (Collins et al., 2012). Psychometric testing has demonstrated reliability of the tool in adolescents, both urban and rural, college students, and middle/older age adults (Chung & Nahm, 2015; Giger et al., 2021; Nguyen et al., 2016; Norman & Skinner, 2006a). See Exhibit A-1 in Appendix A for the scale.

SAM (Instrument for Suitability Assessment of Materials)

In addition to using formulas and tests to measure readability, comprehension, and reading skills, Doak et al. (1996), in conjunction with the Johns Hopkins School of Medicine, designed a tool to rapidly and systematically assess the suitability of instructional materials for a given population of learners. Ideally, instructional tools should be evaluated with a sample of the intended audience, but limited time and resources may preclude such an approach. In response to this dilemma, these literacy experts developed the Suitability Assessment of Materials instrument. Not only can the SAM tool be used with print material and illustrations, but it also has been applied to videotaped and audiotaped instructions, as well as online educational materials (Squires & Ou, 2020). Although not designed to specifically measure health literacy or evaluate only health-related materials, it can be a very useful tool in determining the effectiveness of instructional materials for diverse patient populations in the healthcare arena (Helitzer et al., 2009; Lee et al., 2011; Rhee et al., 2013; Vallance et al., 2008; Weintraub et al., 2004).

The SAM instrument yields a numerical (percentage) score, with materials tested falling into one of three categories: superior (70%–100%), adequate (40%–69%), or not suitable (0%–39%). The application of this tool can identify specific deficiencies in instructional materials that reduce their suitability. The SAM instrument includes 22 factors to assess the content, literacy demand, graphics, layout and typography, learning stimulation and motivation, and cultural appropriateness of instructional materials being developed or already in use (Doak & Doak, 2010). The maximum score possible is 44 points (equals 100%). If one or more SAM factors do not apply to the material being tested, the test administrator should subtract two points each for every not applicable factor. For example, if the material tests at 36 but two factors did not apply, the maximum possible score would be 40; in

this case, the score would be 36/40 = 90% (Doak et al., 1996). See Exhibit A-2 in Appendix A for the SAM scoring sheet.

Simplifying the Readability of Printed Education Materials

The suitability of written materials for different audiences depends not only on actual grade-level demand, which can be measured by readability formulas, but also on those elements within a text such as technical format, concept density, and accuracy and clarity of the message. It must never be forgotten that knowing the target audience in terms of the members' level of motivation, reading abilities, experiential factors, and cultural background is also of crucial importance in determining the appropriateness of printed health information as an effective communication tool (Meade & Smith, 1991; Weiss, 2007). Even good readers may fail to respond to important health education literature if they lack the motivation to do so or if the material is not appealing to them.

Despite the well-documented potential of written materials to increase knowledge, adherence, and satisfaction with care, PEMs are often too difficult for even motivated clients to read. Clearly, the technical nature of health education literature lends itself to high readability levels, often requiring college-level reading skills or a medical background to fully comprehend (Winslow, 2001; Zhou et al., 2017).

Even though printed materials are the most commonly used form of media, as currently written, they remain the least effective means for reaching a large proportion of the adult population who have marginal literacy skills (Monsivais & Reynolds, 2003; Ryan et al., 2014).

Agarwal et al. (2013) studied online patient education materials from 16 specialties in the United States and Raj and colleagues (2016) evaluated more than 30 health information websites in India. Readability assessments revealed the vast majority of the materials to be well over the sixth-grade reading level. Stossel et al. (2012)

assessed 300 PEMs available to the public on the internet and accessible to providers by a popular electronic medical record (EMR) vendor and found most of the PEMs to be at reading levels much higher than the reading ability of the average American adult reader. Win et al. (2015) identified that the aim of online health education is to focus on health literacy as one of the most important elements in improving health outcomes. What the nurse in the role of educator must strive to achieve when designing or selecting health-based literature is a good and proper fit between the material and the reader. Choosing and designing PEMs is a difficult, time-consuming, and challenging task that often becomes the responsibility of the nurse (Winslow, 2001).

Obviously, the best solution for improving the overall comprehension and reading skills of clients would be to strengthen their basic general education, but this process would require decades to accomplish. What is needed now are ways in which to write or rewrite educational materials commensurate with the current comprehension and reading skills of learners. Nathaniel Hawthorne was once reported to have said, “Easy reading is damned hard writing” (Pichert & Elam, 1985, p. 181). He was correct in his perception that clear and concise writing is a task that takes effort and practice.

It is possible, though, to reduce the disparity between the literacy demand of written instructional materials and the actual reading level of clients by attending to some basic linguistic, motivational, organizational, and content principles (Williams et al., 2016). *Linguistics* refers to the type of language and grammatical style used. *Motivation principles* focus on those elements that stimulate the reader, such as relevance and appeal of the material. *Organizational factors* deal with layout and clarity. *Content principles* relate to load and concept density of information (Bernier, 1993). Wood et al. (2007) describe the language, information, and design (LID) method to create easy-to-read materials. These elements are examined as they relate to designing or revising instructional materials for the marginally literate reader.

Prior to writing or rewriting a text for easier reading, some preliminary planning steps need to be taken to ensure that the final written material will be geared to the target audience (Davis et al., 1998; Doak et al., 1996; Kessels, 2003):

1. Decide what the client should do or know. In other words, what is the purpose of the instruction? Which outcomes do you hope learners will achieve?
2. Choose information that is relevant and needed by the client to achieve the behavioral objectives. Limit or cut out altogether extraneous and nice-to-know information such as the history or detailed physiological processes of a disease. Include only survival skills and essential main ideas of who, what, where, and when, with new information related to what the reader already knows. Remember: *A person does not have to know how an engine works to drive a car.*
3. Select other media to supplement the written information, such as pictures, demonstrations, models, audiotapes (CDs), DVDs, or web-based media. Even individuals with limited reading skills will benefit from written material if it is combined with other forms of delivering a message. Consider the field of advertising, for example. Advertisers get their message across with relatively few words that are often combined with strong, action-packed visuals.
4. Organize topics into chunks that follow a logical sequence. Prioritize to present the most important information first. If topics are of equal importance, proceed from the more general as a basis on which to build to the more specific. Begin with a statement of purpose. In a list of items, place key facts at the top and bottom because readers best remember information presented first and last in a series.
5. Determine the preferred reading level of the material. If the readers have been tested, preferably write two to four grades below their reading grade-level score. If the audience has not been tested, the group is likely to display a wide range of reading skills. When in doubt, write instructional materials at the fifth-grade level, which is the lowest common denominator,

keeping in mind that the average reading level of the population is approximately eighth grade, that more than 20% read below the fifth-grade level, and that fewer than 50% read above the 10th-grade level (NCES, 2006; USDHHS, 2010)

To cover a wide range of reading skills, it is also possible to develop several sets of instructions—one at a higher grade level, one at a medium grade level, and one at a lower grade level—and allow patients to select the one they prefer (**Box 7-2**). Once the reading grade level of a piece of written material is determined, it should be printed on the back of the document in coded form as, for example, RL = 7 (reading level = seventh grade), for easy reference.

Box 7-2 Examples of Different Readability Levels

What grade level do you think it is?

Paragraph A

It makes good sense that premature births and newborn illnesses are decreased by early pregnancy care. The doctor is actively involved in testing the pregnant woman for pregnancy-induced diabetes and a host of other problems that would not be detected by the patient alone. We know that these problems cause premature births and illnesses in newborns. It certainly makes sense that earlier detection and treatment of these problems by the doctor results in healthier babies.

Paragraph B

If you are pregnant or think you may be pregnant, call for an appointment right away. Getting care early in your pregnancy will help you have a healthy pregnancy and a healthy baby. Your PCP (or an OB-GYN doctor you choose from our network) will give you certain tests to make sure everything is going well. If there are any problems, it’s good to find them early. That way, you have the best chance for a healthy baby.

Paragraph C

If you are pregnant or think you might be, go to the doctor as soon as you can. If you start your care early, things will go better for you and your baby. Your own doctor or a childbirth doctor from our list will give you a first exam. Tests every month or so will let you know if all is going well. If there is a problem, you'll know it right away. Then we can do what is needed. Early care is the best way to have a healthy child. Your baby counts on you.

Answer: Approximate grade levels are:

1. 12th grade.
2. 8th grade.
3. 4th grade.

[Please note that the information from this 1998 source is not current and is used for illustrative purposes only.]

Reproduced from Root, J., & Stableford, S. (1998). *Write it easy-to-read: A guide to creating plain English materials*. Maine AHEC Health and Literacy Center.

The literature contains numerous references related to techniques for writing effective educational materials (AHRQ, 2015b; Aldridge, 2004; Andrus & Roth, 2002; Doak et al., 1996; Doak et al., 1998; Doak & Doak, 2010; Falvo, 2010; Horner et al., 2000; >Monsivais & Reynolds, 2003; Pignone et al., 2005; Weiss, 2007, 2014). Recommendations have been put forth for developing written instructions that can be more easily understood by a wide audience.

The strategies described in this section are specific to simplifying written health information for clients with low literacy skills. The key factor in accommodating readers with limited literacy skills is to write in plain, familiar language using an easy visual format. The following general guidelines outline some basic linguistic, motivational, organizational, and content principles to adhere to when writing effective PEMs (see also Appendix A):

1. Write in a conversational style using the personal pronoun *you* and the possessive pronoun *your*. Use an active voice in the present tense rather than a passive voice in the past or future tense. The message is more personalized, more imperative, more interesting, and easier to understand if instruction is written as “Take your medicine...” instead of “Medicine should be taken....” This rule is considered the most important technique to reduce the level of reading difficulty and also to improve comprehension of what is read. Directly addressing the reader through personal words and sentences engages the reader. See a less effective example from an American Cancer Society (1985) pamphlet, followed by a more effective example.

   Less Effective
   People who sunburn easily and have fair skin with red or blond hair are most prone to develop skin cancer. The amount of time spent in the sun affects a person’s risk of skin cancer.

   More Effective
   If you sunburn easily and have fair skin with red or blond hair, you are more likely to get skin cancer. How much time you spend in the sun affects your risk of skin cancer.

2. Use short words and common vocabulary words with only one or two syllables as much as possible. Rely on sight words, known as high-frequency words, which are recognized by almost everyone. The key is to choose words that sound familiar and natural and are easy to read and understand, such as *shot* rather than *injection*, *doctor* rather than *physician*, and *use* instead of *utilize*. Avoid compound words, such as *lifesaver*, and words with prefixes or suffixes, such as *reoccur* or *maintenance*, that create multisyllable words.

   Also, try to avoid technical words and medical terms (medicalese), and substitute common, nontechnical, lay terms such as *stroke* instead of *cardiovascular accident*. Be sure to select substitutions carefully because they may have a different meaning for some people than for others or in one context

versus another. For example, if the word *medicine* is replaced with the word *drug*, the latter may be interpreted as the illegal variety. Using modest words is not considered talking down to readers; it is considered talking to them at a more comfortable level.

3. Spell out words rather than using abbreviations or acronyms. *That is* should be used instead of *i.e.* and *for example* instead of *e.g.* Abbreviations for the months of the year (such as *Sept*.) or the days of the week (such as *Wed*.) are a real problem for clients with limited vocabulary. Also do not use acronyms, such as CVA or NPO, unless these medical abbreviations are clearly defined beforehand in the text.
4. Organize information into chunks, which improves recall (Cowan, 2015). Limit the number of items in any list to no more than seven. People have a difficult time remembering more than seven consecutive items (Baddeley, 1994; Miller, 1956). Also, use numbers and percentages sparingly and only when absolutely necessary. Statistics are usually meaningless and are another source of confusion for the reader with limited literacy.
5. Keep sentences short, preferably not longer than 20 words and fewer if possible, because they are easier to read and understand for clients with short-term memories or who struggle decoding words of a sentence. Avoid subordinate (or dependent) clauses that make the reading more difficult. The use of commas, colons, or dashes results in long, complex sentences that turn off the reader. Titles also should be short and convey the purpose and meaning of the material that follows.
6. Clearly define any technical or unfamiliar words by using parentheses that include simple terms after difficult words—for example, “bacteria (germ).” A glossary that provides definitions of each difficult term is a helpful tool, but it is highly recommended to spell out terms phonetically immediately following the unfamiliar word within the text—for example, “Alzheimer’s (pronounced Alts-hi-merz).” If a new technical vocabulary word (diabetes) or a new health concept (glycemic

control) is introduced, it should be used and repeated frequently (Brega et al., 2015). Standal's (1981) method suggests identifying words whose meanings should be taught to the reader prior to introducing the instructional material to increase reader comprehension and to avoid having to make major revisions to a printed piece.

7. Use words consistently throughout the text and avoid interchanging words. For example, if discussing diet, continue to use the word *diet* rather than substituting other terms for it, such as *meal plan*, *menu*, *food schedule*, and *dietary prescription*, which merely confuse readers and can lead to misunderstanding of instruction.
8. Avoid value judgment words with many interpretations, such as *excessive*, *regularly*, and *frequently*. How much pain or bleeding is excessive? How often is regularly or frequently? Use exact terms to describe what you mean by using, for example, a scale of 1–5 or explaining frequency in terms of minutes, hours, or days. Instead of saying, "drink milk frequently," you should be more specific by stating, "drink three full glasses of milk every day."
9. Put the most important information first by prioritizing the need to know. Place essential messages upfront and get rid of extraneous details.
10. Use advance organizers (topic headings or headers) and subheadings. They clue in the reader to what is going to be presented and help focus the reader's attention on the message.
11. Limit the use of connectives such as *however*, *consequently*, *even though*, and *in spite of* that lengthen sentences and make them more complex. Also, avoid *and* if it connects two different ideas; instead, break the ideas into two sentences.
12. Make the first sentence of a paragraph the topic sentence, and, if possible, make the first word the topic of the sentence. See a less effective example from an American Cancer Society (1985) pamphlet, followed by more effective examples.

Less Effective
Even though overexposure to the sun is the leading cause, it isn't necessary to give up the outdoors in order to reduce your chances of developing skin cancer.

More Effective
Enjoying the outdoors is still possible if you take steps to reduce your risk of skin cancer when in the sun.

or
You can reduce your chance of skin cancer even when enjoying the outdoors.

13. Reduce concept density by limiting each paragraph to a simple message or action and include only one idea per sentence. In the following example, the original paragraph (American Heart Association, 1983) contains at least six concepts. As rewritten, the revised paragraph has been reduced to four concepts and is written using a personalized approach. [Please note that the information from this 1983 source is not current and is used for illustrative purposes only.]

    Original Paragraph
    A person who has had a stroke may or may not be able to return to his or her former level of functioning, depending on the extent and location of brain damage. Mental attitude, efforts of the rehabilitation team, and the understanding of family and friends also affect the patient's progress. Recovery must be gradual, but it should begin the moment the patient is hospitalized. After the patient is tested to determine the extent of brain damage, rehabilitation such as physical, speech, and occupational therapy should begin. Family and friends should be told how to handle special problems the stroke victim may have, such as irrational behavior or difficulty communicating.

    Revised Paragraph
    Getting back to your normal life after a stroke is an important part of your recovery. Each stroke patient is different. Your

progress depends on where and how much your brain is damaged. Getting better will take time. The care you get will begin while you are in the hospital. How you think and feel about what happened to you will help you handle special problems. The care given by the nurses, doctors, and other health professionals also is very helpful to you. The support you get from your family and friends is important, too.

14. Keep density of words low by not exceeding 30 to 40 characters (letters) per line. The number of words in each line is influenced by the size of the font.
15. Allow for plenty of white space in margins and use generous spacing between paragraphs and double spacing within paragraphs to reduce density. Pages that are not crowded seem less overwhelming to the reader with low literacy skills.
16. Keep right margins unjustified because the jagged right margins help the reader distinguish one line from another. In this way, the eye does not have to adjust to different spacing between letters and words as it does with justified type that results in straight right margins.
17. Design layouts that encourage eye movement from left to right, as in normal reading in English. In simple drawings and diagrams, using arrows or circles that give direction is helpful, but do not add too many elements to a schematic.
18. Select a simple type style with serifs, such as Times New Roman or Courier, and a large font (14- or 16-point size) in the body of the text for ease of reading and to increase motivation to read. A sans-serif font (which does not have the little hooks at the top and bottom of letters) or other type of clean style should be used only for titles to give style to the page. Avoid *italics*, ***fancy lettering***, and ALL CAPITAL letters. Readers with limited literacy skills are not fluent with the alphabet and need to look at each letter to recognize a word. To facilitate their decoding of words in titles, headings, and subheadings, use uppercase and lowercase letters, which provide reading cues given by tall and short letters on the typed line. Avoid using a large, stylized letter to begin a new paragraph, such as in this example:

This looks attractive, but it is confusing to a person with limited reading skills who cannot decode the word minus the first letter.

19. Highlight important ideas or key terms with **bold type** or underlining, but never use all capital letters or italics.
20. If using color, employ it consistently throughout the text to emphasize key points or to organize topics. Color, if applied appropriately, attracts the reader's attention. Red, yellow, and orange are warm colors, which are more eye-catching and easier to read than cold colors such as violet, blue, and green. Use bold, solid colors and avoid pastel colors that all look gray to older adults with vision problems, such as cataracts.
21. Create a simple cover page with a title (in uppercase and lowercase lettering) that clearly and succinctly states the topic to be addressed. The title should ideally be one to four words in length.
22. Limit the length of a document—the shorter, the better. It should be long enough just to cover the essential, need-to-know information. Too many pages with nice-to-know information will turn off even the most eager and capable reader.
23. Select paper on which the typeface is easy to read. Black print on white paper is most easily read and most economical. Dull finishes reduce the glare of light. Avoid high-gloss paper, which reflects light into the eyes of the reader and is usually too formal and not in harmony with the purpose and informal tone of your message.
24. Use bold line drawings and simple, realistic pictures and diagrams. Basic visuals aid the reader to better understand the text information. Use few or no cartoons, however, because they can trivialize the message and make it less credible.

    Graphic designs that are strictly decorative should never be used because they are distracting and confusing. Also, never superimpose words on a background design because it makes reading the letters of the words very difficult. Only illustrations that enhance understanding of the text and that relate specifically to the message should be included.

Be careful to use pictures that portray the messages intended. For example, avoid using a picture of a pregnant woman smoking or drinking alcohol—this negative message is dependent on careful reading of the text to correct a faulty impression. The visuals should clearly show only those actions that you want the reader to do and remember. Be sure that visuals do not communicate cultural bias.

Use simple subtitles and captions for each picture. Also, be sure drawings are recognizable to the audience. For instance, if you draw a picture of the lungs, be certain they are within the outline of the person's body to accurately depict the location of the organs. The person with low literacy may not know what they are looking at if the lungs are not put in context with the body's torso. However, pictures do not necessarily make the text easier to read if the readability level remains high.

25. Include a summary section using bullet points or a numbered list to review what has already been presented. A question-and-answer format using the client's point of view is an effective way to summarize information in single units using a conversational style. The following example is adapted from an American Cancer Society (1985) pamphlet:

    Q: Am I likely to get skin cancer?

    A: If you have spent a lot of time in the sun, you have a greater chance of getting skin cancer than people who have stayed out of the strong sunlight. If you sunburn easily, you are at more risk for skin cancer. If you have fair skin with red or blond hair, you are more likely to get skin cancer than people with dark skin.

    Q: How can I tell if I have skin cancer?

    A: The only way to know for certain is to see your doctor. Your doctor may want to take a sample of skin to test for cancer. If you have a red, scaly patch; a mole that has changed; or an area of the skin that does not heal, see your doctor right away.

Q: How can I prevent skin cancer?

A: Stay out of direct sunlight between 11:00 a.m. and 2:00 p.m. When outside in the sun, cover up with clothing, wear a wide-brimmed hat, and use sunscreens that block out the sun's harmful rays.

Ask for feedback after clients have read your instructions, but never ask questions such as "Do you understand?" because you are likely to get a "yes" or "no" answer, not a substantive response. Either have readers explain the information in their own words (known as the teach-back method) or have them demonstrate the desired behavior. If learners can do so correctly, it is a good indication that the information is understood (Caplin & Saunders, 2015).

26. Put the reading level (RL) on the back of a PEM for future reference—for example, if the PEM is readable at the sixth-grade level, the designation would be RL = 6.
27. Determine readability by applying at least two formulas (the SMOG, Fog, and Fry formulas are suggested). Also, you can measure comprehension by applying the cloze or listening test and check reading and health literacy skills by applying the WRAT, REALM, TOFHLA, or NVS.

It does not take a great deal of effort—just know-how and common sense—to improve the readability and comprehensibility of instructional materials. The benefits are significant in terms of adherence and quality of care when marginally literate patients are given PEMs that effectively communicate messages they can read and understand.

Always remember to test any new materials before printing and distributing them. Not only will this effort save the cost of printing handouts or creating visual models that might not be useful, but patients will have the opportunity to participate in the evaluative process. An example of this evaluation is provided by Wake et al. (2019) who involved patients in testing the use of 3D kidney and

prostate models to supplement patient teaching about cancer and its treatment.

Readily understandable materials also reduce time and frustration on the part of the nurse educator and avoid the possibility of litigation when better quality and more appropriate healthcare instructions are used. The important role of printed media to communicate health information should compel all writers of PEMs to use the techniques recommended in this chapter. As Doak and Doak (1987) so aptly point out, “With so much to be gained, the investments of a little time and thoughtful attention to the materials provided to patients can pay back dividends too important to ignore” (p. 8).

Teaching Strategies to Promote Health Literacy

Working with clients who are illiterate and marginally literate requires more than just designing simple-to-read instructional literature. It also calls for using alternative and innovative teaching strategies to break down the barriers of illiteracy. Existing teaching methods and tools can be adapted to match the logic, language, and experience of the patient who has difficulty with reading and comprehension (Doak et al., 1998).

The following tips are useful communication techniques for the nurse to use when educating clients with limited literacy skills to enhance their understanding of health information and their adherence to prescribed regimens. Incidentally, many literate and highly motivated clients also can benefit from some of these same teaching strategies (Brega et al., 2015; Carollo, 2015; Doak et al., 1998; Fidyk et al., 2014; Hyde & Kautz, 2014; Kemp et al., 2008; Kessels, 2003; Lerner et al., 2000; Pignone et al., 2005; Ryan et al., 2014; Weiss, 2007; Winslow, 2001):

1. *Establish a trusting relationship before beginning the teaching–learning process*. Start by getting to know the clients to reduce their anxiety and defenses. Demonstrate your belief in them as responsible individuals, focus on their strengths, cast aside any preconceived myths or stereotypes, be open and honest about what specifically needs to be learned, and offer encouragement to build their confidence in performing self-care activities.
2. *Use the smallest amount of information possible to accomplish the predetermined behavioral objectives*. Stick to the essentials, paring down the information you teach to what the client must learn. Prioritize the objectives and select only one or two concepts to discuss in any one session. Keep teaching sessions short to within the ideal time limit of no more than 15 to 20 minutes.

3. *Make points of information as vivid and explicit as possible*. Explain information in simple, concrete terms using everyday, living-room language. Visual aids, such as signs and pictures, should be large with readable print and contain only one or two messages. For example, a sign reading “NOTHING BY MOUTH” or, worse yet, “NPO” should be changed to “Do not eat or drink anything” (remember to avoid using all capital letters and abbreviations). Underlining, highlighting, color coding, arrows, and common international symbols can be used effectively to give directions and draw attention to important information. For example, different-colored signs and other visual stimuli, such as colored strips on the floor tiles that lead to specific areas of the hospital or other care facility, are valuable for increasing independence and safety.
4. *Teach one step at a time*. Teaching in increments and organizing information into segments of information (chunks) help to reduce anxiety and confusion and give enough time for clients to understand each item before proceeding to the next unit of information. As Cowan (2015) explains, chunking relates to capacity limits in working memory (short-term or immediate memory). Most important, the pacing of instruction provides adequate time between sessions for learners to ask questions and assimilate information.
5. *Use multiple teaching methods and instructional tools requiring fewer literacy skills*. Oral instruction contains cues such as tone, gestures, and expressions that are not found in written materials. However, a person with limited reading skills also may have some trouble with understanding spoken language. Alternatively, audiotaped instruction in combination with visual resources such as simple lists, pictures, and video recordings can help to improve comprehension and reduce learning time. These media forms can be sent home with the client for added reinforcement of health messages. Also, interactive computer programs, which allow clients to proceed at their own pace, can be programmed developmentally to match a user’s literacy skill level.

6. *Allow patients the chance to restate information in their own words and to demonstrate any procedures being taught*. Use the teach-back or “show me” method to verify that information shared with the learner was, in fact, understood. Encouraging learners to explain something in their own words can immediately reveal their gaps in knowledge or misconceptions of information. Return demonstration and role-playing real-life situations also provide quick feedback about the patient’s level of functioning

   Alternatively, trying to elicit feedback by asking questions does not always work because people with low literacy skills often do not have the right vocabulary or fluency to explain what they do and do not understand. Remember, do not ask questions that will result in only a “yes” or “no” response. Learners will likely respond in the affirmative when asked if they understand something, even when they have no clue as to what the nurse educator is talking about, just so they do not have to admit their ignorance or be critical of the teacher for not getting the message across. Instead, use open-ended statements, such as “Tell me what you understand about...”, to obtain feedback from them to verify their comprehension.

   Chew et al. (2004) developed three questions as a practical and quick method for identifying inadequate health literacy skills in patients: (1) “How often do you have someone help you read hospital materials?” (2) “How confident are you filling out medical forms by yourself?” and (3) “How often do you have problems learning about your medical condition because of difficulty understanding written information?”

7. *Keep motivation high*. It is important to recognize that people with limited literacy may feel like failures when they cannot work through a problem. Reassure them that it is normal to have trouble with new information and that they are doing well. Encouraging them to keep trying and recognizing any progress they make, even if it occurs only in small increments, is

motivating. Rewards—not punishments—are excellent motivators. Sticking to the basics and keeping the information relevant and succinct will maintain a learner's interest and willingness to learn.

8. *Build in coordination of procedures*. A way to facilitate learning is to use the principles of tailoring and cuing. *Tailoring* refers to coordinating recommended regimens into the daily schedules of clients rather than forcing them to adjust their lifestyles to these new demands. For example, coinciding a medication schedule with a patient's mealtimes does not drastically alter their everyday lifestyle and tends to increase motivation and adherence. *Cuing* focuses on using prompts and reminders to get a person to perform a routine task. For example, placing medications where they best can be seen or keeping a simple chart to check off each time a pill is taken serves as a reminder to adhere to a medication schedule as prescribed.
9. *Use repetition to reinforce information*. Repetition, at appropriate intervals and with multiple forms of the same message, is a key strategy to use with clients who have low literacy. Saying the same thing more than once and in different ways is one of the most powerful tools to reinforce their understanding and to help them learn skills important for self-care.

As noted earlier, nurses must empower consumers by providing health information that is culturally and linguistically appropriate. Creating an open, trusting, and accepting environment that makes it acceptable for the client to say, "I don't understand," is the cornerstone of effective communication (Carollo, 2015; Cole, 2000).

It is always a challenge to teach clients who, because of illness or a threat to their well-being, may be anxious, frightened, depressed, in denial, or in pain. Teaching patients is even more challenging in today's healthcare environment, when varying degrees of literacy compound the ability of a significant portion of the adult population to understand information vital to their health and welfare.

State of the Evidence

In 1999, the Ad Hoc Committee on Health Literacy for the AMA acknowledged that although a great deal had been learned to date about the magnitude and consequences of the problem of illiteracy and low literacy, further research efforts had to focus on four areas: (1) literacy screening; (2) methods of health education; (3) medical outcomes and economic costs; and (4) understanding how health literacy influences health status. The committee also called for healthcare policies to address the issue of health literacy for the following reasons:

1. Patients who have low literacy cannot be empowered consumers in a market-driven healthcare system.
2. Patients who cannot understand healthcare instructions will not receive high-quality health care.
3. Healthcare professionals are subject to liability for adverse outcomes in patients who do not understand important health information.
4. Clinical management problems in effectively caring for low literate patients are likely to result in substantial but avoidable costs for the U.S. healthcare system.
5. Health literacy problems are more prevalent in certain vulnerable populations (e.g., Medicare beneficiaries, Medicaid recipients, and uninsured individuals).

Indeed, based on the findings of the NALS and NAAL reports, a broad policy agenda on health literacy had initially been put forth in the 10-year goals and objectives of *Healthy People 2020* (USDHHS, 2014). Now, *Healthy People 2030* has made health literacy even more of a priority, including it as a central focus of one of its overarching goals “Eliminate health disparities, achieve health equity, and attain health literacy to improve the health and well-being of all” (USDHHS, n.d.-a, para 1). This goal is linked to six objectives that point to the interaction activities between healthcare providers

and clients, the ease of navigating the electronic medical record, and a general increase in health literacy for the whole population. Although the literacy and verbal skills of individuals are concerns of critical importance, so too are the demands made by PEMs, the need to improve communication skills of health professionals, and the need to make the healthcare system less complex.

Specific reports by the IOM, the AHRQ, and the AMA, all released in 2004, recognized that health literacy is a key priority in transforming the U.S. healthcare system (Aldridge, 2004; Weiss et al., 2005). Specifically, AHRQ examined the relationship between literacy and adverse outcomes as well as interventions to improve outcomes for people who have limited literacy skills (Pignone et al., 2005).

In 2010, the NAP was released to provide guidance to nurses and other healthcare professionals regarding improving the current state of low health literacy. The NAP goals direct nurses and other public and private healthcare partners to implement care strategies that keep the health literacy issue at the forefront (Clancy, 2011). **Table 7-3** indicates how the NAP goals can be used as a framework to organize many of the strategies discussed.

Table 7-3 Strategies to Address the NAP Goals

NAP Goal	Strategies
Goal 1: Develop and disseminate health and safety information that is accurate, accessible, and actionable.	Provide a nonthreatening, comfortable, and familiar environment. Speak slowly, introduce yourself, and encourage questions. Encourage family and friends to reinforce self-confidence.

NAP Goal	Strategies
	Use clear communication by rewriting signs for your clinic; use little medical jargon, different colors, pictorial cues, and other visual stimuli.
	Explain information in simple terms; use everyday language.
	Reinforce words by using pictures and drawings; use patient education materials written at fifth-grade level or lower.
	Rewrite discharge instructions using short sentences, using black ink and 14-point plain font.
	Read aloud written handouts.
	Be aware of age-specific and cultural needs.
	Teach in increments and organize information into chunks.
	Use photographs, audio, and drawings to communicate the message.

NAP Goal	Strategies
Goal 2: Promote changes in the healthcare system that improve health information, communication, informed decision making, and access to health services.	Encourage nursing/medical schools to incorporate education on effective teaching. Refer patients to adult education and English language programs. Verify patient understanding by adopting the teach-back method. Use open-ended statements. Simplify information by using principles of tailoring and cuing. Use the smallest amount of information possible to accomplish the behavioral objectives. Keep teaching sessions to 15 to 20 minutes in length.
Goal 3: Incorporate accurate, standards-based, and developmentally appropriate health/science information and curricula in childcare and education through the university level.	Build partnerships with local hospitals, clinics, healthcare providers, librarians, and adult education centers to connect the health literacy skill-building activities of children and adults.

NAP Goal	Strategies
Goal 4: Support and expand local efforts to provide adult education, English-language instruction, and culturally and linguistically appropriate health information services in the community.	Become familiar with community information/literacy resources. Volunteer to lecture in the local library to support community health information needs. Engage organizations in making health literacy a priority. Hire more racially/ethnically diverse and bilingual healthcare professionals. Assist reporters and media outlets to release accurate health information.
Goal 5: Build partnerships, develop guidance, and change policies.	Join state health literacy initiatives and educate policymakers on the issue.
Goal 6: Increase basic research and the development, implementation, and evaluation of practices and interventions to improve health literacy.	Develop more rigorous and comprehensive methods to measure individual and population health literacy skills.

NAP Goal	Strategies
Goal 7: Increase the dissemination and use of evidence-based health literacy practices and interventions.	Engage in research on the topic of health literacy to employ evidence-based strategies when working with clients.

Nurses, regardless of their job title or specialty, will always be in a role whereby they can promote and implement the goals of the NAP in addressing health literacy. As Baur (2011) notes, “Nurses see the challenges patients and community members have when they try to make sense of ambiguous preventive health recommendations, unclear medication instructions, dense hospital discharge instructions, jargon-filled consent forms, health history, insurance forms, and confusing signage in clinics and hospitals” (p. 64). Nurses must understand the scope and critical need for improving communication and health literacy for every patient.

The interest in the literacy problem has escalated tremendously in the past 5 to 10 years, and recent results from the PIAAC survey demonstrate that difficulties with literacy, numeracy, and technology use are still prevalent (NCES, n.d.-a; Rampey et al., 2016). Despite this, PEMs continue to be significantly above the reading level of the general population (Eltorai et al., 2014; McClure et al., 2016; Sudore, Landefeld, et al., 2006; Szmuda et al., 2020; Williams et al., 2016). Also, numerous research studies have found the consequences of inadequate literacy and low health literacy are poorer health outcomes, increased hospital readmissions, and higher healthcare costs (Eichler et al., 2009; McNaughton et al., 2015; Peltzer et al., 2020; Stevens, 2015; Weiss, 2007; Weiss et al., 2005; Wong, 2016; Wu et al., 2016). These outcomes should serve as an incentive for all types of healthcare institutions and insurance payers to develop education programs to better reach patients with different levels of reading ability.

Further research to develop and test interventions that would be effective in addressing problems with literacy is warranted. Carollo (2015) examined older women with low health literacy and found that the patient–clinician relationship was an important factor in enhancing communication and empowering the patient, two areas that can positively influence health outcomes. Additional research on the optimal methods for communicating and interacting with diverse groups of people who have limited literacy skills must be explored.

Some innovative ideas are being used to increase the literacy of children. One such program is R.E.A.D., which stands for “reading education assistance dogs.” This program brings specially trained dogs to public libraries to provide children with a nonjudgmental audience to read to; almost every state has implemented some type of similar program. These dogs are trained to listen to young readers and detect difficulties with reading. They encourage the child to keep going by providing a gentle nudge or lick on the hand as needed. Children typically respond quite positively to this program and early research finds reading is improved (Hall et al., 2016; New York Therapy Animals, n.d.). Other types of innovative ideas are needed to reach the adult population. Specifically, nursing and healthcare research must focus on nurse–client interaction techniques that improve understanding of health information, which would lead to a higher level of motivation and adherence.

It is not yet well understood if health education materials for clients with low literacy do, in fact, improve health outcomes. In addition, more evidence is needed on the benefits of nonprint media, such as videos, audiotapes, computers, and smartphone applications, in helping clients to overcome barriers of health illiteracy to improve their quality of life. As use of technology becomes increasingly common in health care, the assessment of e-health literacy will become even more important based on the results of the PIAAC international survey that shows people struggle with technology use in problem solving (Rampey et al., 2016). Further, much more attention must be paid to the ethical and legal implications of providing education materials to clients with limited literacy skills that

are suitable to meet those individuals' health information needs. Future research must focus on health literacy to support and understand its role in healthcare reform, as well as better inform nurses of the impact it has on health outcomes (Clancy, 2011). Nurses, in the role of educators, must empirically explore teaching and learning approaches to find those techniques that are most effective in working with clients who suffer the burden of illiteracy and low literacy.

One major step in the right direction is for nurses to embrace the attitude of "universal precaution" when it comes to literacy. In other words, given the widespread existence of literacy problems and the challenges in identifying it, nurses should communicate with all patients as if they have difficulty understanding health information (Speros, 2011). This way, nurses can promote comprehension of information and minimize the consequences of misunderstanding across all populations. However, nurses can do this only if they have knowledge about health literacy and interventions to navigate low health literacy. This important topic must be addressed in the curriculum of nursing education (Kennard, 2016; McCleary-Jones, 2016).

Summary

The ability to learn from health instruction varies for clients, depending on such factors as educational background, motivational levels, reading and comprehension skills, and readability level of the materials used for instruction. The prevalence of functional illiteracy, low literacy, and low health literacy is a major problem in the adult population of this country.

Nurses in the role of educators serve as communicators and interpreters of health information. They must always be alert to the potentially limited capacity of their clients to grasp the meaning of written and oral instruction. Nurse educators need to know how to identify clients with literacy problems, assess their needs, and choose appropriate interventions that create a supportive environment directed toward helping those with limited reading and comprehension skills to better and more safely care for themselves. An awareness of the incidence of illiteracy, the populations who are most at risk, and the effects that literacy levels have on motivation and adherence with self-management regimens are key to understanding the barriers to communication between nurses and clients.

The first half of this chapter focused on the magnitude of the illiteracy problem, the myths and stereotypes associated with low literacy skills, the assessment of variables affecting reading and comprehension of information, and the readability levels of patient education materials. The remainder of the chapter examined in detail the measurement tools available to test for readability, comprehension, reading skills, and health literacy; guidelines for writing and evaluating education materials; and specific teaching strategies to be used to match the logic, language, and experience of clients with literacy problems.

Data suggest that written materials are an important source of health information to reinforce and complement other methods and tools of instruction. PEMs are the most cost-effective and time-efficient means to communicate health messages, but research suggests that there is a large gap between the average comprehension and reading skills of clients and the readability level of current written instructional aids. Unless this gap is narrowed, printed sources of information will serve no useful purpose for adults affected by illiteracy and low literacy.

Removing the barriers to communication between clients and healthcare providers offers an ideal opportunity for nurse educators to function as facilitators and work collaboratively with other health professionals to improve the quality of care delivered to consumers. It is their mandated responsibility to teach in understandable terms so that clients can fully benefit from interventions.

Review Questions

1. What are the definitions of the terms *literacy*, *illiteracy*, *low literacy*, *functional illiteracy*, and *health literacy*? How are literacy and health literacy different?
2. Approximately how many Americans are considered illiterate or functionally illiterate? What percentage of the U.S. population does this number represent?
3. Why are the rates of low literacy and illiteracy suspected to be on the rise in the United States?
4. Why is the number of years of schooling a poor indicator of someone's literacy level?
5. Which segments of the population are more likely to be at risk for having limited reading and comprehension skills? How can nurses address this risk without inadvertently stereotyping patients from these populations?
6. Why are problems with low literacy and functional illiteracy greater in older adults than in younger age groups?
7. What are three common myths about people who are illiterate?
8. What are seven behavioral clues that suggest the nurse may need to address a client's low literacy skills?
9. How does illiteracy or low literacy affect a person's level of motivation and adherence?
10. How does reliance on PEMs to supplement teaching pose an ethical or legal liability for nurse educators?
11. Which measurement tools (formulas and standardized tests) are used specifically to test readability, comprehension, reading, and health literacy skills?
12. What are 10 general guidelines to simplify written educational materials for clients with low literacy skills?
13. What are five teaching strategies that can be used by the nurse educator to make health information more understandable for clients with limited reading and comprehension skills?

CASE STUDY

Northeastern Medical Center, an institution committed to serving its local community, has agreed to focus on providing healthcare services to the neighborhood area surrounding the main hospital campus. The majority of residents in this area live in (or near) poverty, have varied ethnic backgrounds, and are frequent visitors to Northeastern's emergency department. These services will include a special weekly health clinic held at the hospital, education programs specific to this population's needs, as well as in-hospital services as required. It is anticipated that all units in the hospital will participate in these initiatives.

The residents in this neighborhood represent a high-risk segment of the population, as many do not participate in preventative health care and have limited resources; a number of them present with social and mental health issues. A high percentage of the residents are families with small children. Usually, at least one person per household is employed but often in low-paying hourly positions, and the majority of adults has only a high school education or less. This neighborhood is also home to a handful of families who are foreign born and have limited English skills. Their healthcare needs range from acute and preventive physical and mental health services to care for chronic conditions. The residents are a somewhat transient population as most of the housing is rental, and their contact with healthcare services often is limited to emergencies. Both in-hospital and community health education are important components of the care they receive from the nursing staff, who strive to teach them how to maintain and improve health and well-being for themselves and their families.

1. Which risk factors suggest that this population may have low literacy and inadequate health literacy skills?
2. As the nurse providing education, how would you assess the reading and comprehension levels of the residents? Which clues will you look for?
3. Select teaching strategies you would use with this population. Explain why these strategies would work when teaching groups with mixed literacy levels.

4. How will you evaluate the learning that has taken place resulting from your instruction?

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CHAPTER 8

Cultural Attributes of the Learner

Susan B. Bastable

Kara Evans

CHAPTER HIGHLIGHTS

- Sex and Gender Characteristics
  - *Sexual Orientation and Gender Identity*
- Socioeconomic Characteristics
- Cultural Characteristics
  - *Major Racial and Ethnic Groups*
  - *Definition of Cultural Terms*
- Models for Cultural Assessment
  - *General Assessment and Teaching Interventions*
  - *Use of Interpreters*
- Preparing Nurses for Diversity Care
- Stereotyping: Identifying the Risks and Solutions
- State of the Evidence

KEY TERMS

acculturation

androgynous

assimilation

cisgender

cultural awareness

cultural competence

cultural diversity

cultural relativism

cultural sensitivity

culture

enculturation

ethnocentrism

gender

gender bias

gender gap

gender-fair language

gender-related cognitive abilities

gender-related personality behaviors

ideology

multiculturalism

non-binary

poverty cycle (circle of poverty)

primary characteristics of culture

race

secondary characteristics of culture

sex

sex- and gender-based medicine

social determinants of health (SDOH)

socioeconomic status (SES)

stereotype threat

stereotyping

transcultural

transgender

white privilege

worldview

OBJECTIVES

After completing this chapter, the reader will be able to:

1. Identify sex- and gender-related characteristics in the learner based on heredity and social influences on brain functioning, cognitive abilities, and personality traits.
2. Describe factors influencing the unique healthcare and education needs of the LGBTQ+ community.
3. Recognize the influence of socioeconomics on health status, health behaviors, and health disparities.
4. Identify the six major racial and ethnic groups in the United States and the approximate percentage of each group in the total population.
5. Define the various terms commonly associated with the subject of culture based on race and ethnicity.
6. Examine different cultural assessment models from the perspective of patient-centered care.
7. Discuss the effects culture has on shaping health-related beliefs, behaviors, and values.
8. Determine general assessment, communication, and teaching strategies with respect to the needs of learners from different cultures and those who have limited English proficiency (LEP) skills.
9. Explain why it is both a legal and ethical right of patients to be given an interpreter when they are not fluent in speaking the English language of the health providers.
10. Outline the tips that will help nurses communicate most effectively with patients through an interpreter in a healthcare setting.
11. Examine ways in which nurses can be prepared for diversity care and why diversity is so important in the workforce and workplace.

12. Identify the meaning of stereotyping, the risks involved, and ways to avoid stereotypical behavior.

Culture is a significant influence on a learner's willingness and ability to respond to and make use of the teaching–learning situation. Culture also plays a role in how people interpret their experiences, react to health and illness, and formulate their expectations of the nurse and other healthcare providers (Hernandez & Gibb, 2020). The cultural attributes of gender and socioeconomic status (SES) have been given very little attention to date by nurse educators. In contrast, the cultural attributes of race and ethnic background have been the focus of considerable study in recent years with respect to its effects on learning. Understanding diversity, particularly those variations among learners related to gender, socioeconomics, and race and ethnicity, is of major importance when designing and implementing education programs to meet the needs of an increasingly unique population of learners.

Although this chapter focuses primarily on patients as learners, much of the information on the cultures of gender, socioeconomics, race and ethnicity can be applied to the teaching and learning of staff nurses and nursing students who come from diverse backgrounds and experiences. This chapter explores how individual learners respond differently to healthcare interventions through examination of sex- and gender-related variations in brain functioning and behavior that result from heredity or social conditioning. In addition, the influence of environment on the learner from a socioeconomic viewpoint is examined, which includes environmental factors such as resource scarcity (Stamos et al., 2016). Also, consideration is given to the significant effects that cultural norms have on the behaviors of learners from the perspective of the predominant racial and ethnic groups in the United States. Models for cultural assessment and the planning of care are highlighted as well. Finally, this chapter outlines the importance of preparing nurses for diversity care and the ways to deal with the issue of stereotyping.

Sex and Gender Characteristics

Contrary to popular belief, the terms “sex” and “gender” are not interchangeable. However, their uses are distinct, and additional concepts related to identity, roles, and conformity describe the complexity of diversity in gender and biological sex. (Newman, 2018). To begin this section of the chapter, the following definitions are important to differentiate terms regarding sex and gender (APANASP, 2015; Chak, 2015; Nagappan, 2019):

Biological Sex refers to the characteristics that are biological in origin. The biological sex terms *male* and *female* refer to genetic traits (e.g., XX chromosomes in most biological females, XY chromosomes in most biological males), reproductive organs, and hormones that affect reproductive biology such as testosterone, estrogen, and progesterone. Currently, when babies are born in the United States, doctors assign them the binary gender culturally associated with their assumed biological sex. While biological sex may seem apparent at birth from the presentation of genitals, some intersex presentation may not be apparent until later in life.

- Biological Female: Someone born with the female chromosomes XX and associated sex organs
- Biological Male: Someone born with the male chromosomes XY and associated sex organs
- Intersex: Someone born with chromosomes that differ from XY or XX and/or a combination of sex organs from both sexes. Some biologically intersex people have chromosomal XX or XY pairings that differ from their externally or internally visible sex organs. Others have differences in chromosomal combinations as well. Intersex biological sexes include XX and XY pairings as well as others—including but not limited to: XXY, XXXY, XXXXY, XYY, and XO (Diamond, 2020; InterACT, 2021). There are over 40 different ways that intersex anatomy can develop. Just like a person of any other biological sex, a biologically intersex person

can identify as cis, trans, male, female, or non-binary. As a general rule, intersex people are the result of natural genetic variation rather than disorders. Intersex bodies are not inherently disordered. While some intersex variations come with health risks, being intersex is not a disorder to be fixed. However, intersex people have a variety of unique medical needs that a healthcare provider should take into account—some of these will be discussed later in the chapter. Currently, most states in the United States do not offer nonbinary gender or sex options on birth certificates, even if a baby presents with mixed or indeterminate genitalia at birth (Diamond, 1994; InterACT 2021)

Gender refers to the attitudes, feelings, beliefs, behaviors, and social norms associated with each of the biological sexes that are expected by society in general and by different cultures in particular. The gender designations of man and woman, ladies and gentlemen, boys and girls, the pronouns he/him/his, she/her/hers, and they/them/theirs and words such as *masculine, feminine* and *androgynous* describe characteristics that are socially constructed and culturally assigned.

- **Gender Binary** refers to an outdated belief that the only sexes are either male or female and that all genders are cis-conforming—meaning that a person's gender must match the biological sex assigned to them at birth. Using gender as a verb or to say that something is "gendered" means that it falls within the gender binary. For example: It is easy to see how commonly children have *gendered* experiences by going into a children's toy story and seeing aisles full of pink toys for girls and blue toys for boys.
- **Cisgender** refers to individuals whose sex matches the binary gender they were assigned at birth. While cisgender is one word, "cis" is an adjective. So, for example, a man who is cisgender is a cis man.
- **Transgender** is a term that applies to individuals whose gender identity does not match or conform to the biological sex

assigned to them at birth. While transgender is one word, “trans” is an adjective. So, for example, a woman who is transgender is a trans woman. The gender following the term “trans” *always* refers to the preferred gender of the trans person. For example, a person assigned male at birth and born with male genitalia and sex chromosomes who identifies as woman is a trans woman. The terms “men” and “women” encompass all trans and cis men and women.

- **Femme/Feminine** refers to a style of gender expression that involves outward expressions of identity that align with cultural expectations associated with biological females. For example, a trans man, trans woman, cis woman, or intersex person can present as femme by wearing dresses or makeup.
- **Masc/Masculine** refers to a style of gender expression that involves outward expressions of identity that align with cultural expectations associated with biological males. For example, a cis man, trans woman, trans man, or non-binary person may present as masc by wearing basketball shorts and having short hair.
- **Androgynous** refers to a style of gender expression that involves outward expressions of identity that intentionally combine or confuse cultural expectations of both biological men and women. Androgynous presentation intentionally combines or takes on masculine and feminine characteristics. For example, a cis, trans, intersex, or non-binary person may present as androgynous by wearing men’s suits and makeup at the same time.
- **Non-binary** refers to individuals who, regardless of their biological sex, do not conform to the gender binary—meaning as neither a man nor a woman. This can mean they identify somewhere between the concepts of man and woman. It may also mean their gender does not relate to the concepts of man or woman at all. Non-binary people are sometimes also referred to as gender non-conforming.

The section that follows, entitled *Sexual Orientation and Gender Identity*, will discuss the unique healthcare and educational needs of

LGBTQIA+ people.

Most of the information on sex and gender variations with respect to learning is found in the educational psychology and neuroscience literature. The nursing literature, however, contains relatively little information about this subject from a teaching–learning perspective. The characteristics of sex and gender identities, though, have the potential to affect learning. Therefore, these findings need to be considered more closely as to how they apply to patient education in nursing practice and to teaching of nursing staff and students.

Two well-established facts exist with respect to sex and gender. First, individual sex differences *within* a group of people of the same biological sex are usually greater than *between* groups of different biological sexes. Second, studies that compare the gender identities seldom can separate genetic differences from environmental influences on behavior (Crandell et al., 2019; Santrock, 2019).

As a result, a gap in knowledge remains about what the genders would be like if humans were not subject to behavioral conditioning and sociocultural influences. No person can survive outside their sociocultural context. Therefore, environment shapes individuals from birth. These experiences act as social influences that likely continue to affect gender identity throughout the life span.

Scientists are beginning to believe that gender differences have as much to do with the biology of the brain as with the way people are raised (Fine et al., 2017; Wilson & Auger, 2013). The debate, then, is not whether human development is influenced by nature or nurture, but *how much* influence heredity and environment have on shaping the abilities and personalities of human beings (Eliot, 2009; Hines, 2020; Larkin, 2013; McLeod, 2007; Sincero, 2012). Thus, gender is a complex spectrum that requires consideration of the interplay of biological, sociological, and cultural factors.

Men and women can differ in terms of biological sex and cultural context, which shapes those it perceives as men and women differently. But questions remain: How different or similar are

biological sexes and binary genders when it comes to learning? To what can the differences and similarities be attributed? To date, biological and behavioral scientists have been unable to determine the exact impact that genetics and environment have on the brain. Opinions are rampant, but research findings are still inconclusive (Fine et al., 2017; Ingalhalikar, 2014; Joel et al., 2015; Larkin, 2013; Ngun et al., 2011).

However, the fact remains that gender differences influence how people act, react, and perform in situations affecting every aspect of life. Cahill (2014a, 2014b) asserts that sex differences in the brain are much too important to be ignored or marginalized. Ritchie (2018) and Ngun et al. (2011) contend that the emerging fields of neuroanatomy and neurochemistry can contribute to understanding the genetic effects of brain and gender differences, which may reveal specific disease susceptibility and the influence of genetics on cognition and specific mannerisms. Such scientific findings have the potential to improve health care for people of all genders by addressing their individual needs. The 2001 National Academy of Sciences report stated, “Sex does matter. It matters in ways that we did not expect. Undoubtedly, it also matters in ways that we have not begun to imagine” (Pardue, p. x). It is clear that both gender and biological sex matter, often in unexpected ways, to providing quality care and shaping healthcare approaches for people of all genders.

As science helps to advance our understanding of sex and gender differences, the field of **sex- and gender-based medicine** is growing. [SGBM] (Madsen et al., 2017; McGregor et al., 2016; Ngun et al., 2011). Its aim is to translate scientific data into practical applications that will improve healthcare services to people of all genders to meet their specific needs, such as tailoring preventive screenings in the treatment of sex-specific diseases. A one-size-fits-all or binary approach to care delivery is too limited in scope. The variables of gender and biological sex must be taken into consideration to appropriately treat mental and physical problems (Ngun et al., 2011).

In conclusion, early yet interesting findings from research are beginning to show that cisgender male and cisgender female characteristics, as well as variations within gender identity, are creations of both nature and nurture. Along with genetics, life experiences and the choices human beings make over the course of a lifetime help to mold personal characteristics and determine the differences in the way people of all sex and gender identities think, sense, and respond (Ngun et al., 2011).

The **gender gap** refers to the well-documented differences between the genders as reflected in social, political, intellectual, cultural, or economic attainments or attitudes. Globally, this gap is measured by four key indices: health, education, economics, and politics (Harris, 2017). In essence, this gap is the difference between what the different genders do and achieve and the way they are treated in society (Cambridge Dictionary, 2021). Also well documented is **gender bias**, which is defined as any one of a variety of stereotypical beliefs about individuals on the basis of their sex or gender, particularly as related to the differential treatment of women and men (APA, 2020). It also has been described as a preconceived notion about the abilities of the different genders that have prevented them from pursuing their own interests and achieving their potentials (Santrock, 2019). Thus, with respect to brain functioning, a mixture of the factors of heredity and environment likely accounts for gender characteristics.

With respect to **gender-related cognitive abilities**, studies have yielded inconsistent findings, but any differences found between those who identify as male or female are not as significant as, for example, the disparity that exists between biological male and biological female height. When it comes to general intelligence, any mean intellectual differences have proved minimal (Ardila, 2011; Crandell et al., 2019; Snowman & McCown, 2015; Upadhayay & Guragain, 2014). Intelligence is multifaceted, but the unanimous consensus is that biological males and biological females do not differ in general intelligence (Reilly, 2012).

However, what is well documented is the strong correlation between IQ (intelligence quotient) and heredity. that is, if parents are intelligent, their offspring also are likely to be (Santrock, 2019). In terms of IQ, a very interesting trend has been noted. IQs, as measured by the Stanford–Binet intelligence test, are increasing rapidly worldwide. As compared with IQs tested in 1932, if people took the same test today, a large percentage would score much higher. Because this increase has occurred over such a relatively short time, heredity cannot be the cause. Instead, increasing levels of education and the information-age explosion likely explain the trend. This increase in IQ scores is known as the *Flynn effect* after the researcher who discovered it (Santrock, 2019).

Research on other cognitive abilities, such as verbal, mathematical, and problem-solving capabilities, have either shown inconsistent differences or no differences at all (APA, 2014; Crandall, 2019; Ganley, & Vasilyeva, 2014). As for school achievement, a meta-analysis by Voyer and Voyer (2014) found a generalized cisgender female advantage in school achievement, but these authors determined that much research is still needed to determine the factors and causes of this small in magnitude yet consistent finding.

Another cognitive skill, spatial ability, has traditionally been assumed to be consistently better among biological males than among females. Spatial ability, which is the ability to recognize a figure when it is rotated, to detect a shape embedded in another figure, or to accurately replicate a three-dimensional object, has been attributed to genetics, although the magnitude of this sex-related difference is quite small (Gur et al., 2000). However, recent research has come to show that this stereotype may not actually be true. According to a meta-analysis by Hyde (2016), cisgender females and males may be equal in spatial skills. Hoffman et al. (2011), Sanchis-Segura et al. (2018), and Vander Heyden et al. (2016) strongly argue that the gender gap in the underrepresentation of cisgender females in science, technology, engineering, and math (STEM) fields is a result of the role of nurture. Cisgender males typically are given more opportunity for relevant spatial skills training and females and other

genders are persistently negatively stereotyped as having inferior spatial abilities, which leads to each gender's increased and decreased performance, respectively.

In conclusion, research data from meta-analyses of hundreds of studies involving millions of cisgender participants indicate that perceived or actual differences in cognitive performance among the sexes and genders are most likely caused by social and cultural factors, not biological factors. That is, cognitive abilities are culturally mediated (nurture) rather than being attributed to differences in biologically determined, innate abilities (nature). If the different genders were treated as intellectual equals via gender equity measures in grade schools, colleges and universities, workplaces, and social settings in general, then individuals and society would benefit (APA, 2014; Reilly, 2012). Despite this conclusion, scientists continue to debate about how much, not whether, biology contributes to differences in the cognitive functioning of male and female brains (Nixon, 2012).

Although no compelling evidence proves significant sex- and gender-linked differences in the areas of cognitive functioning, some findings do reveal differences when it comes to personality characteristics of cisgender males and females in the United States and other countries (Crandell et al., 2019; Santrock, 2019; Snowman, & McCown, 2015).

With respect to **gender-related personality behaviors**, they are thought to be largely determined by culture, but in some behavioral categories they are attributed to the mutual interaction between environment and heredity. For example, males of all ages in many cultures generally demonstrate a more aggressive personality trait than females. However, this is not true of all cultures. This gendered difference appears very early in life in human beings. The role of the higher levels of the hormone testosterone has been cited as a possible cause of the more aggressive behavior demonstrated by very young boys as well as by adolescent and adult males (Stewart-Williams, 2019). That author contends that, if the gender gap in

aggression was due solely to socialization, it would not be very evident in young children but would grow more dominant overtime as society influenced the minds and behavior of men and women. However, anthropologists, psychologists, sociologists, and scientists in other fields still continue to disagree about the extent to which aggression is biologically based or environmentally influenced.

As another example of personality traits, those who identify as women generally have been thought to be more conforming and more dependent. Past studies on gender differences in conformity have yielded inconsistent findings, but the more recent research indicate changes in the gender roles of women with respect to characteristics of conformity, such as compliance, acquiescence, and obedience (Cross et al., 2017; Eno, 2010). As for dependence, Markus and Conner (2013) have put forth the theory of independent and interdependent selves. They speculate that differences in the behaviors of men and women are related to sociocultural factors including but not limited to culture, race, class, and gender. They describe the sets of values of the "independent" self as wanting to be unique, making contributions, being heard, and influencing others. In contrast, the "interdependent" self is drawn to building relationships, finding similarities with others, fitting into one's social surroundings, and adjusting to the needs of others. This theory provides insight into the reasons for the persistence of gender inequality in the workplace and other settings. For example, someone who identifies as a woman may be judged as aggressive or cold if she acts in an independent manner. Someone who identifies as a man, however, is valued for his independent nature. In our U.S. society women are "encouraged to be communal, caring, and concerned for others… men learn from a young age to be dominant and outspoken… Boys and girls learn how to behave by observing the family members, teachers, peers, and the media" (Crossley, 2014, p. 2). This author also points out that even in adulthood, men and women are reminded to interact in socially acceptable, gender-specific behavioral ways.

As for values and life goals, historically in Western nations men have assumed more roles in scientific, mathematical, mechanical, and physically active occupations as well as to express stronger economic and political values. Women have assumed more roles in literary, social service, and clerical occupations and have tended to express stronger aesthetic interests, social sense, and religious values. However, these differences have changed over time as women and men have begun to think differently about themselves. In recent decades, women have more freely pursued career and interest pathways, and society has begun to take a more inclusive viewpoint for people of all genders. Markus and Conners (2013) concluded that people on either side of the gender binary could benefit from assuming characteristics associated with their opposite. Additionally, people from throughout the gender spectrum could benefit from un-gendering characteristics, For example, cisgender women could benefit from becoming more independent in their career goals and aspirations, and it should be the responsibility of cisgender men to operate more interdependently to help break the glass ceilings that have prevented women from reaching their potential.

Teaching Strategies

As for structural and functional biological sex differences in the human brain, past research has yielded conflicting results. Although Richie et al. (2018), who conducted the largest, most comprehensive, single-sample study to date on the human brain, discovered statistically significant variations in the mean (average) of various features between cisgender male and female brains, these researchers concluded that there was “considerable distributional overlap between the sexes” (p. 2959) on all measures. As Joel et al. (2015) also argued, human brains must not be classified into male or female brains. Thus, it is important for the nurse educator to remember to treat each person as an individual, not as an average, when teaching. Instead, each person must be evaluated on their own merits with respect to cognitive abilities and other learner characteristics, such as educational background, literacy and health

literacy levels, learning styles, readiness to learn, and motivation to learn.

As for gender, Davidson et al. (2006) describe it as a “multifaceted construct” (p. 731) that includes modifiable attributes that can influence health education and health outcomes. These attributes include personality, social supports, coping skills, values, and health-related behaviors. This also includes, but does not necessarily demand, altering or removing sex organs and genitalia and other physical characteristics. Some examples include gender confirmation surgery, breast implants, and various facial plastic surgeries. When planning teaching strategies, nurses must be aware of the extent to which attributes such as these, as well as heredity-related sex characteristics, may affect health-seeking behaviors and influence individual health needs. Any differences seem to depend on both the biological and social roles of men and women in society (APA, 2018).

So, how do gender and sex characteristics relate to the healthcare needs of patients and the process of engaging them in teaching and learning? With respect to gender differences in longevity, the gender gap is alive and well, in that it is now wider than it was 100 years ago. The gender gap in length of life is due to a complex combination of biological, sociological, and behavioral factors, such as genes and chromosomes, hormones, work stress, level of social supports, exposure to risk, amount of exercise, diet habits, alcohol consumption, and regularity in receiving medical care (Harvard Men’s Health Watch, 2019). As an example, men have higher mortality rates for each of the 10 leading causes of death (Kochanek et al., 2016). Although people of both sexes are living longer, women continue to outpace men in terms of life expectancy. Generally, women worldwide on average live about six to eight years longer than men (WHO, 2021). In 2017, cisgender females in the United States had a life expectancy of approximately 81 years compared to approximately 76 years for cisgender males (Harvard Men’s Health Watch, 2019; Shmerling, 2020).

One point that is known is that women are more likely to seek health care more often than men do (Harvard Men's Health Watch, 2019; Shmerling, 2020). It is suspected that one of the reasons women have more contact with the healthcare system is that they traditionally have tended to be the primary caretakers of their children, who need pediatric services. In addition, during their childbearing years, women seek health services for care surrounding pregnancy and childbirth (Smith, 2006). However, other variables—such as sociodemographics and health status—come into play to account for gender differences in the use of healthcare services (Bertakis et al., 2000; Courtenay, 2000; Kaiser Family Foundation, 2015; Regitz-Zagrosek, 2012). Not only are cisgender women generally healthier and more likely to have a regular source of health care, but they also are more likely to have health insurance (Harvard Men's Health Watch, 2019).

Thompson et al. (2016) explored gender differences in health-seeking behaviors and confirmed that women visit their primary care provider more often for both physical and mental health issues. These authors believe that recognizing these gender differences will help providers identify the variables predicting healthcare seeking and eliminate barriers to improve access to health care. As for the social support process in health and illness, sociocultural expectations condition men to value independence, self-sufficiency, and strength. This often results in their negative responses to receiving help from their social network and a reluctance to admit perceived weakness by seeking help. In contrast, these social expectations women tend to be less affected by their desires for dependence or independence when receiving offers of social support (Nagurney et al., 2004). Also, Caetano et al. (2013) found gender differences to be associated with perceived social support and social network in relationship to self-rated health status among older adults.

Perhaps the reason that cisgender men tend not to rely as much as cisgender women on care from health providers is the gender-role expectation by our society that men should be stronger. They also tend to be risk takers and to think of themselves as more

independent. Although men are less likely to pursue routine health care for purposes of health and safety promotion and disease and accident prevention, they typically face a greater number of health hazards, such as a higher incidence of automobile accidents, use of drugs and alcohol, suicide, heart disease, and participation in dangerous occupations. Furthermore, men are less likely to notice symptoms or report them to physicians (Courtenay, 2000; Harvard Men's Health Watch, 2019). However, Falk et al. (2016) found that women report higher levels of symptom distress (pain, fatigue, and nausea) than men likely because women receive less attention and symptom alleviation than men, which indicates serious inequality in care.

Unfortunately, gender bias exists in health care. For instance, more needs to be understood about women's health, because for years their health issues have been underrepresented in research studies. Until relatively recently, research into diseases and treatments had many more biological male subject participants than biological female subjects. Fortunately, this trend has started to change within the last 2 to 3 decades, and significant evidence is beginning to surface about the physical and mental health status of biological females. However, gender bias in research remains a prevailing issue. Ensuring that women and other genders are equally represented in medical research will go a long way to reducing gender bias in health care (DeCola, 2012; Fierce Healthcare, 2019; U.S. Department of Health and Human Services [USDHHS], 2012).

Sexual Orientation and Gender Identity

LGBTQ has been commonly used to refer to individuals and groups who describe their sexual orientation and gender identity as lesbian, gay, bisexual, transgender, and queer/questioning. More recently, however, additional subgroups have emerged and the newest acronym is LGBTQIA+. This acronym stands for lesbian, gay, bisexual, transgender, queer/questioning, intersex, and asexual. The "+" acknowledges that, as levels of understanding and acceptance grow and evolve in society, terms addressing sexuality, biological

sex, and gender will also evolve. The “+” serves as umbrella for all current and future non-heterosexual, asexual- and aromantic-spectrum, pansexual and polyamorous identities as well as any identities that may emerge in the future. Nevertheless, the U.S. Census Bureau and Gallup polls to date use the acronym LGBT and most references in the literature continue to use the LGBT or LGBTQ acronym. Recognizing and acknowledging that other gender orientations and sexual identities exist and should be represented, LGBTQIA+ will be the designation used in this chapter henceforth (Cherry, 2020; Premier Nursing Academy, 2021).

Some terms important to differentiating LGBTQIA+ identities are (LGBTQIA Resource Center, 2021):

- Allosexual: A sexual orientation generally characterized by feeling sexual attraction or a desire for partnered sexuality.
- Alloromantic: A person who experiences romantic attraction.
- Asexual: A broad spectrum of sexual orientations generally characterized by feeling varying degrees of sexual attraction or a desires for partnered sexuality. Asexuality is distinct from celibacy, which is the deliberate abstention from sexual activity, despite sexual desire. Some asexual people do have sex and do experience varying levels of sexual attraction. There are many diverse ways of being asexual. A person who does not experience sexual attraction can experience other forms of attraction such as romantic attraction, as physical attraction and emotional attraction are separate aspects of a person’s identity.
- Aromantic: A romantic orientation generally characterized by not feeling romantic attraction or a desire for romance. Aromantic people can be satisfied by friendship and other non-romantic relationships. Many aromantic people also identify with a sexual orientation, such as asexual, bisexual, etc.
- Queer: Once a derogatory term, some people now use queer as an umbrella term for people who fall within the LGBTQIA+ umbrella as well as for people who do not feel they fit into any one specific category represented by other letters in the acronym. Someone may self-identify as queer or refer to the

LGBTQIA+ as the “queer community.” Healthcare providers should always use “queer” as an adjective rather than a noun. A patient may be a queer person but is never “a queer,” as that retains derogatory connotations.

- Questioning: The process of exploring one’s own gender identity, gender expression, and/or sexual orientation. Some people may also use this term to name their identity within the LGBTQIA+ community.
- In the closet/closeted: Being “in the closet” or “closeted” refers to someone who has chosen not to disclose their sexuality or gender identity to others. It is possible to be closeted in some situations and not others. For example, a person may be in the closet from their family, but “out” with their close friends.
- Out of the closet/out/coming out: Being “out of the closet” or “out” means not hiding one’s sexual or gender identity from a given person or group. A person who is not closeted is “out.” “Coming out” is the process of sharing one’s sexual or gender identity with a given person or group and is likely to happen several times in the life of a queer person—with family, friends, coworkers, and even healthcare providers.
- Demi-/Gray-: Demi- or Gray- are prefixes that indicate a point along a given gender, sexuality, or romantic spectrum. For example, a demisexual person is someone who only experiences sexual attraction after forming a strong emotional bond with someone but is otherwise completely asexual.
- Pan-: Pan- is a prefix that indicates an acceptance of all genders in romantic and sexual relationships.
- Polyamorous: A polyamorous person is someone who has consenting romantic and/or sexual relationships with multiple people. This is not the same a polygamy or cheating. Each member of a polyamorous relationship may or may not also be polyamorous with others.

The exact number of LGBTQIA+ persons in the U.S. and worldwide is unknown. However, this population is estimated to include more than 11 million adults in the U.S. alone (Newport, 2018). This number is based on the latest 2017 Gallup poll and represents a

very conservative estimate of the LGBTQIA+ population. Since 2012 when Gallup began tracking this measure, the percentage of American adults identifying as LGBTQIA+ increased from 3.5% in 2012 to 4.1% in 2016 and to 4.5% in 2017. The increase is mostly attributed to LGBTQIA+ identification by Millennials (those born between 1981–1996). The percentage of people who identify as LGBTQIA+ in older generations—Gen X (1965–1980) and Baby Boomers (1946–1964)—has shown little or no change in rate since 2016. More women (5.1%) compared with men (3.9%) identify as LGBTQIA+ (Newport, 2018).

For the first time in history, the 2020 U.S. Census began to collect data on people's sexual orientation and gender identity. Specific checkboxes on the census survey were added for same-sex couples to identify how each person in the household is related to the person who has filled out the census questionnaire, such as separate categories for same-sex husband/wife/partner or same-sex unmarried partner (SAGE USA, 2020). Because of hesitancy on the part of many members of the LGBTQIA+ population to disclose their sexual orientation and/or gender identity, underrepresentation is always an issue in getting precise data to fully understand the scope and diversity of LGBTQIA+ communities across the nation.

When considering gender and other factors that influence the unique learning styles and educational needs of men, women, and other genders, it is important to include the LGBTQIA+ community. The LGBTQIA+ population represents a distinct cultural group whose needs are often overlooked by nurses and other health professionals (American Medical Student Association, 2015; APA, 2018; Felsenstein, 2018; Sullivan et al., 2017). Although members of the LGBTQIA+ population have many of the same health problems as the general population, disparities do exist, and as a group, their health outcomes are worse than those of the heterosexual community (Centers for Disease Control and Prevention [CDC], 2014a; Kates et al., 2018; USDHHS, 2020a).

Three main problems contribute to the health disparities experienced by the LGBTQIA+ population:

1. The social stigma associated with being LGBTQIA+ creates undue stress and contributes to negative health behavior patterns. For example, research has identified increased rates of tobacco, alcohol, and drug use as well as a high incidence of depression, anxiety, suicide, and other mental health problems among the LGBTQIA+ population, including adolescents and adults. Older adults who have remained closeted for their entire lives face additional barriers, such as isolation and lack of social services (Adam, 2016; Livingston et al., 2015; Mirza & Rooney, 2018; Premier Nursing Academy, 2021; USDHHS, 2020a).
2. Structural barriers decrease access to health care for people in the LGBTQIA+ community (Gonzales, & Henning-Smith, 2017; Mayer et al., 2008). For example, unemployment in the LGBTQIA+ community due to job discrimination and legal discrimination resulting in lack of access to insurance benefits for LGBTQIA+ individuals and/or people with LGBTQIA+ partners have led to a higher-than-average number of people without health insurance coverage (Gonzales, 2014; USDHHS, 2020a).
3. Lack of culturally appropriate care for the LGBTQIA+ community results in limited or ineffective use of healthcare services. For example, to avoid negative interactions with healthcare providers, LGBTQIA+ patients—particularly bisexual men and women—are often reluctant to disclose their sexual orientation. In another example, intersex individuals may not feel safe and able to accurately disclose their gender identity. Without these vital pieces of information, nurses and other health professionals are unable to provide comprehensive care. Other members of the LGBTQIA+ community simply avoid seeking health care unless it is of absolute necessity. As a result, they may not take advantage of preventive services or receive early treatment for serious health problems (Durso & Meyer, 2012; Mirza & Rooney, 2018; USDHHS, 2020a).</NL>

Also, a variety of health concerns are unique to members of the LGBTQIA+ community about which healthcare providers should be aware. People undergoing medical transition may require hormone replacement therapy to aid in puberty, psychological counseling to deal with gender dysphoria, or a variety of surgeries to address body preferences ranging from breast implants to phalloplasty or vaginectomy. Often, biological sex and gender identity are synergistic—as is the case with cisgender individuals. Other times, gender identity may be more relevant to care than biological sex or vice versa. For example, a trans man experiencing pregnancy will have obstetric needs typically associated with cisgender women. However, he may also have psychological or hormonal needs specific to being a trans man, including adjustments in hormone replacement therapy and psychological counseling for gender dysphoria.

Another issue facing the LGBTQIA+ community is trauma. Many people from the LGBTQIA+ community experience trauma at many points in their lives due to a lack of understanding from peers, caregivers, and institutions. Examples of LGBTQIA+-specific trauma are vast and wide-ranging. A non-binary person may deal with trauma after being fired from a job as a consequence of altering their gender expression. A gay man who survived the onset of the HIV/AIDS epidemic in the 1980s may have trauma due to being targeted as a result of a false stereotype that incorrectly blamed homosexuality for causing the epidemic in the first place, while other gay men may have trauma from watching their friends and partners die of HIV/AIDS during that time. A young lesbian woman may have trauma from growing up attending a church where church leaders referred to homosexuality as a sin or gay people as abominations. People across the LGBTQIA+ spectrum experience trauma from “corrective rape” – something that occurs when someone rapes a member of the LGBTQIA+ community in a cruel attempt to make them heterosexual, allosexual, or cisgender (Human Rights Campaign, n.d.; Doan-Minh, 2019)

Healthcare providers can often unintentionally contribute to patient trauma through microaggressions that exacerbate prior trauma. Assuming a patient's gender and pronouns based on their physical appearance or name is a common way to alienate LGBTQIA+ patients. But there are many more examples. For instance, if a patient says they have not had a sexual partner in a number of years, some doctors might reply, "Don't worry. You'll find someone." This can cause a sense of feeling broken or out of place in asexual patients. One of the most important ways that healthcare providers can minimize trauma when interacting with patients is to avoid microaggressions and instead use micro-affirmations. Being ready to use they/them/their pronouns, saying partner instead of "boyfriend" or "girlfriend" when interacting with patients, and saying "people who menstruate" instead of "women" when referring to gynecological issues are all ways to signal to potential LGBTQIA+ patients that they can feel safe sharing information about their gender or sexuality with their healthcare providers. Another way that a healthcare provider can signal themselves as a safe source of care is for the provider to share their own pronouns with their patients. For example, "Nice to meet you. My name is Dr. Ohadi and I use she/her/hers pronouns. How would you like for me to address you?" is an excellent way to start a medical encounter.

Intersex individuals experience a host of unique and often traumatic medical encounters from birth, and they also have a variety of experiences unique to being intersex (Diamond, 2010: InterACT, 2021). One of the main sources of trauma for intersex people is receiving nonconsensual intersex surgery as infants—often at the urging of doctors. These surgeries can include clitoroplasty, vaginoplasty, hypospadias repair, and gonadectomy and are mostly performed on children under the age of two years (InterACT 2021; Diamond, 2010)

Despite mounting protests of adult survivors of intersex surgery, as of 2021 only two hospitals in the United States refuse to perform intersex surgery on infants (Lindahl, 2020). As long as an infant is able to pee normally, there is typically no reason to rush into surgery

to correct intersex-presenting genitalia. In fact, infant intersex surgery can often lead to lifelong complications both physically and psychologically. Most intersex surgeries on infants occurs when a doctor and the parents of an intersex child make a choice to “decide” on a gender for the child. This may not align with the child’s idea of their own gender as they grow up. Also, these surgeries may have adverse effects on the child’s lifelong fertility and sexual function. One way to care for intersex infant patients is to urge caution to parents of intersex infants before rushing to perform surgery (Diamond, 1994). There are other unique risks facing the health of intersex individuals, including difficulties regulating hormones and an increased risk of cancer and UTIs. Some of these risks are inherent to certain intersex conditions while others are a result of infant intersex surgery. One of the best ways to care for intersex patients is to be aware of and sensitive to the unique issues they face.

Teaching Strategies

People of all gender and sexual identities are influenced by distinct subcultures that form around these identities. Such subcultures often use different symbols and ways to express themselves. In the future, these gender differences may become less pronounced as the gender roles evolve.

In the LGBTQIA+ community, language and symbols are very important part of their identity. The most commonly employed symbols of the LGBTQIA+ community are the pride flags. The traditional pride flag features, in order, red, orange, yellow, pink, blue, and purple stripes and encompasses the entire queer community. Other flags have been designed to represent bisexual, transgender, asexual, intersex, pansexual, and demi-identity visibility along the gender and sexuality spectrum. The Greek letter lambda (λ) was officially adopted internationally in 1974 as a symbol of gay and lesbian rights and signifies unity under oppression (Matthew Shepard Foundation, 2017). One of the most popular emerging flags is the Progress Pride Flag created by Daniel Quasar in 2018 (Northwestern University Office of Equity, n.d.). This flag features

triangles of the colors white, light pink, light blue, brown, and black to symbolize the inclusion of trans identities and to support people of color and people living with HIV/AIDS in the queer community (Office of Equity, 2021). Such symbols are used by this community as a show of pride, identity, and cohesiveness. In addition to these symbols, rainbow hearts—meaning all are welcome here—are often displayed in healthcare settings as a sign of invitation to LGBTQIA+ patients (Felsenstein, 2018).

It is also important that nurses become familiar with the labels, terms, and phrases preferred by the LGBTQIA+ community and use them appropriately in conversation and in preparing teaching materials. They can be proactive by keeping up to date on the literature and other reliable news sources to remain abreast of issues in gender identity and trends in the LGBTQIA+ community. Furthermore, it is imperative that nursing school curricula include more opportunity to explore the diverse needs of all people. For example, “same-gender loving” has been coined to describe African Americans with homosexual and bisexual attractions (Douglas & Turner, 2017). It was specifically introduced to establish the link with minority identity. The thought was that LGBTQIA+ was used by predominantly Whites (Douglas & Turner, 2017). Language and culture continually change, so the nurse must work toward remaining current. For example, although the word *queer* was once considered derogatory, in recent years, many within the LGBTQIA+ community have embraced the term and use it proudly.

When serving in the role of educator, nurses must create an environment that is welcoming to all men and women regardless of gender identity or sexual orientation. Brochures on LGBTQIA+ health issues, use of the pronoun “they” rather than “he” or “she,” and unisex bathrooms are all strategies that give a welcoming message to a diverse patient base. Beginning a patient encounter with open and transparent communication also may create a welcoming environment. As part of the nurse’s history taking, it is important to feel comfortable asking routine questions on gender identity and sexual orientation. For example, “Tell me about your

sexuality…" "Tell me about your gender identity…" and "What pronouns would you like me to use?" are questions that nurses should be asking all patients (Felsenstein, 2018; Premier Nursing Academy, 2021).

When working with patients, it is important that the nurse avoids making assumptions about family structure, sexual orientation, or lifestyle. In the 21st century, it is safer for families to stray from the idealized nuclear family comprised of a heterosexual, cisgender mother, father, son, and daughter prized by earlier generations. For example, more men are assuming primary responsibility for childcare. Also, the nurse should never assume that a patient is heterosexual, even if that person is or has been married to a person of the opposite gender, as almost half of self-identified lesbians have been or are currently married to men (APA, 2018). Likewise, the nurse should not assume that when a person refers to a spouse, they are talking about a member of the opposite gender. As same-sex marriage has become more and more commonplace since the U.S. Supreme Court's decision in the landmark 2015 case *Obergefell v. Hodges*, married members of the LGBTQ+ community are frequently using the term *husband* or *wife* rather than *partner*. However, many married people within the LGBTQIA+ community do still prefer to use the gender-neutral terms "partner" or "spouse."

To complete an accurate assessment of every individual, the nurse should take the opportunity to gather accurate information from the patient. Admission or intake forms are often designed for the heterosexual, cisgender nuclear family. Patients are often not given an opportunity to identify a same-sex or non-binary domestic partner. Transgender, non-binary, and intersex patients are usually forced to select either male or female with no room for elaboration. By adjusting the forms to be more inclusive, the nurse not only creates an accepting environment but also offers an opportunity for the patient to share important information (Felsenstein, 2018). One way to make forms more inclusive is to include sections for both gender and sex on patient intake forms. Nurses also must be knowledgeable about gender-related health disparities and are encouraged to

include this information when educating patients. They also are encouraged to use versatile teaching style and strategies so as not to perpetuate stereotypical approaches to teaching and learning with people of all genders. Provider awareness of the barriers facing LGBTQIA+ patients effects health access and health outcomes (Gonzales & Henning-Smith, 2017).

To advance effectiveness of communication by health professionals with the LGBTQIA+ community, The Joint Commission (2011) published a report for the purpose of enhancing the care, treatment, and services to be provided to this unique population. At the same time, the Institute of Medicine (IOM) recommended educating healthcare providers about LGBTQIA+ issues, which resulted in more attention being paid by educational and clinical practice settings to the knowledge, attitudes, and skills of health professionals in caring for members of the LGBTQIA+ community (IOM, 2011). In 2020, the USDHHS released its annual report on LGBTQIA+ health, which included significant initiatives to improve the health care to this population. Also, the report put forth objectives to ensure future advances in care, such as expanding nondiscriminatory practices, improving access to care, and increasing the competencies of health professionals in providing equal and quality care to LGBTQIA+ members (USDHHS, 2020a).

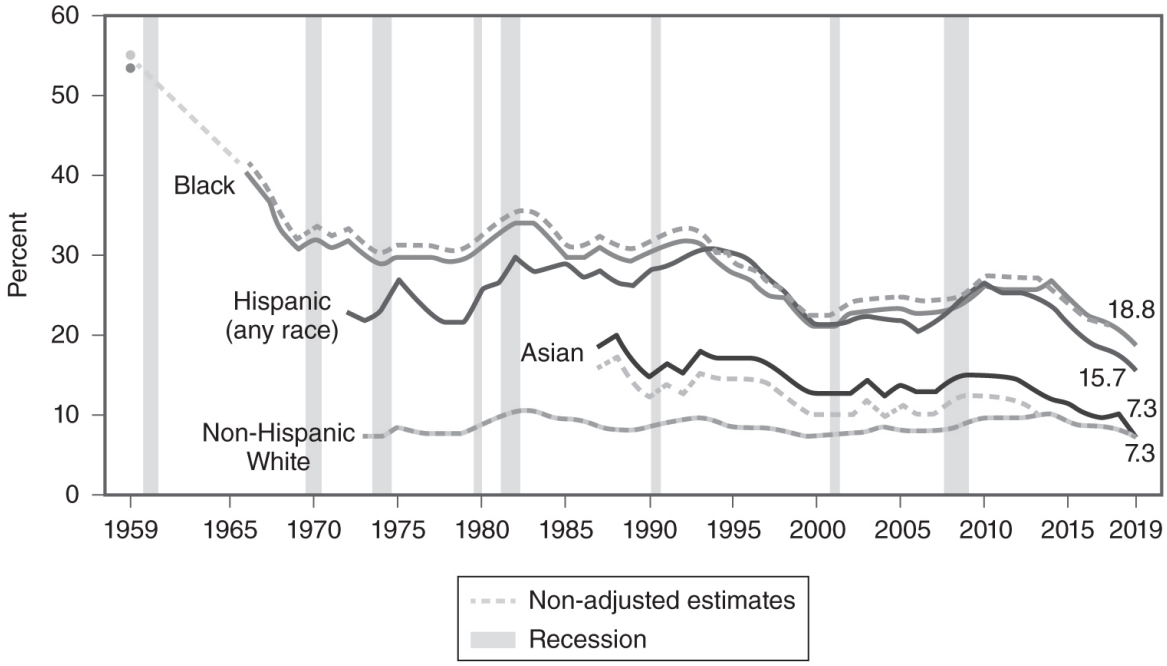
For years, the nursing profession has lacked research, theoretical frameworks, and practice guidelines to deliver culturally appropriate care to meet the diverse healthcare needs of the LGBTQIA+ population (Carabez et al., 2015). Carabez et al. (2016) discovered a lack of understanding by staff nurses of the needs of transgender patients and challenged nursing education to better prepare the nurse workforce to provide high-quality care to patients with different gender identities. What also is needed in the near future is a LGBTQIA+ wellness model that addresses disease prevention and health promotion specific to this unique population (USDHHS, 2020a).

Socioeconomic Characteristics

Socioeconomic status (SES) is considered the single most important determinant of both physical and mental health in American society (APA, 2016; Macintyre et al., 2018; Meyer et al., 2014; Woolf et al., 2015) and is one of the most robust determinants of variations in health outcomes in societies throughout the world (Kivimäki et al., 2020; Reiss et al., 2019; Wang & Geng, 2019; Williams et al., 2016). **Social determinants of health (SDOH)** are factors other than medical care that also can shape health in powerful ways. SDOH is defined as "the conditions in which people are born, grow, live, work and age" (Braveman & Gottlieb, 2014, p. 20). Overwhelming evidence strongly points to social factors, such as income, education, and employment, that influence health-related behaviors (Braveman & Gottleib, 2014).

According to the U.S. Census Bureau, as of 2019, 10.5% of Americans live in poverty, a decrease of 1.3% from 2018, which marks the fifth consecutive annual decline in poverty for all races and ethnicities (Creamer, 2020). Unfortunately, the COVID-19 pandemic in 2020 adversely affected this declining trend in the rate of poverty. Without the Coronavirus Aid, Relief, and Economic Security (CARES) Act in April 2020, it is estimated that poverty would have jumped to 19.4%. Even with this federal support, the month ended at 13.9%, a significant increase of over 3% in a matter of months (Boghani, 2020).

Based on the latest U.S. statistics, poverty is defined as an income of $12,760 per year for an individual or $26,200 per year for a family of four (USDHHS, 2020d). Despite the significant decline in poverty based on the latest 2019 data, racial and ethnic inequalities persist (Boghani, 2020). **Figure 8-1** illustrates the poverty rate by race and ethnicity. It is important to recognize that the Hispanic/Latinx population is considered an ethnicity, not a race, according to the U.S. Census Bureau (2020).



Note: The data for 2017 and beyond reflect the implementation of an updated processing system. The data for 2013 and beyond reflect the implementation of redesigned income questions. Data for Blacks is not available from 1960 to 1965. Historical estimates for Asians, Blacks, and non-Hispanic Whites are adjusted to account for the significant impact of these survey redesigns. The adjusted series accounts for the impact of these recent improvements over the entire data series. This adjustment is not made in our official publications and table packages because it requires the assumption that the impact of the data improvements would have been identical in all years, an assumption that is less likely to be accurate in years further away from these methodology changes.

Figure 8-1 Poverty Rate by Race and Hispanic Origin: 1959 to 2019

Reproduced from the U.S. Census Bureau, Current Population Survey, 1960 to 2020 Annual Social and Economic Supplement (CPS ASEC).
https://www.census.gov/library/stories/2020/09/poverty-rates-for-blacks-and-hispanics-reached-historic-lows-in-2019.html

Description

Disadvantaged people—those with low incomes, low educational levels, and/or social deprivation—come from many different racial and ethnic groups (APA, 2017a, 2017b; Noël, 2018). SES among all races and ethnicities accounts for the variables of educational level, family income, occupation, and family structure (Crandell et al., 2019; Noël, 2018). However, the poverty rates for Blacks/African Americans and

Hispanics/Latinx are about double that of Whites and Asians (Creamer, 2020).

Geography also matters because the right mix of efforts to influence habits and to improve public health have the potential to affect longevity depending on where someone lives. In addition, income levels are a major factor influencing a person's life span. In the United States, the richest people live longer everywhere; in places where health policies, such as banning smoking or control over illicit drug use, and health resources, such as access to vaccinations, mammograms, and preventive health visits, are limited, people who have low incomes also have the shortest life spans (Irwin & Bui, 2016). Between 2001 and 2014, the gap in life spans widened based on income levels: Americans with the very highest incomes now live up to 10 to 15 years longer than Americans with the very lowest incomes (Irwin & Bui, 2016). Globally, people with low SES are almost two times more likely to die early than are their wealthier counterparts (Bosworth, 2018; Brogan, 2017; Stringhini et al., 2017).

Collectively, SES variables influence health beliefs, health practices, and readiness to learn (Virginia Commonwealth University, 2021). The determinants of health include the following factors (WHO, 2017):

- The social and economic environment
- The physical environment
- The individual characteristics and behaviors of people

Government as well as many healthcare providers, educators, psychologists, and sociologists have recognized that a cause-and-effect relationship exists among low SES, poor quality of physical and mental health, and quality of life. Several initiatives and strategies have been implemented to promote the well-being of the lower SES population. The American Psychological Association's (APA's) Socioeconomic Status Office has been established to direct, facilitate, and advance relationships, programs, policies, and activities at the public and private level related to SES that address deep poverty issues, such as adequate nutrition, homelessness, and wage increases (APA, n.d). In addition, *Healthy People 2020* and *2030* have embedded socioeconomic strategies throughout most of their objectives (CDC, 2014a; USDHHS, 2012, 2020a). Likewise, the American Association of Colleges of Nursing (AACN) is advancing diversity, inclusion, and equity throughout the

academic setting to help nurses recognize that patients belonging to less affluent social classes have higher rates of illness, more severe illnesses, and reduced rates of life expectancy (AACN, 2017; Williams et al., 2016).

Social and economic status of individuals have been found to be significant predictors of disease, injury, and mortality as well as the variables affecting health status, literacy levels, and health behaviors (Conway, 2016; Daniel et al., 2018; Rikard et al., 2016). For example, individuals who have higher incomes and are better educated live longer and healthier lives than those who have low income and limited education (Brogan, 2017; Rognerud & Zahl, 2005; Schanzenbach et al., 2016; Zimmerman et al., 2015). Thus, the level of socioeconomic well-being is a strong indicator of health outcomes.

These findings raise serious questions about health differences among people of the United States resulting from unequal access to health care due to SES. These unfortunate health trends are costly to individuals and society in general and particularly to the healthcare system. Although harmful health-related behaviors and less access to medical care have been found to contribute to higher morbidity and mortality rates, the research is limited on the effect SES has on a disability-free life or active life expectancy (Sanzenbacher et al., 2017).

High rates of illiteracy, low literacy, and low health literacy have been linked to suboptimal health status, high unemployment, low earnings, and high rates of welfare dependency, all of which are common measures of a society's economic well-being (Berkman et al., 2011; Diallo, 2020; Stormacq et al., 2019; Weiss, 2007). Crandell et al. (2019), Santrock (2019), and Braveman and Gottlieb (2014) explain that many factors, including inadequate health care, limited resources, family stress, discrimination, and low-paying jobs, maintain the cycle by which generation after generation is born into poverty. This continuous circle of entrapment has been coined the **poverty cycle (circle of poverty)** and is described as a phenomenon by which families become trapped in poverty for at least three generations because of economic, social, and geographical factors that perpetuate new cycles of generational poverty (Payne, 2013; World Vision, 2020).

The high cost of health care may well be a major factor affecting health practices and influencing the health status of people in the less affluent

socioeconomic classes. The Affordable Care Act, which was signed into law in 2010, was beginning to show an impact on access to health care for all Americans, but political forces, policy changes, economic trends, shifts in demographics, and the COVID-19 pandemic in the United States have reduced or reversed the progress made to date in providing health insurance to every American citizen. The number of Americans without health insurance in 2019 was 8%, or 26.1 million people, which was a slight decrease from 2018. Of the 92% of Americans who were insured, 68.0% were covered by private health insurance and 34.1% were covered by public health insurance. These estimates by type of coverage are not mutually exclusive and add up to more than the total of 92% because some people are covered by both public and private insurance (Keisler-Starkey & Bunch, 2020). While data for 2020 are not yet available, some estimates suggest that the number of uninsured Americans has risen to 31 million in 2020, or 9.5% of the U.S. population (Keith, 2020).

Race and ethnicity are associated with the rate of health insurance coverage. The uninsured rates for non-Hispanic Whites was 5.2%, Asians 6.2%, Blacks/African Americans 9.6%, and Hispanic/Latinx 16.7%, which indicates that minorities are disproportionally impacted (Keisler-Starkey & Bunch, 2020). Hispanic/Latinx carry the highest burden of being uninsured because they are the fastest-growing demographic group, which is represented by a proportionately large number of Millennials and nonlegal residents. Age does play a significant role in the number of individuals insured. Older adults (older than 65) and children (under 19) are more likely to be covered by health insurance due to their eligibility for public health insurance. Of those adults over 65 years of age, only 1.1% were not covered by insurance and 5.2% of children under 18 were not covered (Keisler-Starkey & Bunch, 2020). See **Figure 8-2** for health insurance coverage based on selected characteristics.

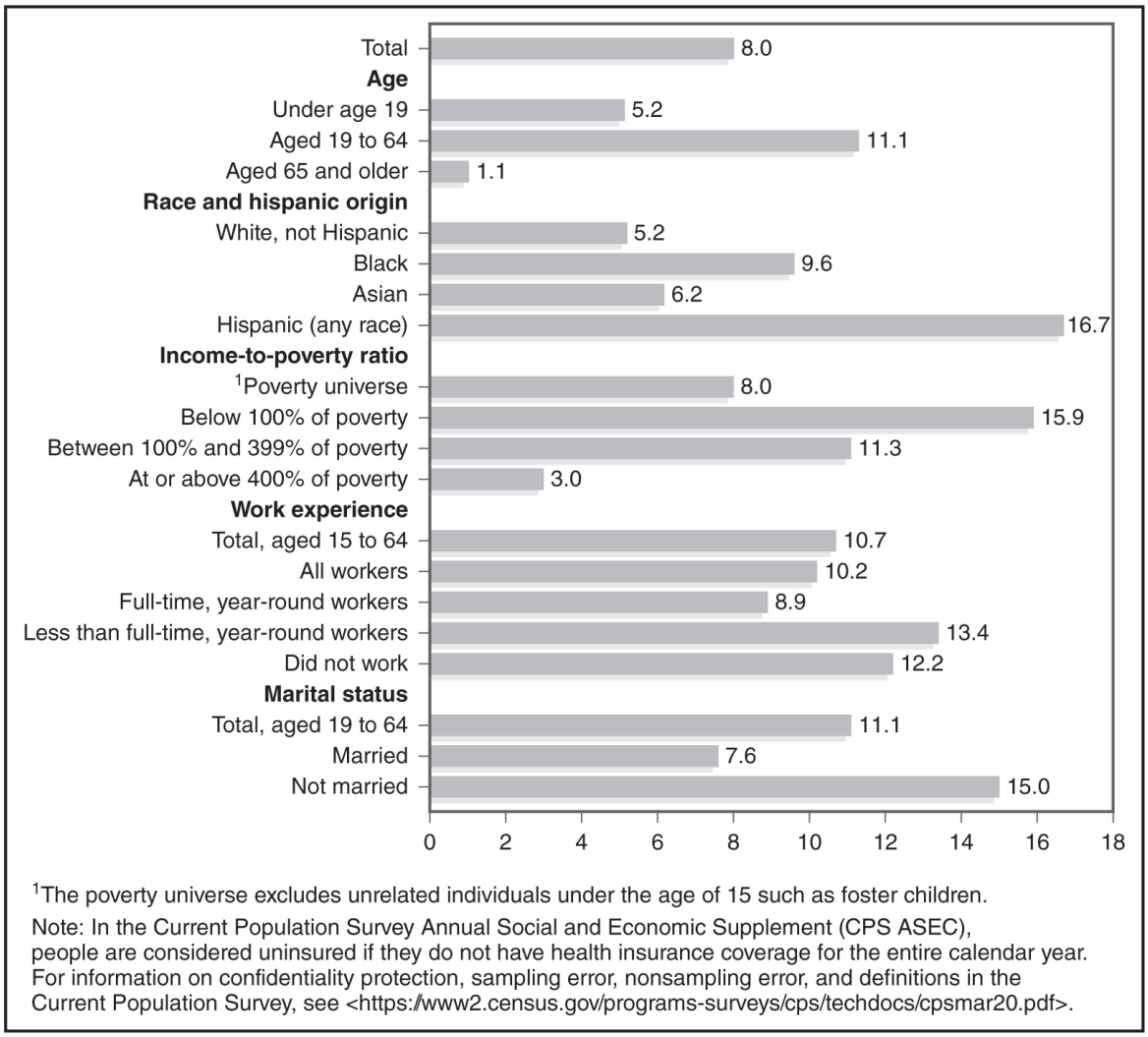


Figure 8-2 Percentage of People Without Health Insurance Coverage by Selected Characteristics: 2019

Reproduced from Keisler-Starkey, K., & Bunch, L. N. (2020). *Health insurance coverage in the United States: 2019* [Report Number P60-271]. U.S. Census Bureau. https://www.census.gov/content/dam/Census/library/publications/2020/demo/p60-271.pdf

Description

Just as SES can have a negative effect on illness, so, too, can illness have devastating implications for a person's socioeconomic well-being (Mukherjee, 2016; Wang & Geng, 2019). A catastrophic or chronic illness can lead to unemployment, enforced social isolation, and a strain on

social support systems (CDC, 2021; Mukherjee, 2016; Mulligan, 2004; Murphy et al., 2019). Without the socioeconomic means to decrease these threats to their well-being, individuals in poverty may be powerless to improve their situation (Kangovi et al., 2014). According to Roberts (2018), “poverty is both a cause and a consequence of poor health” (p. 1). Poverty often leads to poor health, and poor health can trap someone in poverty, which is sometimes referred to as *situational poverty* (Conway, 2016; Mukherjee, 2016; Payne, 2013). As such, people with good health tend to move up in the social hierarchy, whereas those coping with chronic health issues move downward.

These multiple losses burden the individual, their families, and the healthcare system. People who have low income are especially affected by changes in federal and state assistance in the form of Medicare and Medicaid. The high costs associated with illness that result in overuse of the healthcare system have resulted in increased interest on the part of the public and healthcare providers to control costs (Carpenter, 2011; Mukherjee, 2016; The Commonwealth Fund, 2020). In the United States alone, it is estimated that the economy loses $309 billion per year due to inequities in health care, which disproportionately affects disadvantaged populations (Daniel et al., 2018). Today, more emphasis is being given to keeping people well by efforts aimed at health promotion, health maintenance, and disease prevention (WHO, 2014).

Teaching Strategies

The current trends in health care reflecting these socioeconomic concerns are directed toward teaching individuals how to attain and maintain health. SES is an aspect of diversity that must be addressed in the context of education and in the process of teaching and learning. The nurse plays a key role in educating the consumer about avoiding health risks, reducing illness episodes, establishing healthful environmental conditions, and accessing healthcare services. Patient education by nurses for those individuals who are deprived socially and economically has the potential to yield short-term benefits in meeting these individuals’ immediate healthcare needs. However, more research must be done to determine whether teaching can ensure the long-term benefits of helping people of low SES develop the skills needed to reach and sustain independence in

self-care management (Adams, 2010; Grønning et al., 2014; Hardman et al., 2020; Kangovi et al., 2014; Niedermann et al., 2004).

Nurses must be aware of the likely effects of low SES on an individual's ability to learn. People with low income are at greater risk for low academic achievement, low literacy, high susceptibility to illness, negative health outcomes, and inadequate social support systems (Daniel et al., 2018), all of which can interfere with learning. Stress hormones caused by poverty, for example, have been shown to "poison the brain for a lifetime" because they have significant impacts on human development (Krugman, 2008; Lende, 2012). The concept that the brain is being poisoned by poverty has become a major area of research for neuroscience and health sciences. Also, it is an important basis for addressing inequality and low SES in the United States and worldwide.

However, what is probably most important is to prevent the effects of poverty in the first place by breaking the vicious generational poverty cycle. Some select approaches known as two-generational programs (also called intergenerational, multigenerational, or whole-family strategies) have demonstrated long-term success in achieving better educational outcomes, improved social benchmarks, and greater employment opportunities for children born into families living with low income. Why is it a *two*-generation approach? Because in the United States, "one-in-four parents lives in poverty, and 20% of children live in a household with income below the federal poverty level" (National Conference of State Legislatures, 2018, p. 2). To interrupt the cycle of poverty, a two-generational approach focuses on the needs of both the parents and their children at the same time. Children are provided with free, high-quality early childhood education from infancy through age 5, and their parents simultaneously are given assistance in finding better jobs and learning parenting skills to build stronger families (Semuels, 2014).

SES is a type of culture with its own set of values, beliefs, attitudes, perspectives, behaviors, priorities, and traditions depending on where an individual falls on the socioeconomic continuum. Thus, it is important that nurses should not assume that everyone living at the poverty or near-poverty level is equally influenced by these threats to their well-being, as previously discussed. Nor should it be assumed that because someone is in a situation of poverty at the moment, they have always lived in poverty.

Conversely, some relatively affluent patients may have been living in poverty for most or all of their life and perhaps across multiple generations of their family such that their veneer of affluence covers the long-term effects of their prior encounter with poverty. To avoid stereotyping, it is essential that every individual and family be assessed to determine their interests, motivations, strengths, and limitations for learning. In this way, teaching strategies unique to specific circumstances can be designed to assist individuals with low SES in meeting their needs for health care. Derrington et al. (2018) point out that healthcare providers and patients or family members may have different cultural backgrounds, which can lead to assumptions, potential biases, and disparate priorities and goals when it comes to communication, information sharing, and decision making.

Cultural Characteristics

Racial and ethnic diversity in the United States and in a number of other countries has increased significantly in the past decades due to migrants fleeing their homelands as a result of such factors as wars, discrimination, political strife, and difficult socioeconomic conditions (Purnell & Fenkl, 2021). Given the significant increased geographical mobility of people around the globe, the increases in immigration, and the birth rates of minority populations in the United States, the U.S. system of health care and the educational institutions that prepare health professionals must respond by shifting from a dominant, monocultural, ethnocentric focus to a more transcultural, multicultural focus (Purnell & Fenkl, 2021; Udod & Racine, 2018).

Multiculturalism embraces the idea that different cultures can coexist peacefully and "expresses the view that society is enriched by preserving, respecting, and encouraging cultural diversity" (Longley, 2020, p. 1). Multiculturalism is a concept that promotes awareness and acceptance of diversity, and when applied to health care, attention is focused on the special needs of unique populations. When exploring the concept of multiculturalism with respect to providing for the healthcare needs of a multiethnic, multiracial society, a number of other terms are used interchangeably, such as cultural pluralism, interculturalism, and cross-culturalism (Kastoryano, 2018; Schriefer, 2016; Vidaeff et al., 2015).

Two multiculturalism theories explain the difference in how cultures are integrated into a single society. The *melting pot theory* has been criticized for its idea of abandoning individual cultures by encouraging them to "melt together" to become assimilated into the dominant society, which reduces diversity and increases homogeneity. The *salad bowl theory* is a newer and more liberal approach to integration that describes a society in which people of different cultures coexist yet retain the unique characteristics of their traditions, thereby increasing diversity and heterogeneity (Longley, 2020).

The United States is no longer the homogeneous melting pot society it once was. Today, numerous, varied, and distinct cultures are present in the United States not only because an increasing trend toward global

migration of people has led to an increase of immigrants coming into the country, but also because of a change in philosophy about respecting cultural diversity. In addition, nurses are caring for people from many cultures due to the globalization of nursing practice, a move by the health system and its providers to address inequities and disparities in minority health care, and the profession's emphasis on transcultural care and cultural competence in clinical practice (Betancourt et al., 2014; Cai, 2016; Nair & Adetayo, 2019; Purnell & Fenkl, 2021; Raman, 2015; Truong et al., 2014; USDHHS, 2014).

To keep pace with a society that is becoming increasingly more culturally diverse, nurses need to incorporate transcultural nursing into practice by recognizing and appreciating differences in individual healthcare customs and preferences (Maier-Lorentz, 2008; Purnell & Fenkl, 2021; Scherman, 2017; Transcultural Nurse, 2021). A culturally sensitive approach to providing care can reduce the racial and ethnic bias perceived by culturally diverse patients in healthcare settings and can, therefore, minimize the alienation of large numbers of people (Benjamins & Whitman, 2014; Keller, 2019; Nguyen & Mills, 2014). On the other hand, a lack of cultural sensitivity by nurses and other healthcare professionals has the potential to waste millions of dollars through misuse of healthcare services and misdiagnosis of health problems with tragic and dangerous consequences (Abdou et al., 2016; Campos, 2020; Douglas et al., 2014; USDHHS, 2014). Underrepresented racial and ethnic groups are beginning to demand culturally relevant health care that respects their cultural rights and incorporates their specific beliefs and practices into the care they receive. This expectation is in direct conflict with the unicultural, Western, biomedical paradigm that has been taught for many years in nursing and other healthcare provider programs across the country (Purnell & Fenkl, 2021).

Leininger (1994), a noted leader and proponent of transcultural nursing, posed a question that remains relevant today: How can nurses competently respond to and effectively care for people from diverse cultures who act, speak, and behave in ways different than their own? Studies indicate that nurses are often unaware of the complex factors influencing patients' responses to health care. The delivery of appropriate health care now and in future years depends on use of a culturally informed approach that goes beyond simple language interpretation and a respect for the characteristics of different cultures. As primary caregivers,

nurses must learn how to relate to people—including patients and their family members, fellow healthcare practitioners, and nursing students—who come from a variety of racial and ethnic cultural backgrounds (Jeffreys, 2016).

Major Racial and Ethnic Groups

Given the fact that there are many racial and ethnic minority groups in the United States, and hundreds worldwide, it is impossible to address the cultural characteristics, values, and beliefs of each one of them. Furthermore, Epner and Baile (2012), Gregg and Saha (2006), Kleinman and Benson (2006), and others warn against focusing on specific traits of each cultural group because culture is multidimensional and dynamic, not static and simplistic. Thus, categorizing people by race or ethnicity does not allow for individual variation and likely may reinforce stereotyping. Instead, the purpose of this section is only to provide an outline of the cultural composition of the United States by highlighting the major racial and ethnic groups that contribute to the diversity of the nation as identified by the U.S. Census Bureau.

The U.S. Census Bureau (2020) defines six major racial and ethnic groups in the United States. White (of European, Middle Eastern, or Northern African descent) is the dominant racial group. The five minority groups are: Hispanic/Latinx (persons of Mexican, Cuban, Puerto Rican, and other Latin descents), Black/African American (of African, Haitian, and Dominican Republic descents), Asian (of Japanese, Chinese, Filipino, Korean, and Vietnamese descent), Native Hawaiian or other Pacific Islander (of Guamanian, Samoan, and other Pacific Islands descent), and American Indian/Alaska Native (from hundreds of tribes of Native Americans and of Eskimo descent). The Hispanic/Latinx group is the only one officially categorized by the U.S. Census Bureau as a major ethnic group, rather than a race, because people who identify as belonging to this group may be of any race or mix of races.

The racial and ethnic makeup of the United States continues to undergo change. At the beginning of the 21st century, the composition of this nation's population was approximately 71.3% White and 28.7% minority. Based on the latest census data available (a full national census is conducted every 10 years), minority groups now account for approximately 40% of the total U.S. population (Frey, 2020; Ghosh, 2020).

The most recent U.S. Census projections have reported that the fastest growing racial or ethnic group is made up of people who belong to two or more races. The Asian and Hispanic/Latinx groups are the next-fastest growing populations (Vespa et al., 2020). From 2010–2019, the overall growth of the U.S. population was generated by two or more races (30%), Asian Americans (29%), Hispanic/Latinx (20%), African American (8.5%), and Native Americans (7.6%), in contrast to the White population, which declined by less than 1% (Frey, 2020). It is expected that the minority populations will continue to steadily increase in the coming decades. By around 2045, it is projected that there will be no majority group in the United States and that by 2060, minority groups will constitute more than 50% (more than 240 million people) of the U.S. population (Vespa et al., 2020).

Hispanic or Latinx Americans derive from diverse origins and are currently the largest minority group. Members of this heterogeneous group of Americans with varied backgrounds in culture and heritage are of Latin American or Spanish origin and use Spanish (or an indigenous Central American dialect) as their dominant language. In 2019, it was estimated that those of Mexican heritage account for the largest number of Hispanic or Latinx Americans (approximately 11.3%), followed by Puerto Ricans (1.8%), Central Americans (1.8%), South Americans (1.2%), Cuban Americans (0.7%), Dominicans (0.6%), and the remainder from other areas (U.S. Census Bureau, 2019a).

Members of the Black/African American culture, according to the most recent census data, make up the second-largest minority population in the United States (Black Demographics, 2020; USDHHS, 2020c). The cultural origins and heritage of Black/African Americans are quite diverse. Their roots are mainly from Africa and the Caribbean Islands. They speak a variety of languages, including French, Spanish, and African dialects. Depending on the age cohort to which they belong, Black/African Americans may prefer to identify themselves differently as a racial group. For example, members of the youngest generation often refer to themselves by the term African American, whereas middle-aged and older members of this ethnic group may prefer the term Black or Black American (Purnell & Fenkl, 2021). Each designation is politically correct according to the U.S. Census Bureau's identification of this ethnic group as Black/African American. However, because the diversity of cultural heritage varies within the many Black subgroups, it is culturally responsive

to ask Black/African Americans how they prefer to be identified (Purnell & Fenkl, 2021).

Asian Americans originated from approximately 52 countries in the Far East, Southeast Asia, and the subcontinent of India. Although Japanese and Chinese immigrants settled in the United States in the mid-19th century, many Southeast Asian immigrants came as refugees to the United States after World War II, the Korean War, the Vietnam War, and the chaos in the governments of Laos and Cambodia. Although Asian Americans have been classified as a single racial group, they are not homogenous. They represent diverse minority populations with over 800 languages and dialects and their beliefs and practices are not the same because a wide variety of cultural and religious backgrounds are represented. The Chinese population of 5.2 million is the largest Asian group followed by Asian Indian (4.5 million), Filipino (4.1 million), Vietnamese (2.2 million), Korean (1.9 million), and Japanese (1.5 million) (U.S. Census Bureau, 2020).

Current data on Native Hawaiians and other Pacific Islanders is limited due to information on this minority group being aggregated in the past under other racial and ethnic groups. The 2020 U.S. Census will recognize Native Hawaiians and other Pacific Islander populations as an individual race. Approximately 31.2% of this population is under 18 years of age, making it one of the fastest growing minority groups. Native Hawaiians and other Pacific Islanders are a diverse population with 39 different languages and cultures.

The American Indian/Alaska Native racial group comes from 574 federally recognized distinct tribes (USDHHS, 2018). The largest of these tribes is the Navaho. Other tribes of significant size are the Cherokee, Mexican American Indian, Chippewa, Sioux, Choctaw, and Apache population, respectively (U.S. Census Bureau, 2019b). Approximately half of the members of this racial group are eligible for health services provided by the federal government. The Indian Health Service (IHS) of the U.S. Public Health Service maintains responsibility for approximately 2.2 million American Indian/Alaska Native people (Sofer, 2017; USDHHS, 2020a). However, the IHS has historically been underfunded to adequately meet the needs of this population through a network of hospitals, clinics, and health stations (Artiga et al., 2013; Friedman, 2016).

Given the diversity as seen in the previous text within the racial and ethnic populations in the United States, nurses are not expected to know all of the belief systems and customs of every ethnic and racial minority group. It is almost impossible to know and understand everything about every culture (Georgetown University, n.d.). However, if interested, a number of transcultural resources are available that address the various aspects of the many different cultures, which can be used to enhance the delivery of culturally relevant, patient-centered health care and to prepare culturally sensitive nursing professionals. For example, major textbooks (Andrews et al., 2019; Giger & Haddad, 2020; McFarland & Wehbe-Alamah, 2018; Purnell & Fenkl, 2021) provide specific information about the distinct customs, beliefs, values, and perspectives of patients and families from many diverse cultures nationwide or worldwide. Also, for over three decades, the *Journal of Transcultural Nursing* has been publishing theoretical and research findings for application to practice by staff nurses, nurse educators, and nurse researchers.

In addition, *The New England Journal of Medicine* addresses transcultural care applicable across the various medical specialties; The Joint Commission (2010) published a roadmap to assist hospitals in integrating communication, cultural competence, and patient/family-centered care throughout their organizations; and the USDHHS has provided goals and objectives to improve care for individuals and groups of diverse racial and ethnic backgrounds in each of its *Healthy People* (2010, 2020, and 2030) reports as well as in its regular press releases. A number of other organizations provide strategies for eliminating racial and ethnic disparities in the delivery of culturally appropriate care, such as the Agency for Healthcare Research and Quality (AHRQ), the Institute of Medicine (IOM), the AACN, and the Commission on Collegiate Nursing Education (CCNE). The World Wide Web, too, provides an array of resources that describe the unique beliefs and practices of minority groups and the CDC and the USDHHS put out frequent reports on the changing statistical composition, health status, and health issues of the different racial and ethnic groups in the United States.

Definition of Cultural Terms

Before considering the ways in which nurses can carry out a cultural assessment and deliver culturally relevant care to people from diverse

racial and ethnic backgrounds, it is important to define the terms that are commonly used in addressing the subject of culture. Purnell and Fenkl (2021) have identified and defined the following cultural terms that are used in this section of the chapter:

Acculturation: A willingness to adapt or "give up the traits of their culture as a result of contact with another culture" (p. 11).

Assimilation: The willingness of an individual or group to gradually adopt and incorporate characteristics of the prevailing culture (p. 11).

Cultural awareness: Recognizing and appreciating "the external signs of diversity" in other ethnic groups, such as their art, music, dress, and physical features (p. 9).

Cultural competence: Possessing the "knowledge, abilities, and skills to deliver care congruent with the patient's cultural beliefs and practices" (p. 9).

Cultural diversity: A term used to describe the variety of cultures that exist within society.

Cultural relativism: "The belief that the behaviors and practices of people should be judged only from the context of their cultural system" (p. 16).

Cultural sensitivity: The ability to understand one's own "personal attitudes and not saying things that might be offensive to someone from a cultural or ethnic background different from that of the health-care provider's cultural or ethnic background" (p. 9).

Culture: "The totality of socially transmitted behavioral patterns, arts, beliefs, values, customs, lifeways, and all other products of human work and thought characteristic of a population of people that guide their worldview and decision making. Health and health-care beliefs and values are assumed in this definition. These patterns may be explicit or implicit, are primarily learned and transmitted within the family, are shared by most (but not all) members of the culture and are emergent phenomena that change in response to global phenomena" (p. 8).

Enculturation: The natural conscious and unconscious conditioning process of learning accepted cultural norms, values, and roles in society

and achieving competence in one's culture through socialization (p. 11).

Ethnocentrism: "The tendency of human beings to think that their ways of thinking, acting, and believing are the only right, proper, and natural ways and to believe that those who differ greatly are strange, bizarre, or unenlightened and, therefore, wrong" (p. 9).

Ideology: "The thoughts, attitudes, and beliefs that reflect the social needs and aspirations of an individual or ethnocultural group" (p. 8).

Race: "Genetic in origin and includes physical characteristics that are similar among members of the group, such as skin color, blood type, and hair and eye color" (p. 8).

Transcultural: Making "comparative interactivity among cultures." (p. 8).

Worldview: "The way individuals or groups of people look at the universe to form basic assumptions and values about their lives and the world around them" (p. 10).

Purnell, L. D., & Fenkl, E. A. (2021). *Textbook for transcultural health care: A population approach* (5th ed.). Springer.

One additional cultural term that requires defining and explanation is known as *white privilege.* White privilege, a phrase originally coined by McIntosh (1989), has recently come to the attention of the American people with the Black Lives Matter movement, which again has revealed the uncomfortable truth about structural racism in the United States. **White privilege** is defined as "unearned access to social power based on membership in a dominant social group" (University of San Francisco, 2021, para. 1). The concept of white privilege highlights the pervasive and "unfair societal advantages" that non-Hispanic White people have over people of color (Cuncic, 2020, para. 1). It refers to the unearned access to power, benefits, and advantages that non-Hispanic White people have in comparison to people of other racial and ethnic backgrounds, such as the privilege of having dominant representation in the media, having a positive relationship with the police, being favored by school authorities, or being protected against discrimination based on racial and ethnic origin (Alexander, 2021; Cuncic, 2020; Greenberg, 2017). Being aware of these and many more privileges accorded to the dominant social group should not elicit feelings of defensiveness or guilt or be seen as a burden, but

rather as an opportunity to learn about, be responsible for, and take action toward creating a society that is more just, equal, and inclusive (University of San Francisco, 2021).

Models for Cultural Assessment

The Purnell model for cultural competence represents a popular organizing framework for understanding the complex phenomena of culture and ethnicity (Purnell & Fenkl, 2021). This framework "provides a comprehensive, systematic, and concise" approach to assist nurses in delivering care and in teaching others in a more holistic, culturally competent manner when interacting with patients from a variety of cultural backgrounds (p. 19).

Purnell and Fenkl (2021) have proposed that many factors influence an individual's identification with an ethnic or racial group. These factors may be distinguished as primary and secondary characteristics of culture. **Primary characteristics of culture** include nationality, race, color, gender, age, and religious affiliation. **Secondary characteristics of culture** include many of a person's attributes addressed in this text, such as SES, physical characteristics, educational status, occupational status, and place of residence (urban versus rural). These two major characteristics affect one's belief system and view of the world.

The Purnell model, depicted in a circle format, includes the layers of the following concepts:

1. Global society (outermost sphere)
2. Community (second sphere)
3. Family (third sphere)
4. Person (innermost sphere)

The interior of the circle is cut into 12 equal pie-shaped wedges that represent cultural domains that should be assessed when planning to deliver patient education in any setting. See **Figure 8-3** for the 12 domains of culture represented in the Purnell model.

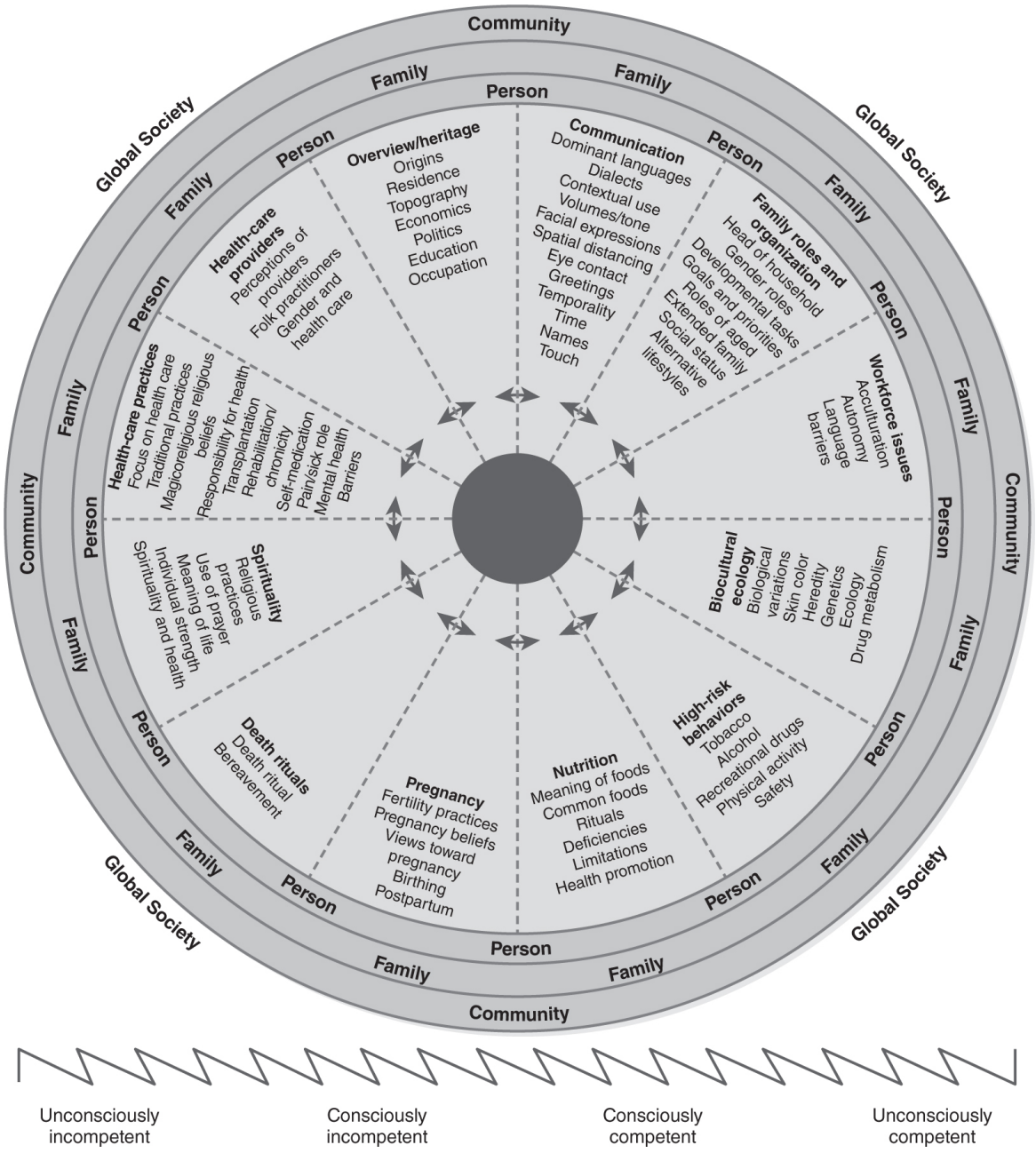


Figure 8-3 The Purnell Model and Theory for Cultural Competence

Purnell, L. D., & Fenkl, E. A. (Eds.). (2021). *Textbook for transcultural health care: A population approach* (5th ed). Springer.

Description

Also, Purnell has identified 19 assumptions upon which the model is based, of which the following are most relevant to this chapter:

- One culture is not better than another—they are just different.
- The primary and secondary characteristics of culture determine the degree to which one varies from the dominant culture.
- Culture can have a powerful influence on one's interpretation of and responses to health care.
- Every individual has the right to be respected for their uniqueness and cultural heritage.
- Prejudices and biases can be minimized with cultural understanding.
- Caregivers who intervene in a culturally competent manner improve the care of patients and their health outcomes.
- Cultural differences often require adaptations to standard professional practices.

Saha et al. (2008) believe that the core features of cultural competence and patient-centered care are one and the same. Both approaches to interacting with patients on an interpersonal level can improve the quality of care for individuals as well as communities and populations. Schim and Doorenbos (2010) propose the emerging model of *culturally congruent care*, which occurs when an appropriate fit exists between professional practice and patient needs and wants. This 3-D Model of Culturally-Congruent Care includes three key constructs—provider elements, client elements, and the outcome—depicted in a three-dimensional jigsaw puzzle where the pieces fit together to effectively deliver culturally congruent care. This model can serve as a framework for healthcare providers to intervene in the context of relevant cultural domains with diverse patients, families, and communities.

Epner and Baile (2012) point out that cultural competence has focused on a categorical approach based on lists of traits or categories with respect to the attitudes, values, beliefs and behaviors of different cultural groups. This approach relies on knowing the "dos" and "don'ts" for each cultural group. However, they believe that culture is multidimensional and dynamic with numerous variables that "differ within the same ethnic or social group because of differences in age cohort, gender, political association, class, religion, ethnicity, and even personality" (p. 33). Therefore, they view culture, like art, as an elusive and nebulous concept. Thus, instead they propose adopting the patient-centered approach as a new, cross-cultural

assessment process that relies on identifying individual factors, such as family and gender roles, issues of mistrust and racism, styles of communication, and preferences for decision making as key to providing culturally competent care.

Another cultural assessment framework is the shared decision making (SDM) model that uses a patient-centered perspective when caring for others. SDM is defined as “an approach where clinicians and patients share the best available evidence when faced with the task of making decisions, and where patients are supported to consider options, to achieve informed preferences” (Elwyn et al., 2012, p. 1361). SDM respects patient and family autonomy and self-determination and promotes patient engagement. In SDM a bi-directional relationship is established based on respect and collaboration where clinical expertise meets patient values. The SDM process includes the clinician providing individualized information on treatment options, treatment outcomes, and risk-benefits and the patient reflecting on these choices and discussing their personal values to reach a decision on treatment (Truglio-Londrigan & Slyer, 2018).

Relationship building and communication are foundational to the SDM process. The work of SDM begins with assessment to get to know the patient and their individual characteristics, such as age, gender, race, spiritual and cultural beliefs, education background, literacy level, and life experiences. All of these characteristics can influence their beliefs, values, and preferences. Once the nurse has come to know the patient, then teaching is essential because patients must have the necessary information on which to share in the decision-making process and ultimately make decisions for themselves. Assessing the patient’s readiness to learn, the amount and type of information they need, and the specific teaching strategies to best convey information to them are all based on the characteristics that make them unique. **Figure 8-4** is a visual representation of SDM in practice.

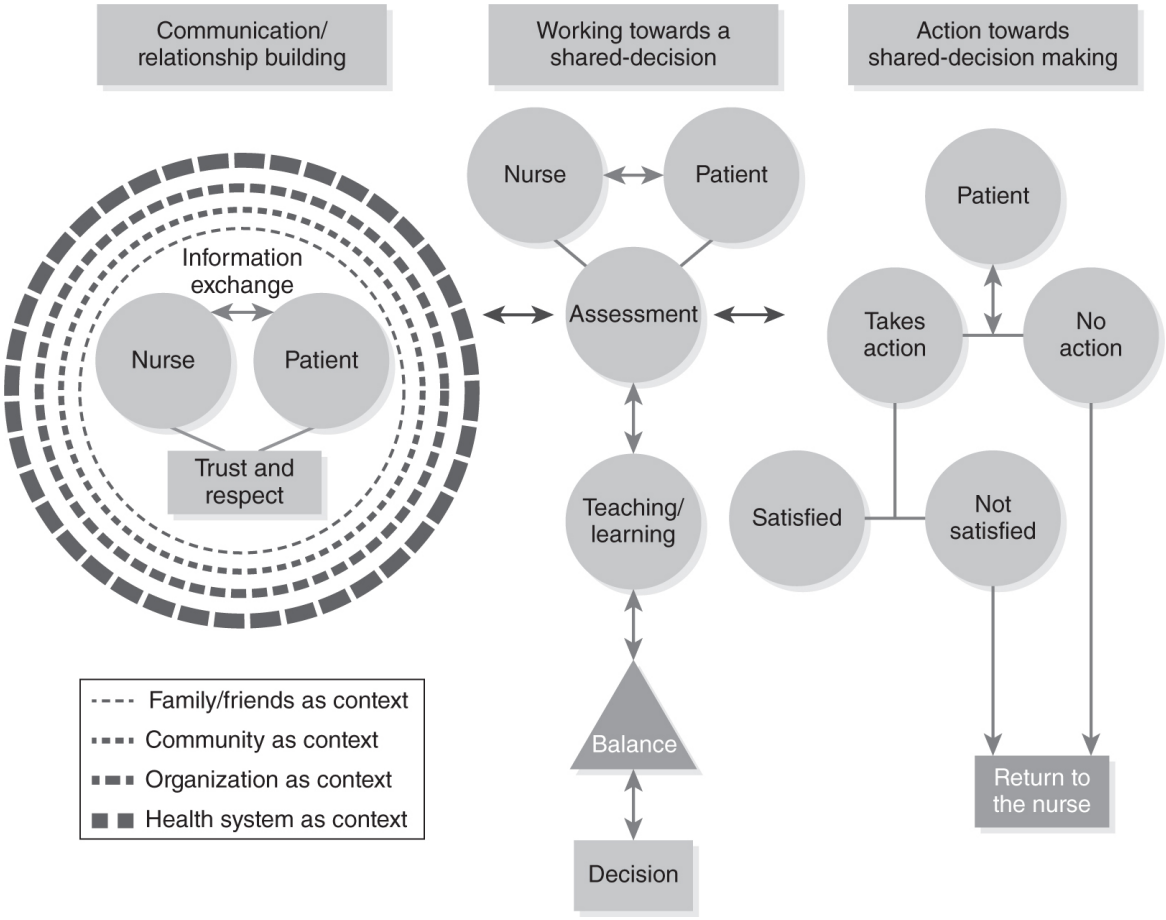


Figure 8-4 The Process of Shared Decision Making

Reproduced from Truglio-Londrigan, M., & Slyer, J. T. (2018). Shared decision-making for nursing practice: An integrative review. *Open Nursing Journal*, *12*, 1–14. https://doi.org/10.2174/1874434601812010001

Description

Kleinman and Benson (2006) acknowledge that culture is important in assessing, diagnosing, treating, and caring for patients because cultural factors "shape health-related beliefs, behaviors, and values" (p. e294). But they contend that the value of cultural competence in improving patient care is not well supported by research. Instead, cultural competence can lead to adhering to a set of "dos and don'ts," which can result in stereotyping an individual based on their ethnic background—the attitude that "African Americans believe this, and Asians believe that." These two authors strongly recommend that the optimal approach to individualizing

patient care is to understand a person's point of view or their lived experiences from the perspective of their "local world." Nurses and other providers can perform a mini-ethnography as an assessment method that involves the following six steps (Hernandez & Gibb, 2020; Kleinman & Benson, 2006):

Step 1: How does ethnicity factor into a patient's identity? Is ethnicity an important part of a patient's sense of self? How does a person see themselves and their place within family, work, and social networks?

Step 2: What is at stake for a patient and their loved ones when faced with an episode of illness or disability? Evaluation may include close relationships, material resources, religious beliefs, life commitments, and even life itself.

Step 3: How does the patient conceptualize their illness? What does illness mean to the patient and their family? What is the patient's illness narrative? This involves asking a series of questions to elicit their explanation so as to acquire an understanding of the meaning of illness from their perspective (see **Box 8-1**).

Box 8-1 The Explanatory Models Approach

- What do you call this problem?
- What do you think caused your problem?
- Why do you think the problem started when it did?
- Which major problems does your illness cause you?
- How has being sick affected your body and mind?
- How severe do you think your illness is? Do you see it as having a short- or long-term course?
- Which kinds of treatments do you think you should receive?
- What are the most important results you hope to obtain from your treatments?
- What do you fear most about your illness?
- What do you fear most about the treatment?

Data from Kleinman, A., Eisenberg, L., & Good, B. (1978). Culture, illness, and care: Clinical lessons from anthropological and cross-cultural research. *Annals of Internal Medicine, 88*(2), 251–258. https://doi.org/10.7326/0003-4819-88-2-251

Step 4: What psychosocial stresses is the patient experiencing because of their illness? Psychosocial problems may include family tensions, work problems, financial difficulties, and personal anxieties. Also, make a list of interventions that improve any patient difficulties, such as professional therapy, self-treatment, family assistance, and alternative or complementary medicine.

Step 5: How does the clinical setting influence your relationship with the patient? Providers find themselves in the world of the patient, but they also are grounded in their own personal network and the professional world of biomedicine. Therefore, critical reflection is essential when being between social worlds to avoid bias, stereotyping, and inappropriate use of advanced technology.

Step 6: Is this intervention appropriate for your patient? Every intervention has potential side effects, so overemphasis on cultural differences may be interpreted by patients and families as intrusive and/or stigmatizing. Attention to culture is only one factor in a usually complex situation and may not be the root of a person's problem.

As another approach to assist in the skill of conducting cultural assessment, Dobbie et al. (2003) developed an easy-to-remember cultural interviewing tool using the mnemonic framework, BELIEF, to elicit the patient's health beliefs. The components of this model include:

B - Beliefs about health (What caused your illness/problem?)

E - Explanation (Why did it happen at this time?)

L - Learn (Help me to understand your belief/opinion.)

I - Impact (How is this illness/problem impacting your life?)

E - Empathy (This must be very difficult for you.)

F - Feelings (How are you feeling about it?)

Levine et al. (2000) proposed another cultural assessment mnemonic, ETHNIC, with the following components:

E - Explanation by the patient as to their perception of the problem; do they know anyone else who has had this kind of problem, or what most concerns them about their problem?

T - Treatments used by the patient to resolve the problem, such as home remedies, medicines, herbs, vitamins, and what they hope the provider can offer

H - Healers from whom they have sought advice, such as alternative practitioners, folk healers, friends, or other people who are not healthcare professionals

N - Negotiate options that are mutually acceptable to the provider and the patient, but incorporate (not contradict) the patient's beliefs

I - Intervention(s) appropriate for the problem, which may include alternative treatments and cultural practices, such as spiritual healers, folk medicines, and foods to eat or avoid

C - Collaborate with the patient, family members, healers, the healthcare team, and other community resources

And lastly, Berlin and Fowkes (1983) proposed another useful cultural assessment framework for patient teaching using the mnemonic LEARN, which emphasizes ways to improve cross-cultural communication between patients and healthcare providers:

L - Listen with empathy and understanding to the patient's perception of the problem.

E - Explain your perceptions of the problem.

A - Acknowledge and discuss the differences and similarities.

R - Recommend approaches to treatment.

N - Negotiate agreement.

Nurses who are skilled in using the previously noted cultural assessment, SDM, mini-ethnography, and cultural interviewing tools likely will be the most successful at designing and implementing culturally effective patient

education. Using active listening skills to understand patients' perspectives and implementing the universal skills of establishing rapport with them can help nurses to select clinical and teaching interventions that have the potential to improve patient outcomes and increase patient satisfaction with the care they receive (Campinha-Bacote, 2011).

Nurses must remember one very important caveat when conducting cultural assessments: They must be especially careful to avoid stereotyping patients based on their race and ethnic heritage. Just because someone belongs to a certain racial and ethnic group does not necessarily mean that the person adheres to all or any of the beliefs, values, customs, and practices of that ethnic group. Nurses should never assume a patient's learning needs or preferences for treatment will be like those of others who share the same race or ethnicity. Knowledge of different cultures should serve only as background cues for gathering additional information about individual variations through assessment.

General Assessment and Teaching Interventions

Given that culture affects the way someone perceives a health problem and understands its course and possible treatment options, it is essential to carry out a thorough assessment prior to establishing a plan of action for short- and long-term behavioral change. Different cultural backgrounds not only create different attitudes and reactions to illness but also can influence how people express themselves, both verbally and nonverbally, which may prove difficult to interpret (Campinha-Bacote, 2003; Hernandez & Gibb, 2020; Segal & Hodges, 2012). For example, asking a patient to explain what they believe to be the cause of a problem will help to reveal whether the patient thinks it is because of a spiritual intervention, a hex, an imbalance in nature, or some other culturally based belief. The nurse should accept the patient's explanation (most likely reflecting the beliefs of the support system as well) in a nonjudgmental manner.

Culture also guides the way an ill person is defined and treated. For example, some cultures believe that once the symptoms disappear, illness is no longer present. This belief can be problematic for individuals with an acute illness, such as a streptococcal infection, when a 1- or 2-day course of antibiotic therapy relieves the soreness in the throat. This belief also can pose a problem for the individual with a chronic disease that often has periods of remission or exacerbation.

In addition, readiness to learn must be assessed from the standpoint of a person's culture. Behavior change may be context specific for some patients and their family members; that is, they will adhere to a recommended medical regimen while in the hospital but then fail to follow through with the guidelines once they return home. Also, the nurse must not assume that the values adhered to by professionals are equally important or cherished by the patient and family. Consideration, too, must be given to specific cultural influences that may hinder readiness to learn, such as perceptions of time, financial barriers, and environmental variables. Finally, the patient needs to believe that new behaviors are not only possible but also beneficial for behavioral change to be maintained over the long term (Bonder et al., 2001; Ferwerda, 2016).

Providing culture-specific programs and teaching interventions for children and adults from minority groups is both a practical and ethical need in the U.S. healthcare system. To adequately serve patients in a multiethnic society, attention must be focused on identifying cross-cultural barriers and delivering culturally effective health education. Studies have clearly shown that health outcomes are improved when education is appropriately given in the context of the individual (Bailey et al., 2009; Campos, 2020; Douglas et al., 2014; Hawthorne et al., 2008; USDHHS, 2014; Vidaeff et al., 2015).

The following specific guidelines for assessment should be used regardless of the cultural orientation of the patient (Giger & Haddad, 2020; Purnell & Fenkl, 2021):

1. Identify the patient's primary language. Assess their ability to understand, read, and speak the language of the nurse.
2. Observe the interactions between the patient and their family. Determine who makes the decisions, how decisions are made, who is the primary caregiver, which type of care is given, and which foods and other objects are important.
3. Listen to the patient. Find out their wants, how their wants are different from what the family wants, and how they differ from what you think is appropriate.
4. Consider the patient's communication abilities and patterns. Note, for example, manners of speaking (rate of speech, expressions used) and nonverbal cues that can enhance or hinder understanding. Also,

be aware of your own nonverbal behaviors that may be acceptable or unacceptable to the patient and family.
5. Explore customs or taboos. Observe behaviors and clarify beliefs and practices that may interfere with care or treatment.
6. Become oriented to the individual's and family's sense of time and time frames.
7. Determine which communication approaches are appropriate with respect to what is the most comfortable way to address the patient and family. Find the symbolic objects and activities that provide comfort and security.
8. Assess the patient's religious practices and determine how their religious beliefs influence perceptions of illness and treatment.

These guidelines will assist in the exchange of information between the nurse and patient. The teacher/learner role is a mutual one in which the nurse is both teacher and learner and the patient is also both learner and teacher. The goals of SDM, negotiation, and patient-centered care are to arrive at ways of working together to solve a problem or to determine a course of action (Elwyn et al., 2012; Epner & Baile, 2012; Truglio-Londrigan & Slyer, 2018). The nurse must recognize that each person is an individual and that differences exist within and between ethnic and racial groups.

Use of Interpreters

Language can be one of the greatest barriers to effective patient access, assessment, comprehension, and discharge compliance in the delivery of health care. According to the U.S. Census Bureau, one in five people (20%, or over 67 million Americans) speak a language other than English at home (Zeigler & Camarota, 2019) and approximately 9% are considered to have limited English proficiency [LEP] (Language Line, 2017). Since 2000 in the United States, patients with LEP must be provided interpreter services in accordance with Title VI of the Civil Rights Act, which prohibits discrimination on the basis of national origin. Not only is it a legal right of patients with LEP in the United States to be given access to language services, but healthcare providers have both a legal and ethical responsibility to enlist a qualified interpreter to ensure adequate two-way communication for the delivery of quality care (Basu et al., 2017; Tonkin, 2017).

Several strategies can be implemented to help with communication; however, the most common practice is using an interpreter or interpreter services (Purnell & Fenkl, 2021). It is important to distinguish between the role of an interpreter and the role of a translator, which are terms frequently used synonymously but are distinctly different in meaning. An interpreter explains *verbal* messages and a translator transcribes *written* messages. When the nurse or another member of the healthcare team does not speak the same language as the patient, it is necessary to secure the assistance of an in-person or remote interpreter. However, it is important to avoid common pitfalls if untrained interpreters are called on to help with spoken communications (Juckett & Unger, 2014).

For example, often family members, friends, or nonclinical hospital or healthcare agency employees will volunteer or will conveniently agree to serve de facto as ad hoc interpreters for patients, but for many reasons the use of nonprofessional interpreters can be dangerous and unethical. Research has shown that ad hoc interpreters are much more likely than professional interpreters to make clinically significant errors in interpretation (Basu et al., 2017; Flores et al., 2012; Tonkin, 2017). Family members and friends may not be sufficiently fluent to assume the role of interpreter, or they may choose to omit portions of the content they believe to be unnecessary, harmful, or unacceptable for the patient to hear. Finally, the presence of family members or friends may inhibit communication with the nurse and violate the patient's right to privacy and confidentiality (Hadziabdic & Hjelm, 2013; Juckett, 2014; Kaur et al., 2014; Schenker et al., 2008).

Professionally trained interpreters for nurse-patient or other provider–patient interactions are necessary for timely and accurate assessment, teaching, and other important communications. Interpreters can convey messages verbatim, and they work under the Code of Ethics for Interpreters in Health Care (National Council on Interpreting in Health Care [NCIHC], 2004) and the National Standards of Practice for Interpreters in Health Care (NCIHC, 2005) to ensure confidentiality of any and all interactions. Trained, qualified, and credentialed medical interpreters with knowledge of medical terminology and medical systems are essential in providing high-quality healthcare services to patients who have limited abilities to understand and speak English proficiently (General Devices, 2020).

As Wu (2011) made clear, interpreting "is not just about conveying a message from the source language to the target language, it also involves following codes established by the profession [of medical interpreters]" (p. 1). The Code of Ethics (NCIHC, 2004) and the National Standards of Practices (NCIHC, 2005) include the following nine elements that an interpreter is expected to adhere to:

1. *Confidentiality* of all information conveyed during encounters between every member of the healthcare team and the patient
2. *Accuracy and completeness* in rendering not only the meaning of the message but also the spirit and cultural context of the message (emotion, tone, and gestures)
3. *Impartiality* by refraining from counseling, advising, judging, or projecting personal biases, beliefs, or values when relaying the content of a message as originally stated
4. *Professional boundaries* include developing a professional rapport with a patient, but avoiding personal involvement, building friendships, and potential conflicts of interest
5. *Cultural competence* in making accurate interpretations based on cultural nuances
6. *Trust and respect* for the autonomy and expertise of all parties by using proper greetings and titles
7. *Advocacy* goes beyond facilitation of communication in support of good outcomes when a patient's health, well-being, or dignity is at risk
8. *Professional development* to continually strive to further their knowledge of subject matters and improve their language and interpreting skills
9. *Professionalism* includes interpreters disclosing skill limitations, arriving on time, monitoring their performance and behavior, and avoiding exploitation of patients by accepting gifts or rewards from them

On-staff or contract interpreters, telephone interpreters, trained bilingual staff, and trained volunteers may qualify as healthcare interpreters. However, people who do not qualify for the healthcare interpreter role are children, family, and friends of the patient; other patients or patient visitors; and untrained bilingual staff or volunteers (Scamman, 2018).

The following tips outlined by Scamman (2018) and Juckett and Unger (2014) will help in communicating through an interpreter in a healthcare setting:

- Meet with the interpreter before the interview to introduce yourself, establish rapport, set goals, and give a brief orientation to the situation so the interpreter can use the right tone for the conversation (a routine visit may take a different tone than giving a diagnosis).
- Allow extra time for the interview because communicating messages takes longer when using an intermediary.
- Acknowledge and give a clear understanding to the patient of the role of the professional interpreter so everyone feels more at ease with the conversation.
- Speak clearly, slowly, and with a normal voice level, which is more time efficient, so the interpreter does not have to clarify the communication.
- Speak directly to the patient, not the interpreter, remembering that the conversation is between you and the patient.
- Be sure to allow only one person to speak at a time to avoid interrupting and causing confusion in the interpretation and flow of the conversation.
- Position the interpreter next to or slightly behind the patient.
- Speak in complete thoughts and pause after one or two sentences so the interpreter can accurately and completely capture your full message.
- Be aware that most people understand some English, so avoid making unnecessary comments because a trained interpreter will not alter any aspect of the communication and everything you say will be interpreted.
- Avoid using colloquialisms, idioms, or slang because they may not have meaning in another language or may not be culturally appropriate.
- Rely on the interpreter to function as a cultural liaison to interpret cultural differences and beliefs about illness causation or care and to serve as a patient advocate to help you understand cultural barriers to diet, medication, or follow-up as prescribed.
- Document the name of the interpreter in the patient's medical record for legal purposes, for accuracy of who served in the role, and for convenience if that same interpreter is preferred again, if available.

If a trained bilingual interpreter is not available in person to facilitate communication, telephone and video interpreting services can be used. For example, Certified Language International (CLI), Akorbi, Global Link Language Services, and Language Scientific provide professional interpreters in up to 200+ languages on a 24-hours-a-day, 7-days-a-week, 365-days-a-year basis. These services are certified by The Joint Commission and other accrediting bodies, are approved by the USDHHS, and are Health Insurance Portability and Accountability Act (HIPAA) compliant. Also, voice translation software apps for IOS and Android mobile devices, such as Vocre and My Language Pro, will instantly translate voice or text into many different languages to connect people around the world (Mylanguage.me; Vocre.com). Thus, language is beginning to no longer be the major barrier that it once was in the practice setting.

A qualitative study was conducted by Salavati et al. (2019) to determine nurses' perspectives in using interpreters. Content analysis of the data was divided into three categories—interpreter influence, challenges, and strategies. Although it was acknowledged that interpreters are effective in minimizing language barriers and it is inevitable that healthcare professionals will need to use interpreters in practice, nurses felt that the level of patient-centered care was not as achievable as when they were caring for patients who spoke the same language as they do. The researchers recommended that formal education be given to improve nurses' use of and comfort with interpreter services.

When teaching patients who are not totally fluent in English, the nurse can implement the following strategies if it is deemed unnecessary to involve an interpreter or interpreting service (Carteret, 2010; Juckett & Unger, 2014; Stanislav, 2006).

- Speak slowly and distinctly (but not more loudly) and allow twice as much time for the teaching session.
- Use simple sentences, relying on an active rather than a passive voice.
    - Keep messages simple using basic words (good, give, take, more, and less) rather than higher level word choices (excellent, administer, receive, increase, and decrease).
    - Repeat key phrases and summarize key points to reinforce the message and to be sure the message was received completely.

- Avoid technical terms (e.g., use *heart* rather than *cardiac*, or *stomach* rather than *gastric*).
- Also avoid medical jargon (e.g., use *blood pressure* rather than *BP*) and idioms (e.g., *it's just red tape you must go through*, *easy does it, or hang in there*).
    - Pause between sentences or phrases and after asking a question to allow time for consideration of the information given or to provide a response or an answer.
- Organize instructional material in a logical order.
- Do not assume that the patient understands what has been said. Ask patients to explain what they heard by using the teach-back approach or request a return demonstration.
- Offer written materials that supplement and reinforce information given verbally that the patient and family can refer to when not in the direct care of a provider. Many printed instructional materials are now available in different languages, but if not some patients with LEP can read English better than speaking it, especially when they can review print materials with illustrations at their own pace.

Preparing Nurses for Diversity Care

The initiative to eliminate cultural disparities in health began in earnest when former President Bill Clinton made it one of his national leadership priorities. What resulted was a series of actions by the government that led to the release of the document *Healthy People 2010.* One major goal of this 10-year plan was to eliminate racial and ethnic inequalities in health (USDHHS, 2000). This document has been praised as being "the first explicit commitment by the government to achieve equity in health outcomes" (Jones, 2000, p. 1214). The nursing profession immediately embraced this goal to eliminate discrepancies in health outcomes among minority populations (CDC, 2010).

Since then, two more documents, *Healthy People 2020* and *Healthy People 2030*, have been released (USDHHS, 2012, 2020a). Just as in *Healthy People 2010*, one of the goals of *Healthy People 2020* was to increase quality and eliminate health disparities, but with a new objective added: SDOH. The most recent *Healthy People 2030* continues to highlight the SDOH objective, acknowledging the significant impact SDOH has on patients and families, the work that already has been accomplished, and the work that must continue to be done. For the first time, the SDOH objective has set targets to be achieved over the next 10 years with respect to resolving health disparities, increasing health equity, and improving health literacy among minority populations (USDHHS, 2020a).

The profession of nursing continues to contribute to the expectation of eliminating population disparities through patient teaching for disease prevention and health promotion in racial and ethnically diverse populations; through educating nursing students and nursing staff in both school and practice settings to equip them with the necessary cultural competencies; and through more rigorous clinical research into the sociocultural healthcare needs of underrepresented minorities (URM) and through more academic research to find the most effective methods of educating health practitioners for cultural care (AACN, 2019; Lee et al., 2020; National League for Nursing, 2016; Shen, 2015; Singer et al., 2015; Wright, 2014). Breaking down cultural barriers to health care calls for strengthening multicultural perspectives in the curricula of health

education programs, including nursing education (Kratzke & Bertolo, 2013; Lee et al., 2020; Mikkonen et al., 2016; Perez & Luquis, 2014).

Cultural competency is a popular, even fashionable, concept that embraces many other terms, such as cultural awareness, cultural sensitivity, cultural responsiveness, cultural humility, cultural relativism, and cultural safety (Greene-Moton & Minkler, 2019; Isaacson, 2014; Truong, 2014). It has been thought that if providers are taught to improve their cultural competency skills, they will be able to provide proper health care to racial and ethnic minority groups with the aim of reducing racial/ethnic health disparities. However, educators, clinicians, and researchers have been unable to come up with a uniform or agreed on definition of cultural competency or a framework for what it means to be culturally competent (Kleinman & Benson, 2006; Truong et al., 2014).

Despite the emphasis on teaching cultural competency in the healthcare professions, questions have been raised as far back as 2006 about the relationship between culturally competent interventions and improving healthcare outcomes by reducing health disparities and inequalities. Drevdahl et al. (2008), Gregg and Saha (2006), Kleinman and Benson (2006), Truong et al. (2014), Hernandez and Gibb (2020), and others strongly argue that claims about the value of cultural competency are not supported by robust evaluation research. In fact, the tendency within health care “to equate culture with the essentialized notions of race and ethnicity . . . lead[s] to practices that separate culture from its social, economic, and political context” (Truong et al., 2014, p. 26). In other words, culture is being too narrowly conceptualized such that it is assumed that racial and ethnic groups have a core set of attitudes, beliefs, values, and traditions that impact on or mold their health beliefs and behaviors. From that perspective, a focus on information about specific cultural traits may inadvertently and dangerously promote stereotypes, ignore variations within a group, and inadvertently contribute to cross-cultural misunderstandings.

Instead of using a “trait list approach” that defines each culture by a set of identifiable factors, it is important to discover an individual’s point of view from lived experiences, which influence that person’s own understanding, feelings, perceptions, and responses to a situation or circumstance (Kleinman & Benson, 2006). For example, how does a patient view and explain their own illness? Multiple, complex, and interrelated factors, such

as limited education, poverty, and literacy, may play a greater role in undesirable health outcomes, although discrimination and limited access to health care based on race and ethnicity may overlap to worsen health disparities (Kleinman & Benson, 2006; Truong et al., 2014).

Because it is impossible to know everything about every culture and because each person is an individual, the recommended approach is to avoid teaching "facts" about each culture and instead focus on helping professionals develop more universal skills in communication, inquiry, reflection, and analysis. Also, acquiring attitudes of curiosity, empathy, compassion, respect, humility, and self-reflection have the potential to yield more information about an individual's health beliefs, preferences, and practices than understanding all the nuances of a particular culture, which is just one of many factors influencing a person's behaviors and decision making (Georgetown University, n.d.; Singh et al., 2018).

Another important step to ensure culturally sensitive and appropriate nursing care in the 21st century is to increase minority representation in nursing. One of the most important roles of the nurse is to serve as an advocate for patients. Although nurses from the dominant White culture can learn about other cultures, ideally nurses who belong to minority groups can best identify with and understand cultural nuances. Currently, 73.3% of the nursing workforce is from White, non-Hispanic backgrounds and the remaining 27.6% is comprised of people from minority groups (see **Figure 8-5**), whereas approximately 40% of the total U.S. population belongs to a variety of minority racial and ethnic groups (U.S. Census Bureau, 2020). Thus, it is essential that the cultural profile of registered nurses (RNs) more closely mirror the racial and ethnic percentages of people in this country. The profession needs to make a concerted effort to recruit and retain more minority students and faculty into nurse education programs to expand the diversity of RNs within its ranks (AACN, 2019; Bettencourt, 2016; USDHHS, 2019; Valentine et al., 2016).

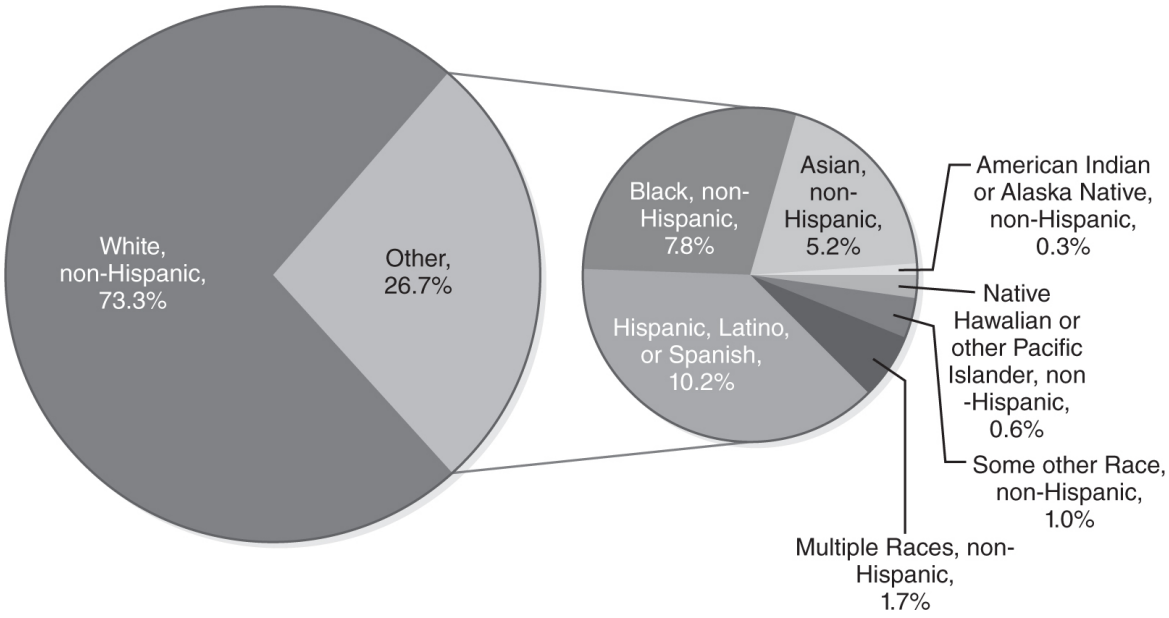


Figure 8-5 Distribution of RNs by Race and Ethnicity

Reproduced from U.S. Department of Health and Human Services, Health Resources and Services Administration, National Center for Health Workforce Analysis. (2019). *Brief summary results from the 2018 national sample survey of registered nurses*. https://data.hrsa.gov/DataDownload/NSSRN/GeneralPUF18/nssrn-summary-report.pdf

Description

Diversity in the healthcare workplace means having a workforce that is made up of not only multiple races and ethnicities, but it also includes diversity in gender and sexual orientation, age, religious backgrounds, SES, disabilities, national origin, and veteran status. In other words, diversity in the medical and administrative staff of healthcare facilities whose employees represent a variety of experiences and backgrounds helps to improve communication within the organization that leads to the enhanced quality of patient care (AACN, 2019; Bettencourt, 2016). In other words, a diverse staff is effective in bridging the divide between the culture of medicine and the values, beliefs, and practices of the patients they serve (Bettencourt, 2016). It is widely believed that professional caregivers who are culturally diverse and reflect or mirror the patient demographic help patients to feel more comfortable and providers are

more able to meet the unique social, cultural, and linguistic needs of patients and their family members. In essence, “the better a patient is represented and understood, the better they can be treated” (Jordan, 2020, p. 2). An emerging paradigm, *cultural distress*, describes patient reactions to care when nurses and other healthcare providers do not attend to a person’s diverse needs (Dewilde & Burton, 2016).

Not only does diversity in the healthcare workplace benefit patients, but it also has many advantages for the employer and employees in healthcare organizations (Jordan, 2020) and it also benefits students, faculty, and staff in academic settings (AACN, 2019) resulting in:

1. higher staff, student, and faculty morale because workplace and academic settings feel more inclusive, safer, and more enjoyable
2. higher employee, student, and faculty retention because a safe, accepting, and contented environment to work and learn results in fewer people leaving
3. better success at recruitment of staff, students, and faculty because a wider net can be cast to attract new talent
4. stronger motivation when staff, students, and faculty feel respected and even celebrated rather than stifled in showing their unique abilities and personality traits
5. better problem solving because a diverse group offers a wide range of perspectives that lead to more creative solutions and new ideas
6. improved results because when diversity is embraced, staff, students, and faculty strive to do their best

On the other hand, major risks can be attributed to a lack of diversity in the workplace and academic settings, such as breakdowns in communication due to language barriers; differences in cultural norms and expectations, and even cultural bias; limited perspectives that can lead to less innovation and creative thinking and less psychological and social support of patients, staff, faculty, and students; lack of role models to serve as mentors to guide fellow professionals in their career development; and bias, implicit or explicit, that may negatively impact policy and procedural decision making (Jordan, 2020).

Stereotyping: Identifying the Risks and Solutions

In addressing the diversity issues of gender and sex characteristics, SES and racial and ethnic cultures, nurses must acknowledge the risks of stereotyping inherent in discussing these attributes of the learner. Throughout this chapter, it has been clearly documented that differences exist in learning based on gender and sex, socioeconomics, and culture, which in turn often require alternative approaches to teaching. It is important to realize that differences are not based on judgments as to what is good or bad, or right or wrong; rather, nurses should be acutely aware of the need to attend to these differences in a sensitive, open, and fair manner.

Nurse educators and other health professionals must relate to each person as an individual. It is important to develop an awareness that although a person can be considered a member—or may identify with members—of a certain cultural group, the individual has their own abilities, experiences, preferences, and practices. Learning needs, learning styles, readiness to learn, and many other factors influence lifestyle behaviors that go beyond the culture in which someone was raised.

Nonetheless, everyone has been socialized in subtle and not-so-subtle ways according to their own diversity attributes; social, economic, and political backgrounds; and other life exposures. It is important to acknowledge the prejudices, biases, and the tendency to stereotype that can come into play when dealing with others like or unlike ourselves. A conscious attempt must be made to recognize these possible attitudes and the negative consequences they may have on others in our care (Aronson et al., 2013; Ferguson, 2015; Phelan et al., 2019). To address the dangers of stereotyping on more than just a superficial level, this section examines examples of what constitutes unacceptable forms of stereotyping, which pitfalls can

arise in dealing with diversity, and what can be done to avoid behaviors that stereotype ourselves and others.

Stereotyping is defined by Purnell and Fenkl (2021) as "an oversimplified conception, opinion, or belief about some aspect of an individual or group of people" (p. 10). Exaggerated generalizations are commonly made about the characteristics, behaviors, and motives associated with any person or group of people. Some have claimed that stereotyping can be seen as positive or negative, depending on how, where, when, why, and about whom it is applied. Therefore, is it okay to stereotype people into specific groups, such as "she's Italian" or "he's a Democrat," for the purpose of identifying or classifying them?

The term *positive stereotyping* is actually an oxymoron because "positive" stereotypes, as Youell (2021) explains, "are no more valid than negative ones, despite how they may sound. The practice of grouping people with similar traits together leaves little or no room for interpersonal differences" (p. 1). For example, the belief that Asians are good at math and science seems positive because it is a popular idea that this cultural group excels in these specific subjects. Yet, it is actually negative because not only is this belief statistically unproven, but it puts pressure on Asian students to be high achievers in these fields, which can result in a significant psychological toll on a person's sense of self-worth and individuality (Youell, 2021).

Conversely, negative stereotyping can put people in an artificial or unfair position that oversimplifies their situation and also is not based on facts. Negative stereotyping leads to disrespecting, dehumanizing, and defaming an individual or group, which serves as a barrier to equality and fairness toward others. For example, negative stereotyping of patients based on age, weight, gender, sexual orientation, race, ethnicity, social status, or some other identifying factor can result in undesirable health outcomes, cause them to distrust their healthcare providers, and feel dissatisfied with the health care they have received (Abdou et al., 2016; Phelan et al.,

2019; University of Southern California, 2015). As another example, negative stereotyping of students can adversely affect their performance on tests and other academic functions (Aronson et al., 2013). Also, stereotyping members of health professions can lead to negative or false perceptions that hinder the delivery of collaborative patient-centered care by healthcare teams (Ateah et al., 2011; Cook & Stoecker, 2014).

Stereotyping deserves a bad name given its association with biases or clichés. A huge emotional component exists to stereotyping. The language that is used, the attitudes that are projected, the conclusions that are drawn, and the context in which stereotyping is used all determine the significance and extent of its negative impact on others. Unfortunately, classification by association is often bias. Stereotyping in this sense is used to label someone. For example, based on the terrorist attacks occurring today in the United States and worldwide, especially in the past two decades, simple appearance, such as a beard, attire, or form of speech, can be the basis of broad and deep prejudices.

People particularly tend to use an excuse to classify individuals when they do not like or respect others whose backgrounds, attitudes, abilities, values, or beliefs are different from or opposed to their own or are misunderstood or misinterpreted. Stereotyping, either conscious or subconscious, results in intolerance toward others and engenders the belief that our way is the only way or the right way. In health care, labeling, stereotyping, and stigmatizing responses by nurses and other providers marginalize patients (Newcomb, 2015; Whitfield, 2016). Conversely, Tello (2017) points out that overt bigotry also can be expressed by patients and their family members toward health professionals who are from ethnic backgrounds different from their own.

Stereotype threat is a term to describe a disruptive or unpleasant psychological experience when people feel judged or feel at risk in having to confront negative stereotypes associated with their social identity (Aronson et al., 2013). The experience of stereotype threat

can cause a person to be more vigilant for further signs of discrimination, which can result in stress, withdrawal, lack of adherence to therapy, delay or avoidance of follow-up encounters, and interference with effective communications (Ferguson, 2015). For example, a negative impression associated with an individual's status can trigger physiological and psychological behaviors in patients as well as in providers that may be a contributor to health disparities and lack of access to care (Abdou & Fingerhut, 2014; Abdou et al., 2016; Ferguson, 2015; Phelan et al., 2019). As Curtin (2017) so aptly stated in her discussion about bridging the "we vs. they" gap, "consideration for others shouldn't be a terribly difficult proposition. It takes no more energy to be thoughtful than to be thoughtless, to be accepting rather than condemning, to be kind rather than intolerant" (p. 48).

From another perspective, attitudes toward gender-role competencies are considered a type of stereotyping, too. For example, positive gender stereotypes are prevalent and even considered socially acceptable, such as women are more nurturing and are more instinctive or men are more independent and stronger. However, despite the positive tones in which these comments are often used, these are stereotype threats, or even social identity threats, to interpersonal relationships that can lead to negative outcomes (Kahalon et al., 2018; Martiny & Nikitin, 2019). Specifically in the nursing profession, men in nursing face a lot of negative, gender-based stereotypes from patients (Swanson, 2020) and even some fellow colleagues. Nurses are most always referred to as "she" (or some other female pronoun) and a man in nursing is often labeled a "male nurse" rather than being identified by the more generic term "nurse." In these subtle or not-so-subtle ways, stereotypical expectations are reinforced by groups or by society as a whole. Gender bias has produced inequality in education, employment, and other social spheres (Snowman & McCown, 2015).

Nurses must concentrate on treating people of all genders equally when providing access to health education, delivering health and illness care, and designing health education materials that contain

bias-free language. For example, they must avoid gender-specific terms, such as using “he” or “she,” unless those terms are critical to the content and choose words that minimize ambiguity in gender identity, such as using the pronoun “they,” “them,” or “their.” If possible, nurses should avoid beginning or ending words with man or men, such as *man-made*, *mankind*, or *chairman*; instead, the words *machine-made*, *humankind*, and *chairperson* or *chair*, respectively, could be used as substitutes. Do not specify marital status unless necessary by using Ms. instead of Mrs. The purpose for using **gender-fair language** is to reduce gender stereotyping and social discrimination (Sczesny et al., 2016). Suggestions for how to avoid sexist language can be found in the *Statement on Gender and Language* by the National Council of Teachers of English (2018) and Purdue Online Writing Lab’s (2010) *Stereotypes and Biased Language* document.

With respect to age, socioeconomics, racial and ethnic cultures, religion, or disabilities, stereotyping most definitely exists. Throughout this chapter, many cautions have been issued against stereotyping of individuals and groups. For example, just because someone belongs to a specific racial or ethnic group does not necessarily mean that the individual adheres to all the beliefs and practices of that culture. Or, the fact that someone is living in poverty does not mean they have always done so, or that they lack education, skills, intelligence, or learning capabilities.

A thorough and accurate assessment of the learner is the key to determining the specific abilities, preferences, and needs of every individual. The nurse should choose words that are accurate, clear, and free from bias whenever speaking or writing about an individual or a group of individuals. Nurses should refer to someone’s ethnicity, race, religion, age, and SES only when it is essential to the content being addressed. For instance, it is more politically and socially correct to use the term *older adult* than the term *elderly* or *aged*. Do not label a member of a special population as a “disabled person” but rather use people-first language by referring to a “person with a disability.” Also, it is more appropriate and more acceptable to refer

to a *person with diabetes* rather than *a diabetic* or to *a person with AIDS* rather than an *AIDS victim*.

To avoid stereotyping, nurses should ask themselves the following questions:

- Do I use neutral language when teaching patients and families?
- Do I confront bias when evidenced by other healthcare professionals?
- Do I request information equally from patients regardless of gender, SES, age, or culture?
- Are my instructional materials free of stereotypical terminology and expressions?
- Am I an effective role model of equality for my colleagues?
- Do I treat all patients with fairness, respect, and dignity?
- Does someone's appearance influence (raise or lower) my expectations of that person's abilities or affect the quality of care I deliver?
- Do I assess the educational and experiential backgrounds, personal attributes, and economic resources of patients to ensure appropriate health teaching?
- Am I knowledgeable enough of the cultural traditions of various groups to provide sensitive care in our multicultural, pluralistic society?

It is all too easy to stereotype someone not out of malice but rather out of ignorance. Nurses have a responsibility to keep informed of the most current beliefs and facts about various gender attributes, socioeconomic influences, and cultural traditions that could influence their teaching and learning either positively or negatively. Every day, research in nursing, social science, psychology, and medicine is yielding significant information that will assist in planning and revising appropriate education interventions to meet the needs of diverse patient populations as well as the needs of diverse student and staff nurse populations.

State of the Evidence

It is essential that nurses base their practice on evidence from empirical studies and expert opinion so that they can deliver the highest quality, most scientifically sound care to clients. Such evidence also is important as a basis for the educational preparation of staff nurses and future members of the nursing profession to give them the most up-to-date knowledge and skills needed to function competently and confidently in today's healthcare environment.

With respect to sex and gender attributes of the learner, it is evident that efforts to understand how the human brain works and to explore any discrepancies that might exist between the sexes in how they think, feel, and respond are still in their infancy. Neuroscience is just beginning to unravel the mysteries and discover differences and similarities in the way male and female brains are wired. In the last 20 to 25 years, there has been an upsurge of interest and fascination with the discoveries in the field of neurobiology. New brain imaging instruments are beginning to reveal which individual portions of the brain are responsible for cognition, emotions, and tasks, but even more important are revelations about how the different parts of the brain operate or interact in concert with one another.

Brain research is an exciting, largely uncharted field, and some of the research findings presented to date have been conflicting or inconclusive. Therefore, the challenge is to incorporate what is currently known to refine our approaches to teaching and learning but avoid being too quick in jumping to assumptions or generalizations in the application of preliminary research findings before the evidence is conclusive.

Recent years also have witnessed a growing acceptance and subsequent interest in the LGBTQ population. The body of knowledge on the characteristics, healthcare needs, and effectiveness of various strategies and interventions that can be

used when working with this cultural group has increased significantly over the past 10 to 15 years. As more patients, students, faculty, and staff have begun openly sharing their sexual orientation and gender identity with either their healthcare providers or fellow colleagues, it is critical that the nurse be prepared to respond in a culturally appropriate manner to the unique needs of this group of people.

Further research into the impact of SES on health outcomes also needs to be conducted. For example, the cause-and-effect relationship between poverty, health status, and health inequalities are not well understood. Although research has shown that cognitive abilities are related to health, the associations between such factors as socioeconomic environment, social position, educational attainment, and employment status on morbidity and mortality rates are still not altogether clear. Much more research needs to be done to understand the influence of socioeconomic position on the abilities, preferences, and motivations for learning.

Nursing research priorities regarding the influence of cultural diversity on the health of individuals and groups must be identified and defined. Knowledge gaps remain despite the increase in the number of new studies being conducted in this area. For example, the increasingly more multicultural nature of U.S. society requires that nurses understand the impact of racial and ethnic beliefs on the epidemiology of various diseases, on the effectiveness of health promotion efforts, on illness prevention measures, and on health maintenance and rehabilitation interventions. Furthermore, the emphasis on cultural competency as the solution to eliminate racial and ethnic disparities in the accessibility and quality of health care may inadvertently be reinforcing racial and ethnic biases and stereotypes. Instead, focus must be redirected to uncovering the complex social, economic, and cultural contexts in which individuals live that influence their health and well-being.

Moreover, only relatively recently have assessment instruments been developed to provide more insights into the cultural effects of

patients' perspectives on health and their responses to illness. Reliable and valid instruments need to be adopted that measure health beliefs, attitudes, customs, and patterns of behavior in individuals from different racial and ethnic backgrounds rather than relying on the application of specific traits of the different cultural groups that yield only a "dos" and "don'ts" approach to incorporating a person's culture into their treatment plan. Clearly, health providers lack substantial evidence on how the context of culture affects health and illness.

Summary

This chapter explored the influence of sex and gender characteristics, SES, and race and ethnic culture on both the ability and the willingness of patients to learn about health and health care. The in-depth examination of these three factors helps to explain certain behaviors observed or potentially encountered in a teaching–learning situation. It also serves to assist the nurse in using strategies that sensitively address and respect the individual characteristics and specific needs of the learner.

The most important message to remember from this chapter is the care nurses must take not to stereotype or generalize common characteristics of a group to all members associated with that group. For example, if the nurse does not know much about a person who is from a racial or ethnic group, they should ask patients about their beliefs rather than just assuming they abide by the tenets of a certain cultural group. Also, just because a person appears to be male or female does not always mean that they identify with that gender type. In that way, nurses can avoid offending learners by making assumptions about what they need or want.

In their role as teachers, nurses must be cautious to treat each learner as an individual. They must determine the extent to which patients ascribe to, exhibit beliefs in, or adhere to ways of doing things that might affect their learning. As Griffith (1982) so aptly commented many years ago, humans live in a double environment—an outer layer of social and cultural experiences and an inner layer of innate strengths and weaknesses—which influences how they perceive and respond to their world.

Nurses, as professionals, should constantly strive to improve the delivery of care to all people regardless of their sex and gender identity, socioeconomic level, or cultural origin. Nurses need to be aware of how these three factors affect the teaching–learning

process before they can competently, confidently, and sensitively satisfy the education needs of patients and their family members, nursing students, and nursing staff who come from diverse backgrounds.

Review Questions

1. Do sex characteristics influence the structure and functioning of the human brain? Explain.
2. What are the differences, if any, between men and women in gender-related cognitive abilities and gender-related personality behaviors?
3. In which ways does SES negatively affect a person's health and, conversely, how does illness affect an individual's socioeconomic well-being?
4. What is meant by the term *poverty cycle*?
5. Six major racial and ethnic groups in the United States are identified by the U.S. Census Bureau. What are the six groups, which two are the fastest growing, and what percent of the population is made up of minority groups?
6. What is the definition of each of the following cultural terms: assimilation, acculturation, culture, ethnicity, race, ethnocentrism, transcultural, and multiculturalism?
7. What are the 12 cultural domains identified in Purnell's model of cultural competence that should be accounted for when conducting a nursing assessment?
8. What are two patient-centered cultural assessment models or mnemonic frameworks that can be used to optimize care to individual patients? Summarize each model or framework and explain your rationale for choosing them.
9. How can nurses be prepared to appropriately deliver diversity care to the patients and families they serve?
10. What can the nurse do to avoid gender, socioeconomic, and cultural stereotyping?

CASE STUDY

Camila Gomez, a 38-year-old Latina, presents to the emergency room with abdominal pain. Because Ms. Gomez predominantly speaks Spanish, she brought her bilingual teenage daughter with

her. As one of the primary intake nurses, you begin conducting a physical assessment. On palpating the abdomen, the patient grimaces and moans, indicating pain. The daughter speaks to her in Spanish and relays to you, “My mom says that hurts and it has felt like this for days.” To complete the assessment of the patient, you have several questions you would like to ask the patient to determine the cause of the pain. You reached out to an interpreter, who states they will be there within 1 or 2 hours. You continue with your assessment and ask the daughter to translate for you. When you start to ask questions about the patient’s genitourinary system, Ms. Gomez tells her daughter to translate back to you, “I am tired and would like to rest.”

When the interpreter arrives, you encourage the daughter to take a break and grab a snack. With the interpreter standing by the side of the patient, you continue with your assessment and discover that Ms. Gomez has had painful urination, lower abdominal pain, and vaginal discharge for weeks. All signs and symptoms indicate that Ms. Gomez will need to be treated for a sexually transmitted disease. Ms. Gomez states, “I was too embarrassed to talk about my problems with my daughter here.”

1. Is it ever appropriate to ask or allow a patient’s family members to serve as interpreters?
2. If placed in a similar situation without an in-person certified interpreter available, what are some options for overcoming language barriers in a culturally sensitive manner?
3. Because you know that cultural factors shape health-related beliefs, behaviors, and values, you decide to conduct a cultural assessment. Using the mini-ethnography method and an Explanatory Models approach, what steps should you follow and what questions should you ask, respectively, to ensure a thorough understanding of how this patient might perceive her problem from a culture context point of view?

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CHAPTER 9

Educating Learners With Disabilities and Chronic Illnesses

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CHAPTER HIGHLIGHTS

- Scope of the Problem
- Models and Definitions
  - Definition of the Term *Disability*
- The Language of Disabilities
- The Roles and Responsibilities of Nurse Educators
- Types of Disabilities
- Sensory Disabilities
  - Hearing Impairments
  - Visual Impairments
- Learning Disabilities
  - Dyslexia
  - Dyscalculia
- Developmental Disabilities
  - Attention-Deficit/Hyperactivity Disorder
  - Intellectual Disabilities
  - Asperger Syndrome, Asperger Profile, and Autism Spectrum Disorder
- Physical Disabilities
  - Traumatic Brain Injury
  - Memory Disorders
- Communication Disorders
  - Aphasia
  - Dysarthria
- Chronic Illness
- The Family's Role in Chronic Illness or Disability
- Assistive Technologies
- State of the Evidence

KEY TERMS

anomic aphasia

Asperger syndrome

assistive technologies

attention-deficit/hyperactivity disorder (ADHD)

augmentative and alternative communication (AAC)

developmental disability

disability

dysarthria

dyscalculia

dyslexia

expressive aphasia

global aphasia

habilitation

hearing impairment

identity-first language

intellectual disability

learning disability

people-first language

receptive aphasia

rehabilitation

sensory disabilities

visual impairment

OBJECTIVES

After completing this chapter, the reader will be able to:

1. Recognize the scope of the disability problem from a worldwide, national, and individual perspective.
2. Compare various definitions of the term *disability*.
3. Identify differences among the various models that influence the way disabilities are addressed in society.
4. Discuss the implications of the Americans with Disabilities Act on teaching patients, nursing students, and staff.
5. Describe the language that should be used when writing about, talking with, or talking about people with disabilities.
6. Summarize the roles and responsibilities of the nurse as educator in teaching learners with disabilities.
7. Differentiate between the two major types of disabilities, the five categories of disabilities, and the multiple subcategories of each of these disabilities.
8. Describe the various teaching strategies (methods and materials) that can be used when working with learners who have sensory, learning, developmental, physical, and/or communication disabilities.
9. Discuss the effects of a chronic illness or disability on patients and their families.
10. Give examples of assistive technologies and their applications to enhance the lives of people with disabilities.

Teaching others about health and wellness or disease and its treatments is a critical and challenging role for the nurse caring for individuals in any setting. The teaching–learning process is especially demanding when working with individuals whose ability to learn is challenged by one or more disabilities that affect their capacities to see, hear, speak, move, understand, remember, or process information. Education is a critical component of care for individuals with disabilities in order to enable them to maintain established patterns of living or establish new ones to accommodate changes in their health status or functional ability.

This chapter focuses on those persons whose sensory, cognitive, or physical conditions require nurses to adapt their approach to teaching. Although the information presented here focuses specifically on patient

populations, the same principles of teaching and learning can be extrapolated to apply to other categories of learners. For example, the nurse educator, in the role of in-service educator, faculty member, or staff development coordinator, may use these strategies when teaching hospital personnel or nursing students who have a physical or learning disability.

This chapter provides an overview of a wide range of sensory, cognitive, mental, and physical disabilities and other issues that affect the ways in which people learn. Included are the most common disabilities encountered by nurses, such as learning disabilities and communication disorders. Although not a disability, chronic illness also is addressed because it is a situational issue that often causes disabilities and that may require a change in the way the nurse approaches health education. In addition, this chapter also provides a summary of assessment, teaching, and evaluation strategies that nurse educators can use in designing and implementing teaching plans for individuals with unique learning needs and their families who are involved in supporting them.

Scope of the Problem

“Disability is part of the human condition. Almost everyone will be temporarily or permanently impaired at some point in their life, and those who survive to old age will experience increasing difficulties in functioning” (World Health Organization [WHO], 2011, p. 3). Therefore, it is not surprising that more than 1 billion people throughout the world (about 15% of the population) live with a condition that is classified as a disability. This number is expected to increase as populations age, and the incidence of debilitating conditions such as diabetes, obesity, and cancer continues to grow (WHO, 2018a). If the incidence of disabilities seems high, it is important to remember that not all disabilities are readily apparent to the casual observer. For example, not all people with disabilities use a wheelchair, wear a hearing aid, or walk with the assistance of a white cane.

Given these worldwide statistics, it is not surprising that a significant number of Americans live with a wide range of disabilities that affect them in a variety of ways. In the United States, nearly 60 million Americans (1 in 5) are estimated to have a disability, with almost half of these persons reporting a disability that is considered to be severe (Office of Disease Prevention and Health Promotion, 2020). Disabilities can affect many aspects of life, health, and well-being. For example, Americans with disabilities are less likely to be employed and more likely to be living in poverty than people without disabilities (Bureau of Labor Statistics, 2020; Morris, 2017).

Individuals with disabilities are more likely than people without disabilities to have more illnesses and greater health needs, are less likely to receive preventive health and other types of social services, are more likely to engage in unhealthy behaviors, and are at higher risk of poor health outcomes (Brucker & Houtenville, 2015; Centers of Disease Control and Prevention [CDC], 2020f, 2020g; Office of Disease Prevention and Health Promotion, 2020). Fear, lack of

understanding, and physical barriers also play a role in health disparities. However, it is important to recognize the diversity of this population and avoid making assumptions (Horner-Johnson et al., 2014).

Some disabilities are associated with additional chronic health problems. For example, Down syndrome—a common cause of **intellectual disability**—is associated with various chronic physical conditions, including heart disease, epilepsy, and leukemia. In the case of Down syndrome, the associated intellectual disability complicates the chronic health conditions; that is, individuals with Down syndrome are less likely to access health services because of fear, lack of understanding on the part of caregivers, and environmental barriers (Hengsterman, 2018; Vander Ploeg Booth, 2011; Williams et al., 2017).

Cost, indirect and direct, is a major issue for individuals with disabilities and their families. Inability to work full time, job discrimination, and time off from work all create indirect expenses that can cause severe financial constraint (Brucker et al., 2015; Lauer et al., 2020). Direct costs include the many out of pocket expenses such as wheelchair ramps, home adaptations, special diets, equipment, and caregiver assistance. Goodman et al. (2020) estimate that "a household containing an adult with a disability that limits their ability to work requires, on average, 28% more income (or an additional $17,690 per year) to obtain the same standard of living as a similar household without a member with a disability" (p.1). Therefore, even with health insurance, people with disabilities may have insufficient resources for copays, transportation costs, and other expenses related to accessing health care (Lee et al., 2012).

It has been said that people with disabilities represent the largest minority group in the United States, a group that is composed of individuals of all ages, of all racial and ethnic backgrounds, and from all walks of life (DoSomething, 2017). Health care for this group of people is often complex and costly. More than 25% of healthcare expenditures in the United States are associated with disability care,

borne largely by Medicaid and the public sector (CDC, 2020e). As educators, nurses can play a significant role in promoting health and wellness, ensuring proper self-care, and improving overall quality of life.

Models and Definitions

A number of models or perceptions of disabilities influence the way in which disabilities are addressed in society. Although most often used by academics and researchers, disability models are important for all healthcare professionals because they reflect a way of thinking that can influence care and care delivery (Disabled World, 2019). From a healthcare perspective, disability models can be categorized into two main groups: medical models and social models.

Medically focused models are among the most common disability models and include the Biomedical Model of Health, the Medical Model of Disability, the Rehabilitation Model, and the Expert Model of Disability. Those who follow a medically focused model believe that the limitations faced by the individual are caused by the disability itself (Stanford Encyclopedia of Philosopohy, 2016). Therefore, these models view disability as a problem requiring intervention, with the goal being cure, “normalcy,” or reduction of the perceived deficiency (Disabled World, 2019; Shyman, 2016). Medical care plays a key role as does the healthcare professional whose expertise is required for appropriate intervention. Medical models are often criticized by disability advocates as encouraging unnecessary medical expense and fostering discrimination.

Socially focused models differ from medical models in that this perspective views a disability as a different way of being rather than as a problem to be cured. These models embrace disability as a normal part of life and view the social response to difference as the source of many of the problems experienced by those who live with a disability (Stanford Encyclopedia of Philosophy, 2016). The Social Model of Disability, the Identity Model, the Minority Model of Disability, and the Social Adapted Model of Disability can all be categorized as socially focused models. These models do not view disabilities as negative; therefore, they are at odds with the medically focused models as well as the Tragedy/Charity Model of Disability,

which depicts people with disabilities as objects of pity (Retief & Letšosa, 2018).

Although *morally focused models* do not fall into one of the two previously described categories, they are worthy of note. Moral models, including the Moral Model of Disability and the Religious Model of Diversity, are based on the notion that the person is somehow responsible for their own disability either through bad decisions or acts of a displeased God. Unfortunately, this belief still exists in some cultures. When a disability is viewed as sinful, individuals and their families not only experience guilt and shame but may also be denied the care they require. In 1993, the United Nations established a set of Standard Rules on the Equalization of Opportunities for Persons with Disabilities specifying that individuals with disabilities have a fundamental right of access to care, rehabilitation, and support services, which still stands as the policy-making instrument for governments around the world (United Nations, 1993).

Definition of the Term *Disability*

The disability models serve as the underpinnings for many of the ways in which the term *disability* is defined. Although many definitions exist, most reflect the growing awareness that a disability is not just a mental or physical problem, but rather a multifaceted phenomenon that includes the impairment itself as well as the challenges faced by the individual who lives within a given society. For example, the World Health Organization (2018a) defines **disability** as "the interaction between individuals with a health condition and personal and environmental factors" (para1). In defining disabilities, *Healthy People 2030* cites the same two factors: a physical impairment that can be mild to severe, and social and environmental circumstances that can enhance or limit the individual's abilities and health outcomes (Office of Disease Prevention and Health Promotion, 2020).

In the United States, the Social Security Administration [SSA] (2021) defines *disability* in terms of an individual's ability to work. While this definition is notably different from those previously discussed, its purpose is also different. This definition and its associated criteria are designed to be used to determine eligibility for Social Security payments for individuals with severe disabilities. The criteria used by the SSA require that individuals be classified as disabled only if they have a long-term (minimum 12 months) or fatal condition that makes it impossible for them to continue in their current role or adapt to other work for an extended period of time (American Association of Retired People, 2020). The SSA does not pay benefits for partial or short-term disability. SSA does, however, pay disability benefits for low-income families caring for a child with a severe disability. Nurses are likely to encounter many clients who are unable to work because of conditions like cancer, kidney failure, blindness, and COPD. These individuals depend on Social Security Disability, which averages between $500 and $600 per month, as their main source of income (Center on Budget and Policy Priorities, 2018).

On July 26, 1990, President George H. W. Bush signed into law the Americans with Disabilities Act (ADA). The definition of disability under the ADA is "a physical or mental impairment which substantially limits one or more of the major life activities of the individual" (U.S. Department of Justice, 2009, p. 1). A major life activity includes functions such as caring for oneself, standing, lifting, reaching, seeing, hearing, speaking, breathing, learning, and walking. This significant legislation has extended civil rights protection to millions of Americans with disabilities.

The ADA, which was most recently amended in 2008, outlines specific requirements that prohibit any form of discrimination in employment, educational facilities, and state or local government services, programs, or activities and mandate public accommodations in buildings, commercial facilities, transportation, and telecommunications (Oyeleye, 2019; Pelka, 2012). Public and private institutions of higher education have a legal obligation to adhere to both federal and state regulations to ensure their

campuses are accessible to all students, including their physical spaces and digital and web-based technologies (Myers, 2020). Specifically for accommodating students with disabilities in nursing schools, as long as a student meets the academic requirements to participate in a degree program, the ADA requires institutions of nursing education to provide reasonable accommodations for the student's disabilities. As the profession is striving for diversity and inclusion in its ranks, all nursing programs should have a list of detailed technical standards based on professional, accreditation, and licensing requirements. These technical criteria must be shared with faculty, current students, and all applicants prior to admission so they are aware of program policies and expectations (AACN, n.d.; Davidson et al., 2016; Salko, n.d.).

Although the ADA's definition of disability, with its emphasis on physical and mental impairments, may give the impression that it is steeped in the medically focused models, the protections it provides are more consistent with the socially focused models. The ADA legislation makes it illegal to discriminate based on a disability in the areas of employment, public service, public accommodations, transportation, and telecommunications. Therefore, it requires that employers and government officials address misconceptions and biases that prohibit people with disabilities from gaining access to jobs and services. ADA also recognizes the importance of environment, and although there is still much work to be done, the ADA has taken steps to remove environmental barriers for people with disabilities (Steinberg, 2020).

ADA legislation provides the foundation on which all facets of society will be free of discrimination, including the healthcare system. Therefore, health professionals can expect to encounter people with disabilities in every setting in which they practice, such as schools, clinics, hospitals, nursing homes, workplaces, and private homes. Persons with a disability will expect nurses and other healthcare professionals to provide reasonable accommodations to allow them to enter the system on an equal footing with others.

It is important that nurses understand and comply with ADA legislation. For the nurse functioning in the role of educator, a number of implications must be considered. First, clients with a disability can expect appropriate instruction adapted to their special needs. It is important to review instructional materials and teaching strategies to assure that those with a hearing or visual impairment or other disability can access needed instruction. Second, clients, particularly those with a new disability or those who are struggling with an existing disability, should understand their rights under the ADA. If needed, the nurse should refer the client to someone who can prepare a “reasonable accommodation letter” to assist them in obtaining the support they require from employers, schools, and other service providers (Oyeleye, 2019). Third, for nursing faculty and inservice instructors, it is critical that they prepare disability-competent practitioners who have the knowledge and skills required to address the needs of this growing population (Havercamp et al., 2020).

The Language of Disabilities

Since the 1960s, the disability rights movement has worked to improve the quality of life of people with disabilities through political action. Through this effort, tremendous gains have been realized, including improved access to public areas, education, and employment. The disability rights movement also advocates for appropriate use of language with respect to people with disabilities.

In the late 1970s, disabilities advocates began to encourage the use of “people-first” or “person-first language” (Family to Family Network, 2016: Haller et al., 2006). The term **people-first language** refers to the practice of putting “the person first before the disability” in writing and speech and “describing what a person has, not what a person is” (Snow, 2012, p. 3). People-first language is based on the premise that language is powerful and that referring to an individual in terms of their diagnosis or disability devalues the individual and promotes stigma (Crocker & Smith, 2019; Walkons, 2020). Resulting from this effort, the federal government uses people-first language in its legislation and many professional journals require authors to use it in their manuscripts.

Consider the following statements:

- Justin, a 5-year-old asthmatic, has not responded well to treatment.
- Developmentally disabled people, like Marcy, do best when provided with careful direction.

In each of these statements, the emphasis is on the disability rather than the person. Using people-first language, these statements would be reworded as follows:

- Justin is a 5-year-old boy who is diagnosed with asthma. Justin continues to have symptoms despite treatment.

- Marcy is a woman with a developmental disability. Marcy wants to learn how to care for herself and she learns best when given careful direction.

In recent years, the use of people-first language has become somewhat controversial. Some groups within the disabilities movement argue that a disability is an integral part of who a person is and should be affirmed rather than listed as a secondary characteristic (Dunn & Andrews, 2015; Nichols, 2019). These individuals prefer the use of "**identity-first language**," which places the disability-related word first when describing a person with a disability (Haelle, 2019). For example, when using identity-first language, a person would be referred to as "an autistic person" rather than as "a person with autism." Advocates of identity-first language believe that a disability is an all-pervasive "edifying and meaningful component of a person's identity that defines the way in which an individual experiences and understands the world around him" (Brown, 2011, para. 11). Therefore, these advocates believe that identity-first language celebrates rather than apologizes for the disability and serves to unite people with a disability.

No definitive rules exist for governing the use of language about disabilities. However, language is powerful, so it is important that nurses proceed carefully when writing about, talking about, or talking to people with disabilities. The words and labels nurses use to describe people influence the way individuals think about themselves and the way individuals are perceived by society (Haelle, 2019). The following guidelines should be considered:

- When working with or writing about groups with a specific disability, try to determine preference for people-first versus identity-first language. The literature, advocacy groups, and websites are good sources of information about group preference. The National Center on Disability and Journalism (http://ncdj.org) has published a disability language style guide that provides detailed general and specific information on writing about or for people with disabilities.

- Do not confuse disability with disease. Cancer is a disease. Children with leukemia are more appropriately referred to as “children with leukemia” rather than “leukemics.” Autism, in contrast, is a lifelong condition that defines the way people affected view the world. Many people with autism prefer the term *autistic* as they believe autism defines who they are and the way they view the world.
- Unless a preference is accepted by an entire group, avoid using one format exclusively (Dunn & Andrews, 2015).
- Do not make assumptions.

Snow (2012) offers these additional suggestions for using disability-sensitive language:

- Use the phrase *congenital disability* rather than the term *birth defect*. The term *birth defect* implies that a person is defective.
- Avoid using the terms *handicapped*, *wheelchair-bound, invalid, mentally retarded, special needs*, and other labels that have negative connotations.
- Speak of the needs of people with disabilities rather than their problems. For example, an individual does not have a hearing problem but rather needs a hearing aid.
- Avoid phrases such as *suffers from* or *victim of*. Phrases like these evoke unnecessary and unwanted pity.
- When comparing people with disabilities to people without disabilities, avoid using phrases such as *normal* or *able-bodied*. Phrases such as these place the individual with a disability in a negative light.

The Roles and Responsibilities of Nurse Educators

The role of the nurse in teaching persons who have a disability continues to evolve as, more than ever, patients and their families expect and are expected to assume greater responsibility as self-care agents. Here, the focus is on wellness and strengths—not limitations—of the individual. The role of the nurse educator in working with people who have a disability is varied and situation dependent.

The nurse may encounter patients who are newly disabled because of injury or illness or who have an illness that affects an existing disability. The nurse may also work with patients whose health or illness needs are related to their disability only insofar as the disability influences the way in which they learn or respond to treatment. For example, the nurse may teach self-care skills to a client with a new spinal cord injury, teach modification of self-care skills following orthopedic surgery to a client with an old spinal cord injury, or adapt a teaching plan for a client who is blind and newly diagnosed with diabetes. It is the role of the nurse to teach these individuals the necessary skills required to maintain or restore health and maintain independence (**habilitation**) and to relearn or restore skills lost through illness or injury (**rehabilitation**). When people with disabilities are encountered in health and illness settings, nurses are responsible for adapting their teaching strategies to help them learn about health, illness, treatment, and care.

When teaching patients who have a disability, the nurse must assess the degree to which families can and should be involved. Families of individuals who have a new disability are becoming increasingly involved in the individual's care and rehabilitation efforts. However, when working with someone who has an existing disability, the appropriateness of involving family must be assessed carefully. The

nurse must never assume that because a person has a disability, that individual is incapable of self-care.

Because of the complex needs of this population group, healthcare teaching often requires an interdisciplinary team effort. In developing a teaching plan, the nurse must assess the need to involve other health professionals such as physicians, social workers, physical therapists, psychologists, and occupational and speech therapists. As with other clients, the nurse educator has the responsibility to work in concert with individuals with disabilities and their family members to assess learning needs, design appropriate educational interventions, and promote an environment that will enhance learning. The teaching plan must reflect an understanding of the person's disability and incorporate interventions and technologies that will assist the patient in overcoming barriers to learning.

Application of the teaching–learning process is intended to promote adaptive behaviors in people that support their full participation in activities designed to promote health and, in the case of illness, optimal recovery. Emphasis on the various components of the learning process may differ depending on the disability, but it often requires changes in all three domains—cognitive, affective, and psychomotor.

Prior to teaching, assessment is always the first step in determining the needs of clients with respect to the nature of their problems or needs, the short- and long-term consequences or effects of their disability, the effectiveness of the coping mechanisms they employ, and the type and extent of sensorimotor, cognitive, perceptual, and communication deficits they experience (Smeltzer et al., 2017). When dealing with persons experiencing a new disability, the nurse must determine the extent of their knowledge with respect to the disability, the amount and types of new information needed to effect changes in behavior, and their readiness to learn. Assessment should be based on feedback from the patient as well as observation, testing when appropriate, and input from the healthcare

team. In some cases, it may be wise to interview family members and significant others to obtain additional information.

In assessing readiness to learn, Diehl (1989) outlines the following questions to be asked, which continue to be relevant today, when the nurse is determining whether the timing of the teaching–learning process is appropriate:

1. Do the individual and family members demonstrate an interest in learning by requesting information or asking questions that help them to determine their needs and solve their problems?
2. Are there barriers to learning such as low literacy skills, vision impairments, hearing deficits, or impaired mobility?
3. If sensory or motor issues exist, is the patient willing and able to use supportive devices?
4. Which learning style best suits the patient in processing information and applying it to self-care activities?
5. Are the goals of the client and the goals of the family similar?
6. Is the patient's environment conducive to learning?
7. Do the learners value learning new information and skills as a way to achieve functional improvement?

The nurse should serve as a mentor to patients and their family members in coordinating and facilitating the multidisciplinary services required to assist persons with disabilities in achieving an optimal level of functioning. This role is especially important when working with a patient who has a new disability. When family members or significant others are involved in care and serve as the individual's support system in the community, they must be invited right from the very beginning to take an active part in learning information as it applies to assisting with self-care activities and treatments for their loved ones. Appendix B provides a list of organizations that serve as resources for this population of learners.

Types of Disabilities

Disabilities can be classified into two major categories: physical and mental. Physical disabilities typically are those that involve orthopedic, neuromuscular, cardiovascular, or pulmonary problems but may also include sensory conditions such as blindness or deafness. A disability is not an illness or disease but rather the consequence of illness, injury, congenital anomaly, or genetics. Therefore, a physical problem such as a brain injury may result in a physical disability such as impaired ability to ambulate. Physical problems also may result in a mental disability. For example, the mental disability of dementia that is associated with Alzheimer's disease is a result of physical changes in the brain. Mental disabilities include psychological, behavioral, emotional, or cognitive impairments.

Five categories of physical and mental disabilities have been chosen for discussion in this chapter because they represent common conditions that the nurse is likely to encounter in practice: (1) sensory disabilities, (2) learning disabilities, (3) developmental disabilities, (4) physical disabilities, and (5) communication disorders. The multiple specific disabilities (subcategories) that fall under each of these major categories are described as follows, along with the teaching strategies that should be used to meet the needs of learners.

Sensory Disabilities

Sensory disabilities include the spectrum of disorders that affect a person's ability to use one or more of the five senses—auditory, visual, tactile, olfactory, and gustatory. The most common of these involve the ability to hear or see. Sensory disabilities can be complex, with multidimensional consequences that the nurse must address when in the role of educator. Nurses should be prepared to attend to the physical and emotional issues that may be related to the sensory loss. For example, vision impairment in adults is associated with subsequent depression (Brunes et al., 2017; Qian et al., 2012). Children with impaired hearing have been found to have an injury rate twice that of children without

hearing impairments (Mann et al., 2007). And adults with hearing problems are at increased risk for accidental injuries (Lin et al., 2018).

Hearing Impairments

Hearing impairment is the third most common chronic physical condition experienced by people across the age spectrum (Victory, 2021). Worldwide, approximately 432 million adults and 34 million children are affected by a disabling hearing loss (WHO, 2018b). Of every 1,000 children born in the United States, approximately two or three are diagnosed as deaf or hard of hearing (National Institute on Deafness and Other Communication Disorders [NIDCD], 2021). Nine out of every 10 children who are born deaf are born to parents who can hear (NIDCD, 2021).

The incidence of hearing loss increases with age (Cunningham & Tucci, 2017). Approximately 18% of all American adults aged 45–64 years have a hearing impairment. This share increases to 50% by age 75 and older, with men being twice as likely to develop a hearing impairment than women (NIDCD, 2021). Adult-onset hearing loss is often associated with exposure to loud sounds or noises (CDC, 2017; Victory, 2021).

People with impaired hearing—both the deaf and the hard of hearing—have a complete loss or a reduction in their sensitivity to sounds. Hearing loss is generally described according to three attributes: type of hearing loss, degree of hearing loss, and configuration of the hearing loss (American Speech-Language-Hearing Association [ASHA], 2015). The three basic types of hearing loss are as follows:

1. *Conductive hearing loss:* A type of hearing loss that is usually correctable and causes reduction in the ability to hear faint noises. Conductive hearing loss occurs when the ear loses its ability to conduct sound—for example, when the ear is plugged with ear wax, a foreign body, a tumor, or fluid.
2. *Sensorineural hearing loss:* A type of hearing loss that is permanent and caused by damage to the cochlea or nerve pathways that transmit sound. Sensorineural hearing loss is sometimes referred to as nerve deafness. It not only results in a reduction in sound level but also leads to difficulty in hearing certain sounds. Although they do not

"cure" the hearing impairment, cochlear implants and hearing aids can improve hearing in persons with this type of disability.
3. *Mixed hearing loss:* A type of hearing loss that is a combination of conductive and sensorineural losses.

People with hearing loss may have a problem with one or both ears. The degree of hearing loss experienced by people with a hearing impairment is classified on a scale ranging from slight to profound. Although health professionals may use the scale to differentiate people who are classified as being deaf or hard of hearing, clients themselves do not always agree with this classification. According to the National Association of the Deaf, how people label themselves is very personal and depends on many variables, including how closely the individual identifies with the Deaf community. Therefore, the nurse must determine if the patient with profound hearing loss prefers to be referred to as deaf or hard of hearing (National Association of the Deaf, n.d.).

The use of people-first language is somewhat controversial in the Deaf community. A recognized Deaf culture exists with a shared identity, language, and other cultural components (Clason, 2014; Collazo, 2014; Johnson & McIntosh, 2009). Because they are proud of this shared culture, many Deaf people want to be recognized as deaf because it reflects who they are as people. Regarding the spelling of the term *deaf*, it is suggested that the word *deaf* with a lowercase *d* be used when referring to the physical condition of not being able to hear, and the word *Deaf* with an uppercase *D* be used when referring to people affiliated with the Deaf community or Deaf culture (Berke, 2017; 121 Captions, 2017).

Communication is a primary concern for health professionals working with people who are deaf or hard of hearing. Despite improvements in sensory devices (e.g., hearing aids, cochlear implants), other issues such as the cost of devices, language and cultural differences in the Deaf community, and lack of trained professionals to deal with deafness create significant barriers to health care (Kuenburg et al., 2016; Pratt, 2018). Regardless of the degree of hearing loss, any person with a hearing impairment faces communication barriers that interfere with efforts at patient teaching (Stock, 2002). Hearing loss poses a very real communication problem because some individuals who are deaf or hearing impaired also may be unable to speak or have limited verbal abilities and vocabularies (ASHA, 2015; Lederberg et al., 2012; Scott & Dostal, 2019). This is especially true

for adults who are prelingually deaf—that is, they have been deaf since birth or early childhood. They and speakers of other languages share many of the same problems in learning English.

Problems with clients understanding health- and illness-related vocabulary also may be exacerbated with people who are deaf. Numerous research studies have found that although health education is critical for the Deaf, they often are faced with significant barriers in accessing and understanding health information (Pollard & Barnett, 2009; Smith et al., 2012; Smith et al., 2015). For example, a study with sign language users found that communication barriers existed that affected understanding of diabetes and other noncommunicable disease prevention activities (Pinilla et al., 2019).

Clearly, individuals who are deaf will have different skills and needs depending on the type of deafness and the amount of time they have been without a sense of hearing. Those who have been deaf since birth will not have had the benefit of auditory language acquisition. As a result, they may not possess understandable speech and may have limited reading and vocabulary skills. Most likely, their primary modes of communication will be sign language and lipreading.

In recent years, research has inspired new hope for children with severe hearing loss to develop language skills. In 1984, the Food and Drug Administration (FDA) approved marketing of the first cochlear implant, a device that restores partial hearing by sending signals directly to the auditory nerve fibers, bypassing damaged hair cells in the inner ear (American Academy of Otolaryngology-Head and Neck Surgery, 2015; Naples & Ruckenstein 2020). Cochlear implants are used with adults and children when hearing aids are ineffective in restoring hearing in the presence of severe hearing loss (Food and Drug Administration, 2016). Research has shown that cochlear implants have a positive effect on language development when inserted in very young children (Hoff et al., 2019; Ruben, 2018).

If deafness has occurred after language has been acquired, Deaf people may speak quite understandably and have facility with reading and writing and some lipreading abilities. If deafness has occurred in later life, often caused by the process of aging, affected individuals will probably have poor lipreading ability, but their reading and writing skills should be within

average range, depending on their educational and experiential background. If aging is the cause of hearing loss, visual impairments also may be a compounding factor. Because vision and hearing impairments are two common sensory losses in the older adult, these deficits pose major communication problems when teaching older clients.

People with hearing impairments, like other individuals, require health care and health education information at various periods during their lives. Because of the diversity within this population, assessment is a critical first step in patient education to determine the extent of the hearing loss and the use of hearing aids, cochlear implants, or other types of assistive equipment. Also, individuals with hearing loss often experience social isolation and feelings of inadequacy (Dewane, 2010; Ogletree, 2020; Sharpe, 2019; Smeltzer et al., 2017; Tagupa, 2020). These feelings may contribute to a lack of confidence when faced with health challenges. Nurses should assess the patient's prior knowledge of the issue being addressed, recognizing that people who have hearing impairments may not have been exposed to the same kinds of health information as people who can hear (Pollard et al., 2009).

Finally, it is important to remember that Deaf individuals will always rely on their other senses for information input, especially their sense of sight. For patient education to be effective, then, communication must be visible. Because there are several different ways to communicate with a person who is deaf, one of the first things nurses need to do is ask patients to identify their communication preferences. Sign language, written information, lipreading, and visual aids are some of the common choices. Although one of the simplest ways to transfer information is through visible communication signals such as hand gestures and facial expressions, this method will not be adequate for any lengthy teaching sessions.

The following modes of communication are suggested as ways to decrease the barriers of communication and facilitate teaching and learning for clients with hearing impairments in any setting.

Sign Language. Many people who reside in North America and are deaf consider American Sign Language (ASL) to be their primary language and preferred mode of communication. Like the spoken word, sign language differs from country to country, as there is no universal form of sign

language (National Institute on Deafness and Other Communication Disorders [NIDCD], 2019). In many families with children who are deaf, ASL is used in the home and is the first language children learn. For other children who are raised in an environment where Deaf culture predominates, ASL is the medium of social communication among peers, which reinforces English as a second language. Children who primarily use ASL have difficulty achieving fluency in English and may struggle with written English as well (Disabilities, Opportunities, Internetworking, and Technology [DO-IT], 2017). Some evidence, though, suggests that a high level of ASL proficiency is related to higher English literacy skills (Scott & Hoffmeister, 2017; Zernovoj, 2015).

ASL differs from simple finger spelling, which is a method of using different hand positions to represent letters of the alphabet. In contrast, ASL is a complex language made up of signs as well as finger spelling combined with facial expressions and body position. Eye gaze and head and body shift also are incorporated into the language (NIDCD, 2019). In recent years, much debate has taken place within the Deaf community regarding the development of a written form of ASL and it remains somewhat controversial, particularly among the Deaf community (Grushkin, 2017).

The nurse who does not know ASL is advised to obtain the services of a professional interpreter. Sometimes a family member or friend of the patient skilled in signing is willing and available to act as an interpreter during teaching sessions. However, just as it is preferable to use a professional interpreter when dealing with an individual who speaks a different language, so it also is preferable to use a professional interpreter for a person who uses sign language (Davies, 2019; Scheier, 2009). Family members and friends may have difficulty translating medical words and phrases and may be hesitant to convey information that may be upsetting to the patient. Prior to enlisting the assistance of an interpreter, whether family member or professional, the nurse should always be certain to obtain the patient's permission to do so. Information communicated regarding health issues may be considered personal and private. If the information to be taught is sensitive or confidential, it is advised that family or friends should not be enlisted as interpreters. Hiring a certified language interpreter is often the best strategy.

Federal law (Section 504 of the Rehabilitation Act of 1973, PL 93-112) requires that health facilities receiving federal funds secure the services of a professional interpreter upon request of a patient (Office of Civil Rights, 2017). If the patient cannot provide the names of interpreters, the nurse should contact the state Registry of Interpreters of the Deaf (RID). This registry can provide an up-to-date list of qualified sign language interpreters (NIDCD, 2018).

During a teaching session, the nurse should stand or sit next to the interpreter. He or she should talk at a normal pace and look at and talk directly to the Deaf person when speaking. The interpreter will convey information to the patient as well as share patient responses with the nurse. It is important to remember that ASL does not provide a word-for-word translation of the spoken or written word and that misunderstandings can occur. Patient education involves the exchange of what is often very detailed and important information. To determine whether the information given is understood, the nurse should ask questions of the patient, request verbal teach-back or demonstrations, allow the patient to ask questions, and use other appropriate assessment strategies (Marcus, 2014; Scheier, 2009). Providing supplemental text, diagrams, and other forms of media will help to increase understanding (Palmer et al., 2017).

Lipreading. Lipreading is the process of interpreting speech by observing movements of the face, mouth, and tongue (Diversified Hearing & Balance Centers, 2018; Feld & Sommers, 2009). One common misconception among hearing persons is that all people who are deaf can read lips. This is a potentially dangerous assumption for the nurse to make. Not all people who are deaf read lips, and even among those who do, lipreading may not be appropriate for health education or other forms of patient communication. Among Deaf persons in general, word comprehension while lipreading is only about 30% to 45%. Therefore, even the most skilled lipreaders also use facial cues, body language, and context to get the full message. However, the technique of lipreading taxes the brain in several different ways, so a lipreader can become exhausted over an extended period of time (Callis, 2017). Consequently, only a skilled lipreader will obtain any real benefit from this form of communication (Rouger et al., 2007).

When working with a client who is lipreading, nurses should:

- Speak normally. It is not necessary to exaggerate lip movements, because this action will distort the movements of the lips and interfere with interpretation of the words.
- Make sure clients are wearing their eyeglasses. Lipreading requires good vision.
- Provide sufficient lighting on their faces and remove all barriers from around the face, such as gum, pencils, hands, and surgical masks. Beards, mustaches, and protruding teeth also present a challenge to the lipreader.
- Supplement teaching using other forms of communication as it is not possible for clients to lipread every word.
- Conduct teaching sessions in a quiet environment. It is easier to lipread when distractions are kept to a minimum (Lipreading.org, 2020).
- Consider using an interpreter if English is the client's second language. Clients can lipread more accurately when the speaker is using the client's primary language (Lipreading.org, 2020).

Written Materials. Written information is one of the most reliable ways to communicate directions, especially when understanding is critical. Written instructions alone can never take the place of conversation where questions and explanations are possible. However, nurse educators should always write down the important information as a supplement to the spoken word even when the Deaf person is versed in lipreading or an interpreter is involved. Written communication is always important, even though it is time consuming.

Printed client education materials must always match the reading level of the audience. When preparing written materials for learners who are deaf, it is prudent to keep the message simple. Although recent studies suggest that students who are deaf are making strides in their reading performance, the data on this point are inconclusive, and many people with deafness still struggle with the written word (Belanger & Rayner, 2015; Easterbrook & Beal-Alvarez, 2012).

When providing handwritten or typewritten instructions or using commercially prepared printed education materials, remember to keep in mind that a person with limited reading ability often interprets words literally. Therefore, instructions should be clear, with minimal use of words or phrases that could be misinterpreted or confusing. For example,

instead of writing, “When running a fever, take two aspirin,” write “For a fever of 100.5°F or higher, take two aspirin.” The second message is clearer in that it avoids misinterpretation of the word “running” and provides clarification of the word “fever.” In addition, visual aids such as simple pictures, drawings, diagrams, and models also are very useful media as a supplement to increase understanding of written materials.

Verbalization by the Client. Sometimes clients who are deaf will choose to communicate through speaking, especially if they have established a rapport and a trusting relationship with the nurse. The tone and inflection of the voice of a client who is deaf may be different from normal speech, so nurses must listen carefully, remembering that time may be needed to become accustomed to the patient’s voice sounds (pitch) and speech rhythms. A quiet, private place should be selected for teaching so that the patient’s words can be heard. If the patient’s words are difficult to understand, it may help to write down what is heard, which may help those listening to get the gist of the message.

Sound Augmentation. For those patients who have a hearing loss but are not completely deaf, hearing aids are often a useful device. A patient who already has been fitted for a hearing aid should be encouraged to use it, and it should be readily accessible, fitted properly, turned on, and with the batteries in working order. If the client does not have a hearing aid, with permission of the patient and family, the nurse should make a referral to an auditory specialist, who can determine whether such a device is appropriate for the patient.

Although many adults with hearing loss could benefit from wearing a hearing aid, only a small percentage actually use one. Among adults with hearing loss, less than 20% of those ages 20 to 69 and 30% of those over the age of 69 have ever worn a hearing aid (NIDCD, 2021). Cost contributes to this problem. Medicare (Part A and Part B) does not cover the cost of hearing aids. However, some Medicare Advantage Plans will pay for hearing aids and hearing evaluation (Medicare.gov, 2020). Although Medicaid policies vary from state to state, many states do provide coverage for certain types of hearing aids. Therefore, it is important to seek permission of the client before initiating the referral for a hearing examination or hearing aid.

If the patient can hear better out of one ear than the other, speakers should always stand or sit nearer to the good ear, use normal speech, and provide adequate time for the patient to process the message and to respond. Shouting, which distorts sounds, should be avoided. That is because it is not necessarily an increase in decibels that makes a difference but rather the tone, rhythm, articulation, and pace of the words.

Telecommunications. Technology can be used effectively to teach a person who is deaf. Deaf persons also can be taught to use technology to enhance life skills. Some examples of telecommunication devices that accomplish both goals include television decoders for closed captioned programs, captioned telephones that transcribe everything a person says into writing on a screen, and alerting devices that warn of a crying baby, ringing doorbell, or ringing phone.

Captioned films for patient education are available free of charge through Modern Talking Pictures and Services. Text telephones (TTY or Teletype), sometimes referred to as TDD (telecommunication devices for the deaf), are typewriter-like devices that allow for text messages between two parties. These devices use a relay station to translate messages if only one party has the TTY device.

Under federal law, these technology-based devices are considered reasonable accommodations for persons with deafness and hearing impairments. However, nurses should note that translation of the spoken word on health-related videos created for the hearing population, without the tone of voice, voice level, and other strategies speakers use to emphasize a point, may alter the message that is conveyed to patients who are deaf (Pollard et al., 2009; Wallhagen et al., 2006).

In summary, the following guidelines can be applied when using any of the already mentioned modes of communication (Cleveland Clinic, 2019; Frost, 2019; McConnell, 2002; Newton & Shah, 2013).

Nurse educators should:

- Be natural, not rigid or stiff, and do not attempt to over-articulate or over-exaggerate speech.
- Use short, simple sentences and words with a literal meaning.
- Use facial expressions to support the spoken message.
- Remove any masks or face shields.

- Provide privacy so others cannot hear what is being communicated.
- Speak at a moderate pace, pausing occasionally to allow for questions.
- Be sure to get the Deaf person's attention by a light touch on the arm before beginning to talk.
- If the patient can sign, use an interpreter. Internet-based connection with a remote interpreter is possible if an in-person interpreter is not available. Also, video relay service is a phone-based system that allows connection between individuals and an interpreter, who interprets to a third party in real time in English.
- Use pictures or drawing to help the patient understand.
- Face the patient and stand no more than 6 feet away when trying to communicate.
- Ask the patient's permission to eliminate environmental noise by lowering the television, closing the door, and so forth.
- Make sure the patient's hearing aid is turned on, the batteries are working, and their glasses are clean and in place.
- Ask the patient to repeat the message or instructions to be sure they understood.
- Write down questions or answers and give the patient the opportunity to do the same, if they prefer.
- Write down important information to give to the patient or the person assisting them and use large print if the patient also has impaired vision.

Nurse educators must avoid:

- Talking and walking at the same time
- Moving their head excessively
- Speaking while in another room or turning away from the person with hearing loss while communicating
- Standing directly in front of a bright light, which may cast a shadow across their face or glare directly into the patient's eyes
- Joking and using slang or vocabulary the patient might misinterpret or not understand
- Placing an intravenous line in the hand the patient will need for sign language

No matter which methods and materials of communication for teaching are chosen, it is important to confirm that health messages have been

received and correctly understood. It is essential to validate patient comprehension in a nonthreatening manner, such as using the teach-back approach. However, in attempts to avoid embarrassing or offending one another, patients as well as healthcare providers will often acknowledge with a smile or a nod in response to what either party is trying to communicate when, in fact, the message is not well understood. To be sure that the health education requirements of patients who are deaf and hearing impaired are being met, the nurse educator must find effective strategies to communicate the intended message clearly and precisely while at the same time demonstrating acceptance of individuals by making accommodations to suit their needs (Hommes et al., 2018). People who have lived with a hearing impairment for a while usually can indicate which modes of communication work best for them.

Visual Impairments

Approximately 12 million people aged 40 years and older in the United States have vision impairment, including 1 million who are blind and 4.2 million whose visual impairment cannot be corrected. This number of blind and uncorrectable vision problems is expected to double by 2050 due to diabetes, other chronic diseases, and the aging population (CDC, 2020h; 2016). Worldwide, this number increases dramatically with more than 1 billion people with visual impairments that could have been prevented or remain uncorrected (WHO, 2021).

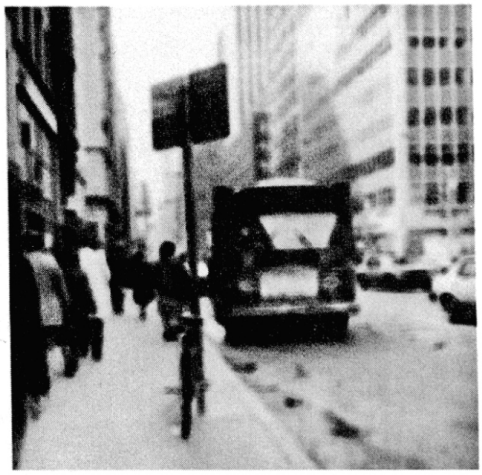
Findings from a 2015 national survey indicate that the total number of adults in the United States with some degree of vision impairment has grown to 23.7 million people or about 10% of the adult population (CDC, 2016). Over 500,000 children in the United States are classified as legally blind (American Foundation for the Blind, 2017b). These survey data further indicate that vision loss is more common among women, older adults, and people who are poor or near poor. The economic impact of major vision problems in adults 40 years old and above is greater than $145 billion annually in the United States (CDC, 2020h).

Blindness and visual impairment are caused by many factors (**Figure 9-1**). Disease is the major cause of loss of vision in adults, with cataracts, age-related macular degeneration, glaucoma, and diabetic retinopathy accounting for the greatest number of disease-related impairments (Braille Institute, 2016; Lighthouse International, 2015; National Institutes of

Health, 2017). Although vitamin A deficiency is the leading cause of blindness in children worldwide, amblyopia and strabismus, optic nerve neuropathy, prematurity, low birth weight, and congenital conditions such as congenital cataracts are the most common factors leading to blindness in children in the United States (International Agency for the Prevention of Blindness, 2017).

Major diseases causing serious vision impairment that cannot be corrected with conventional spectacles or lenses are cataract, macular degeneration, glaucoma, and diabetic retinopathy. People who have advanced stages of these diseases have difficulty performing ordinary visual tasks, like reading.

MACULAR DEGENERATION—The deterioration of the macula, the central area of the retina, results in an area of decreased central vision. Peripheral, or side, vision remains unaffected. This is the most prevalent eye disease.



CATARACT—An opacity of the lens results in diminished acuity but does not affect the field of vision. There are no blind spots, but the person's vision is hazy overall, particularly in glaring light.

GLAUCOMA—Chronic elevated eye pressure in susceptible individuals may cause atrophy of the optic nerve and loss of peripheral vision. Early detection and close medical monitoring can help reduce complications.

DIABETIC RETINOPATHY—Leaking of retinal blood vessels in advanced or long-term diabetes can affect the macula or the entire retina and vitreous, producing blinding areas.

Figure 9-1 Photo essay on partial sight (low vision).

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Description

Although severe vision loss provides the greatest challenge to the nurse as educator, it is important to note that mild to moderate vision loss is commonplace. The most prevalent conditions that result in some degree of visual impairment are myopia (nearsightedness), hyperopia (farsightedness), astigmatism (distorted vision at all distances), and presbyopia (loss of ability to focus up close for reading), the latter of which occurs in middle-aged adults (CDC, 2020h). These refractive errors usually can be corrected with eyeglasses or contact lenses. Correction of common visual impairments has implications for safety and quality of life by reducing falls, fractures, depression, and car accidents (Welp et al., 2016).

A **visual impairment** is defined as some form and degree of visual difficulty and includes a wide spectrum of deficits, ranging from partial vision loss to total blindness; it may also include visual field limitations, such as tunnel vision, alternating areas of total blindness and vision, and color blindness. Partial vision is a broad term indicating that an individual has some level of sight in one or both eyes. In contrast, the visual acuity of people with low vision is 20/70 or less in their better eye and it cannot be corrected with lenses (Industries for the Blind and Visually Impaired, 2020).

In the United States, a person is determined to be legally blind if vision is 20/200 or less in the better eye with correction or if visual field limits in both eyes are within 20 degrees in diameter. Approximately 90% of people who are legally blind have some degree of vision. Typically, a person who is legally blind is unable to read the largest letter on the eye chart with corrective lenses (American Foundation for the Blind, 2017b). In comparison, total blindness is defined as an inability to perceive any light or movement (American Foundation for the Blind, 2017a). The National Federation of the Blind defines blindness in broad terms and encourages people to consider themselves blind if, even with corrective lenses, a person must “use alternative methods to engage in any activity that people with normal vision would do using their eyes” (2019, para 1).

Fortunately, many devices are available to help legally blind persons maximize their remaining vision. People who are without sight most likely have had services and are familiar with those adaptations that work best for them. However, depending on patients’ situations and the circumstances under which the nurse is teaching, the nurse educator may

want to further investigate their background to ensure that the most appropriate format and tools for communicating with visually impaired patients are being used. Patients who seem to be legally blind but who have not been evaluated by a low-vision specialist should be provided with contact information for the local association for the blind and the local commission for the blind and visually impaired. Patients may require assistance in negotiating the complex system and in obtaining services.

Healthcare encounters present challenges for both the patient with low vision or blindness and for the professionals who care for them. In a series of focus groups with people with blindness or low vision, O'Day et al. (2004) identified four barriers encountered in healthcare settings:

- Lack of respect
- Communication problems
- Physical barriers
- Information barriers

Lack of respect was the basis for many of the negative healthcare encounters described by the participants. For example, participants felt that healthcare providers often made assumptions that patients would be unable to participate in their own care and recovery. Subsequent studies supported this finding. In a study of barriers to low-vision rehabilitation, Southhall and Wittich (2012) found that people with visual impairments were often reluctant to disclose their vision loss for fear of triggering prejudice and discrimination. Harvey (2017) provides personal reflections on his fear of public prejudice due to his blindness and Carroll (2019) describes seniors with vision loss experiencing discrimination. Kleege (2020) warns that equating blindness with ignorance is another form of discrimination that discredits the visually impaired.

Directing comments to a sighted companion rather than to the patient was another common complaint. In terms of education, participants also expressed concern that many health providers are not prepared to care for people with visual impairments. Without Braille versions of information sheets, audiotaped instructions, and other assistive strategies, patients with visual impairments left teaching sessions feeling anxious and, most important, without the information required.

The following are some tips nurses might find helpful when teaching patients with visual impairments (Luckowski & Luckowski, 2015; Rushing,

2007; Vision Center of Excellence, 2014; Watkinson & Scott, 2004):

- As a first step, assess patients to avoid making assumptions about their needs because a person who is blind may be very different from one who has low vision. Additionally, multiple disabilities must be considered, particularly when working with older adults.
- Make sure to speak directly to patients rather than to their sighted companions.
- Contact a low-vision specialist who can prescribe optical devices such as a magnifying lens (with or without a light), a telescope, a closed-circuit TV, or a pair of sun shields, any of which will help nurses to adapt their teaching materials to meet the needs of their patients. If possible, use the assistive devices the patient owns and is familiar with.
- Rely on patients' other senses of hearing, taste, touch, and smell when conveying messages as a means to help them assimilate information from their environment. Because their listening skills are usually particularly acute, it is not necessary to shout. When teaching, the nurse should speak in a normal tone of voice.
- Always approach patients by announcing your presence, identifying yourself and others, and explaining clearly why you are there and what you are doing because people who are blind cannot take advantage of nonverbal cues such as hand gestures, facial expressions, and other body language. If it is necessary for you to touch them during your teaching session, ask permission first.
- If a handshake is appropriate, take the client's hand first. It is also important for the nurse to indicate when a conversation is over and when they are leaving the room.
- When teaching psychomotor skills, describe as clearly as possible the steps of a procedure, explain any noises associated with treatments or the use of equipment, and allow patients to touch, handle, and manipulate equipment so that they can perform return demonstrations.
- Use the tactile learning technique when teaching them the characteristics and the placement of objects. For example, allow patients to identify their medications by feeling the shape, size, and texture of tablets and capsules. To locate their various medicines, glue pills to the tops of bottle caps or put them in different-sized or different-shaped containers; keep items in the same place at all times so they can independently locate their belongings; and arrange things

in front of them in a regular clockwise fashion to facilitate learning when performing a task that must be accomplished in an orderly, step-by-step manner.

- Enlarge the font size of letters in printed and handwritten materials as a typical important first step in using these types of instructional tools.
- Use bold colors to provide contrast, which is a key factor in helping a person with limited sight distinguish objects. Assess whether black ink on white paper or white ink on black paper is better; if using a dark placemat with white dishes or serving black coffee in a white cup helps them to see items more clearly; and if placing pills, equipment, or other materials on a contrasting background helps them locate objects they need.
- Use proper lighting, which is of utmost importance in assisting patients to read or locate objects. Regardless of the print size, the color of the type, or the paper used, if the light is not sufficient, patients will have a great deal of difficulty distinguishing words or manipulating objects.
- Provide large-print watches and clocks with either black or white backgrounds that are available through a local chapter for the visually impaired.
- Make use of audiotapes/CDs and cassette/CD recorders as instructional tools to convey patient education, some of which are available as talking books and can be obtained through the National Library Service or through the state library for the blind and visually impaired. Also, oral instructions can be audiotaped to be listened to as necessary at another time and place and can be played over again as many times as needed to reinforce learning.
- Make use of standard computer features such as screen magnifiers (which can change the text to be 2 to 16 times larger than the normal view), high contrast (which can invert typical black-on-white to other color options), and screen-resolution adjustments (which make information on the computer screen easier to see). Advanced assistive technology comes equipped with text-to-speech converters; synthetic speech; screen readers; and Braille keyboards, displays, and printers.
- Access appropriate resources for information, such as the Braille library, the National Braille Press, or local blind associations for printed education materials.
- When teaching ambulation, always use the sighted guide technique by allowing the patient to grasp your forearm while walking about one

half-step ahead of the blind person or seek the referral of a mobility specialist available through the local associations for the blind.
- Whenever possible, hold teaching sessions in quiet, private spaces to minimize distractions and allow adequate time to deliver instruction in an unhurried manner.

Diabetes education consumes a great deal of a nurse educator's teaching time and presents unique challenges. Because of the high incidence of this disease in the U.S. population, diabetic retinopathy is a major cause of blindness. Patients who have lost their sight because of this disease or diabetic macular edema probably have already mastered some of the necessary skills to care for themselves but will need continued assistance. Also, it is possible for persons with visual impairments to be diagnosed with diabetes at a later time in their life. In either case, these patients will need to learn how to use appropriate adaptive equipment (Masters, 2020).

Fortunately, there has been continuous improvement in the equipment used for self-monitoring of blood glucose levels and for self-injection of insulin. Easy-to-use monitors with large display screens or voice instructions are now available, as are new nonvisual adaptive devices for measuring insulin, insulin pens that contain prefilled dosages, and built-in magnifiers that have made insulin administration much easier for patients who have difficulty reading a syringe (Harpold, 2019; Pauls, 2017).

Learning Disabilities

The term *learning disability* describes a diverse group of neurologically based disorders that affect the manner in which a person processes information. Learning disorders cannot be cured and therefore last a lifetime (Bailey, 2020). These complex conditions are frequently hidden and vary from individual to individual. Although sometimes confused with intellectual disabilities, the two conditions differ. Learning disabilities are the result of processing problems within the brain resulting in specific learning deficits—for example, understanding the meaning of the written word. Outside of these deficits, individuals with learning disabilities do well in school. In contrast, an individual with an intellectual disability has problems with intellectual functioning (e.g., decision making and problem solving) and adaptive behaviors and will have an IQ of less than 75 (Peterson, 2019).

A definitive definition of the term *learning disability* has been the subject of a great deal of controversy over the years, as educators and psychologists alike have debated the issues (Colker, 2013; Crandell et al., 2019; Santrock, 2019; Snowman & McCown, 2015). Resulting from this debate, many definitions of learning disabilities can be found in the literature, most of which can be categorized as either medically or educationally based (National Center for Learning Disabilities [NCLD], 2017a). The medical model definitions are based on the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* (*DSM-5*) and focus on the deficit present with each type of learning disability. For example, the *DSM-5* describes learning disabilities as a diagnosis that is manifested by specific deficits in learning and academic skills that have existed for at least 6 months despite intervention, are substantially below those expected for the individual's age, began during the school-age years, and are not explained by other conditions such as a vision or hearing deficit, language proficiency, or inadequate instruction (American Psychiatric Association, 2013).

Educationally based definitions of learning disabilities are derived from the federal education law, Individuals with Disabilities Education Act (IDEA), and emphasize the neurological processing disorder that underlies the condition. The IDEA definition, which stands as the accepted working definition for purposes of assessment, diagnosis, and categorization of an array of learning disabilities, states that a **learning disability** is a "disorder in one or more of the basic psychological processes involved in understanding or in using language, spoken or written, that may manifest itself in an imperfect ability to listen, think, speak, read, write, spell or do mathematical calculations" (NCLD, 2017a, para. 4). *Learning disabilities* is an umbrella term that is used to describe an array of conditions including dyslexia, dyscalculia, and auditory processing disorder.

Experts agree on some common characteristics of learning disabilities (Child Development Institute, n.d.; LDOnline, 2020; National Joint Committee on Learning Disabilities, 2011). These characteristics include that learning disabilities:

- involve learning problems and uneven patterns of development in children and adults.
- can be identified in childhood and yet continue to persist into adulthood. For example, difficulty with language development in a

preschool child may signal long-term learning challenges in the school-aged child that may go unresolved through the adult years.
- are neurobiologically based and are caused by factors other than environmental disadvantage, mental retardation, and emotional disturbance.
- are the result of a different wiring of the human brain that influences the way in which information is received, processed, and communicated.

The causes of learning disabilities are varied and often unclear. Genetics plays a role in approximately 50% of cases. Also, it is suspected that numerous factors that affect the brain, especially during gestation, delivery, and the early years of life, can result in a learning disability. For example, the use of alcohol during pregnancy, difficulties during delivery, and exposure to toxins such as lead paint can all result in learning disabilities (Eunice Kennedy Shriver National Institute of Child Health and Human Development, 2018).

The statistics on learning disabilities are sobering. In the United States, over 4 million children—one in every five kids—has one or more learning disabilities (NCLD, 2017c; Peterson, 2019). The rate of learning disabilities in adults is probably similar to that in children. However, adults who were in school prior to the passage of federal special education legislation may never have been diagnosed, which therefore results in lower numbers of identified individuals. Self-reporting among the adult population reveals a rate of learning disabilities that ranges from 0.07% to 2.7%, with younger adults more likely to report a learning disability than older adults (NCLD, 2017a). Overall, approximately 4.6 million or 1.7% of Americans live with a learning disability (NCLD, 2017a).

About three to four times as many boys as girls are identified as having a learning disability, but this gender difference is thought to result from referral bias—more boys are sent for identification and treatment because of their behavior (Crandell et al., 2019; Peterson, 2019; Santrock, 2019). Children with learning disabilities represent the largest segment of those in special education classes, accounting for nearly 40% of the group (Peterson, 2019).

Lifelong challenges extend far beyond the classroom for children and adults with learning disabilities and their families. A survey of parents

found that higher levels of parental distress as well as higher levels of child anxiety and depression exist when a child has a learning disability (Bonifacci et al., 2016). Only one-third of parents surveyed reported positive feelings about their children's abilities to learn and their own abilities to cope (NCLD, 2017b).

Children with learning disabilities, like other children, are often victims of bullying. Approximately 46% of parents of children with learning disabilities report that their child has been bullied (NCLD, 2017a; Peterson, 2019), a figure that is consistent with the rest of the child population (Bullyingstatistics.org, 2017; Klomek et al., 2016; Rose et al., 2015). The incidence of depression for children and adults with learning disabilities is also higher than the general population (Logsdon, 2020). Graduation rates for children with disabilities vary from state to state, but overall, they earn a high school diploma at a lower rate than other children (Yettick & Lloyd, 2015). Approximately 18% of high school students with learning disabilities drop out of school, which is nearly three times the rate of all students (Ravipati, 2017). Also, they attend 4-year colleges at half the rate of students who do not have learning disabilities, and they are less likely to complete college (NCLD, 2017b).

Although evidence-based research on adults with learning disabilities is limited, data suggest that although some adults with learning disabilities do poorly—and in fact, some report that the disability and associated challenges get worse over time—many adults with learning disabilities overcome the associated challenges and lead happy, successful lives (Gerber, 2012; Learning Disabilities Association of America, 2018). Given this fact, it is important that the nurse not make assumptions about the presence or absence of a learning disability based in any individual. Despite the statistics that reveal the lifelong challenges of individuals with learning disabilities, many individuals with learning disabilities have been found to have at least average, if not superior (gifted), intelligence. In fact, learning disabilities are often labeled "the invisible handicap" because they do not necessarily result in low achievement. Some very famous and successful people in world history are thought to have had some type of learning disability—ranging from the artist Leonardo da Vinci to the military leader and statesman George Washington to the mystery author Agatha Christie, and to the scientists Albert Einstein and Charles Darwin (Masters in Special Education, n.d.). Contemporary recognizable figures of today include Olympic swimming champion Michael Phelps to

legendary filmmaker Steven Spielberg to actress, writer, and producer Whoopi Goldberg (University of Utah, 2017).

Even though a large discrepancy may be noted between the intellectual abilities of a person with a learning disability and their performance levels, no cause-and-effect relationship exists. Persons who exhibit this discrepancy are not necessarily learning disabled (Crandell et al., 2019; Santrock, 2019). **Table 9-1** lists common misconceptions and corresponding realities about learning disabilities.

Table 9-1 Misconceptions and Realities About Learning Disabilities

Misconception	Individuals with learning disabilities have a low IQ.
Reality	Individuals with learning disabilities have the capacity to learn but their brains are wired in a way that causes them to struggle with tasks associated with school and everyday life.
Misconception	Vaccinations can cause learning disabilities.
Reality	No evidence exists to suggest that vaccinations are related to the development of learning disabilities in children.
Misconception	Too much television, too much time playing computer games, poor parenting, and general laziness can result in learning disabilities.
Reality	The cause of learning disabilities is often unclear. Common causes include genetics, birth injury, and childhood exposure to toxins such as lead.
Misconception	Children outgrow their learning disabilities. Medication

	can cure a learning disability.
Reality	Learning disabilities last a lifetime. However, many adults learn to compensate for their learning differences and lead successful lives. Medications can assist with learning but will not cure the underlying problem.
Misconception	Learning disabilities are related to vision problems that can be treated with corrective lenses.
Reality	Learning disabilities are related to the way the brain processes visual stimuli, not problems with the lenses of the eye.
Misconception	Learning disabilities are easily diagnosed.
Reality	Learning disabilities are complex problems that require careful and sometimes painstaking evaluation by educators and healthcare professionals.

Data from Dunne, S. (2016, October 12). *Common myths and facts about learning disabilities*. http://www.springer-ld.org/ld-resources/blog/cbarnhart/10/12/2016/common-myths-and-facts-about-learning-disabilities; Kane, J. (2012, March 16). *Five misconceptions about learning disabilities*. PBS News Hour. http://www.pbs.org/newshour/rundown/five-misconceptions-about-learning-disabilities/; International Dyslexia Association. (2018, October 18). *Leading organizations in the field challenge myths about learning disabilities including dyslexia*. https://ldaamerica.org/leading-organizations-in-the-field-challenge-myths-about-learning-disabilities-including dyslexia/; Morin, A. (2014). *At a glance: Common myths about learning and attention issues*. https://www.understood.org/en/learning-attention-issues/getting-started/what-you-need-to-know/common-myths-about-learning-attention-issues; National Center for Learning Disabilities.

(2017a). *Learning disabilities defined: Bridging the gap between medical and educational definitions*. http://ldnavigator.ncld.org/#ld-defined/bridging-the-divide; and Peterson, T. J. (2019). *Learning disabilities statistics and prevalence*. https://www.healthyplace.com/parenting/learning-disabilities-disabilities-statistics-and-prevalence.

Although these problems and their associated characteristics are frequently identified when referring to children with disabilities, many of these characteristics and problems can apply equally as well to an older person who has not been diagnosed as learning disabled until later in adulthood. It is important to remember that an individual with a learning disability can experience one type of learning disability or a combination of various types of such disabilities.

The most common learning disorders are discussed in the following subsections.

Dyslexia

Dyslexia is "a neuro-developmental learning disorder that is characterized by slow and inaccurate word recognition" despite conventional instruction, adequate intelligence, and intact sensory abilities (Peterson & Pennington, 2012, p. 1997). Dyslexia is often identified when a child presents with difficulty learning to read. The reading problems associated with dyslexia do not represent a simple lag in reading development, but rather a chronic, persistent condition that extends into adulthood (Shaywitz, 2020). Statistics on dyslexia suggest that dyslexia accounts for the largest percentage of people with learning disabilities, affecting approximately 10% to 20% of the U.S. population (Crandell et al., 2019; Dyslexia Research Institute, 2017; Shaywitz, 2020). However, because of the manner in which cases of dyslexia are reported, it is thought that these numbers grossly underestimate the true extent of the problem (Shaywitz, 2020).

Dyslexia is a language disorder that results in a wide array of symptoms, including difficulty sounding out words (decoding), word recognition, and/or reading comprehension (Handler, 2016). Individuals with dyslexia often have other learning disabilities, including attention deficit/hyperactivity disorder (ADHD), language impairment disorder, and

speech sound disorder (Dyslexia Research Institute, 2017; Peterson & Pennington, 2012).

Dyslexia has been the subject of considerable research and although many questions remain, some significant discoveries related to this condition have been made in recent years. Current research findings suggest that dyslexia is moderately heritable; the cause is multifactorial with genetic and environmental risk factors (Handler, 2016; Peterson & Pennington, 2012). Although the diagnosis of dyslexia is associated with several genes, factors such as parental education have been found to have the potential to modify genetic risk (Gialluisi et al., 2020; Pennington et al., 2009). In addition, dyslexia is associated with early hearing loss, and it is suggested that this hearing loss results in a failure of the brain to make the necessary connections between sounds and letters.

It is a common misconception that people with dyslexia simply see letters in reverse order or upside down. In reality, dyslexia is much more complex. Recent research indicates several subtypes of dyslexia exist, each characterized by a different neurologic deficit (Handler, 2016; Jednoróg et al., 2014; Menghini et al., 2010; Zoubrinetzky et al., 2014). These subtypes are made up of a combination of problems including the inability to break down words into individual sounds, difficulty distinguishing letters visually, and an inability to associate sounds with letters (Dushanova et al., 2020; Van Ermingen-Marbach et al., 2013). Furthermore, people with dyslexia have been shown to have a deficit in "working" or "short-term" memory, making it difficult for them to process complex sentences (Alloway, 2016; Crandell et al., 2019; Majerus & Cowan, 2016). These deficits contribute to an overwhelming classroom experience for children or adults with dyslexia as they attempt to listen and write at the same time while being distracted by surrounding noise as they try to understand the content being presented (Mayo Clinic, 2017).

Although people with dyslexia can learn to read, the challenges they face can result in self-esteem issues that often begin early in life (Mayo Clinic, 2017). Young children often experience problems at school because of their disability (International Dyslexia Association [IDA], 2017, 2020), and older adults who were never diagnosed or who did not receive reading intervention are at greatest risk. The nurse must be sensitive to these issues when engaged in teaching.

People with visual perception problems such as dyslexia face many other challenges. For example, they may experience a figure–ground problem such that the person is unable to attend to a specific object within a group of objects, such as finding a cup of juice on a food tray. Furthermore, judging distances or positions in space or dealing with spatial relationships may prove difficult, resulting in the person bumping into things, being confused about left and right or up and down, or being unable to throw a ball or do a puzzle (Giovagnoli et al., 2016; Learning Disabilities Association of Ontario, 2015).

Nurses face a number of issues when teaching patients with dyslexia and other types of perceptual deficits. Assessment is a critical first step. A discussion with the patient is advisable to determine the extent of the individual's abilities and disabilities and how they learn best. For example, many people with visual perceptual deficits tend to be auditory learners. Those who learn best by hearing need to have visual stimulation kept to a minimum (IDA, 2017).

Visual materials such as pamphlets and books should be used carefully with clients who have dyslexia. Research has shown that these individuals read much more slowly and with greater effort (Shaywitz, 2020). Not only will these patients require extra time to read, but it may be helpful to explain the content or read the information aloud. Because of the extra effort required to comprehend language, a quiet environment without distraction is also important (IDA, 2017). If visual items are used, nurses should give only one item at a time, with a sufficient period in between times to allow for the patient to focus on and master the information. It may also be helpful to add pictures to written material wherever possible to help convey information. CDs and audiotapes (with or without earphones) and verbal instruction may be beneficial as well.

Some patients with dyslexia have difficulty with the spoken word and may struggle to express themselves or understand what is being said to them (IDA, 2020). For these clients, it is important to proceed in an unhurried manner, presenting small amounts of information over time with frequent assessment of learning. If a patient has difficulty with spoken as well as written words, a combined approach using both oral instruction and visual information may be effective. Nurses can assess recall and retention of information by oral questioning, allowing learners to express orally what

they understand and remember about the content that has been presented.

Assistive technology has proven to be extremely helpful in enhancing learning for individuals with dyslexia (Shaywitz, 2020). Although this technology may not be readily available in all healthcare settings, many adults and children with dyslexia own and use these devices every day. Patients should be encouraged to bring these helpful tools to a teaching session to assist in their learning. Some examples of the technology available include smart pens to create notes that can be played back and listened to after the teaching session has concluded and reading pens that allow the user to scan information that can then be enlarged or displayed with a syllabic breakdown of words (Dyslexia Help, 2020).

Finally, when teaching motor skills, it is important for nurses to remember that people with dyslexia may have impaired left–right discrimination and may become confused during instruction and coaching if the nurse makes reference to a “left hand” or “right foot.” To help overcome this problem, nurses can tape an X on the appropriate hand or refer to the “arm with the watch.”

Dyscalculia

Dyscalculia is a severe learning disability that impairs those parts of the brain involved in mathematical processing, which results in an inability to understand the abstract concepts associated with numbers (Rapin, 2016). Individuals with dyscalculia have a deficit that makes academic achievement difficult and, more important, interferes with activities of daily living. Dyscalculia is not a learning problem but rather represents an inability to understand numerical sets. Therefore, the problem for individuals with dyscalculia is not related to difficulty learning mathematical functions but rather to an inability to comprehend the relationship between a numerical symbol and the objects it represents (British Dyslexia Association, 2015; Cicerchia, 2020). Dyscalculia cannot be explained by a sensory deficit or by lack of educational opportunities (DeVisscher & Noel, 2012).

Dyscalculia can be either developmental (i.e., acquired at birth) or the result of injury to the brain. Estimates of the population affected by dyscalculia range from 3% to as high as 27%. (Dyscalculia.org, 2020).

Developmental dyscalculia is suspected when a child fails to perform in mathematics at a level consistent with their chronological age and level of intelligence despite adequate instruction (Dyscalculia.org, 2020). Acquired dyscalculia can occur at any time. Individuals with dyscalculia often have other learning or developmental disabilities such as dyslexia or ADHD (Cicerchia, 2020; Rapin, 2016).

It is important for nurses to recognize that the impact of dyscalculia on a patient extends beyond their ability to calculate an insulin dose or count the correct number of pills. Such individuals also may have the following issues (Dyscalculia.org, 2020):

- Difficulty grasping the abstract concept of time. As a result, these clients may be unable to read a clock, follow a schedule, or understand the sequence of past and future events.
- Inability to differentiate between right and left.
- Problems with learning specific activities that require sequential processing—that is, any activity in which steps must be followed.
- Problems with reading numbers, such as on a prescription bottle.
- Confusion when schedules and routines change.

The approach to working with a patient with dyscalculia varies depending on the age of the individual and their experience with this disorder. It most cases, a diagnosis of dyscalculia will not appear on a patient health record. However, when teaching a patient or a family member about self-care, it is important to assess for the previously listed issues and make adjustments to the teaching plan as required. Failure to do so could result in unnecessary and potentially dangerous mistakes.

A teenager or adult who has lived with dyscalculia for many years may have developed strategies for addressing issues such as time, schedules, and numbers. It is important that assessment be done prior to teaching to determine the extent of the disability and the coping strategies that have been successful for the patient. As with any person who has a learning disability, teaching should be done in an environment that is as free from distraction as much as possible and conducted in an unhurried manner. Nurses may find it helpful to begin with the concrete when teaching and then move to the abstract slowly and carefully. Pictures and diagrams may help the patient grasp more abstract concepts. Assessment is vital to

determine that the patient has learned the content or skills presented and reinforcement of learning is critical.

Developmental Disabilities

The term *child development* refers to the physical, cognitive, and social-emotional growth that takes place throughout the period of childhood. It is sequential and measured according to a set of developmental milestones or expected outcomes that represent what an average child can do at a given age (CDC, 2020b; Cherry, 2019). These milestones measure the child's ability to demonstrate age-expected skills in areas such as language, cognition, gross and fine motor control, and social and emotional behavior.

Children who do not meet developmental milestones are considered to have a developmental delay. Approximately 12% to 15% of preschool children demonstrate developmental delays ranging from mild to severe (Hirai et al., 2018). Many of these children are simply developing at a slower than normal rate and, with intervention, will eventually achieve developmental milestones (Harstad, 2017). Others have more significant problems.

A *developmental delay* is a temporary or short-term challenge, whereas a **developmental disability** represents a lifelong condition resulting from a change in the pattern or nature of a child's development. Unlike children with developmental delays who may simply be growing and developing at a different pace, children with developmental disabilities are growing and developing in a different way. Children with developmental disorders may find alternative paths to meeting developmental milestones; however, many are left with deficits that persist into adulthood. Examples of developmental delays include ADHD, autism, and Down syndrome. A study by the CDC (2019a) found that approximately 17.8% of children (about one in six) aged 3–17 years had a developmental disability, an increase of 1.6% over a 4-year period.

Public policy has been enacted to protect the over 6 million people in the United States with developmental disabilities. The Developmental Disabilities Assistance and Bill of Rights Act of 2000 defines developmental disabilities in broad terms as those chronic mental or physical conditions present before 22 years of age that are likely to

continue indefinitely and result in substantial limitations in at least three of the following major life activities: self-care, receptive and expressive language learning, mobility, self-direction, capacity for independent living, and economic self-sufficiency (Disability Justice, 2021). This legislation establishes state councils on developmental disabilities; university centers for excellence in disability education, research, and service; and national initiatives to collect data and provide needed assistance to individuals and families.

The Individuals with Disabilities Education Act, originally passed in 1975 as the Education for All Handicapped Children Act, addresses the educational needs of children with developmental disabilities. Amended several times since its inception, IDEA ensures that children with disabilities receive a free and appropriate public education as well as early intervention services starting with infancy. In the latest update of IDEA in 2004, regulations include more specific classifications of developmental disabilities such as autism, emotional disturbance, hearing and visual impairment, traumatic brain injuries, learning disabilities, and mental retardation (Crandell et al., 2019; Snowman & McCown, 2015).

When working with a child with a developmental disability, it is essential that the nurse recognize the important role of parents, who are the real experts in caring for their child because they know the child best. It is a wise nurse who invites these parents to participate and assist the staff during their child's hospitalization and then works with them in the home. Likewise, when caring for an adult with a developmental disability, caregivers are often the people who know the patient better than anyone else. However, the nurse needs to be sensitive to the arduous schedule involved in caring at home for a child or adult with a severe developmental disability and recognize that during times of illness, parents and family members are often stressed and fatigued.

Managing the treatment of persons with developmental disabilities accounts for an increasing portion of healthcare practice today. Because developmental disabilities usually are diagnosed during infancy and are likely to last a lifetime, nurses must acquire sensitivity to family issues and learn to be flexible in their approaches to meet the intellectual, emotional, and medical concerns of patients with special needs (ANA, 2019). Several of the common developmental disabilities are described in detail in the following subsections.

Attention-Deficit/Hyperactivity Disorder

Attention-deficit/hyperactivity disorder (ADHD) is a disability of both children and adults that is characterized by inattention, disorganization, and hyperactivity/impulsivity at levels that are inconsistent with age or developmental level (American Psychiatric Association, 2013; CDC, 2020k). Examples of the types of behavior exhibited by individuals with ADHD include careless mistakes at work or school; restlessness; excessive talking; failure to follow through on instructions; forgetfulness; difficulty concentrating, particularly for a long period of time; and inability to wait or be still. Although many individuals display some symptoms of ADHD from time to time, an actual diagnosis of this problem is dependent on the individual displaying symptoms most of the time and across settings, such as at home, in school, on the playground, and at the workplace. A diagnosis also requires that symptoms cannot be better explained by another mental condition; they must be present before the age of 12 and they must interfere with the ability of the child or adult to function at home, school, or work. Furthermore, a child must display six or more symptoms for at least 6 months, and an adult must display five or more symptoms before a diagnosis is confirmed (American Psychiatric Association, 2013; Bhandari, 2019; CDC, 2020j; Magnus et al., 2020).

The many controversies surrounding the diagnosis and treatment of ADHD have made this developmental disability a household word. However, despite the debate about diagnosis, treatment, and unnecessary labeling of children, ADHD is recognized as a legitimate medical condition by the American Medical Association, the American Psychiatric Association, and multiple other major professional and health organizations. The stigma that results from the many misconceptions that exist about ADHD and its treatment can affect both the children and adults who live with this condition as well as their families (Lebowitz et al., 2016; Sarver et al., 2015).

ADHD is a developmental condition of inattention and distractibility, with or without hyperactivity, that manifests in three forms (CDC, 2020j; Soreff, 2017; Understood.org, 2017):

- Inattentive—a type of ADHD that is characterized by inability to attend to tasks, forgetfulness, and distraction

- Hyperactive/impulsive—a type of ADHD that results in restlessness, impulsivity, and a lack of control
- Combined/other—a combination of the first two types

Although all three types are referred to as ADHD, it is important to note that hyperactivity is not present in all cases.

Heredity plays a role in ADHD, making individuals susceptible to certain environmental factors that are associated with the condition. These environmental risk factors include, but are not limited to, low birth weight, traumatic brain injury (TBI), and maternal smoking (CDC, 2020i, 2020j).

ADHD is a common and growing problem. Approximately 9.4% of children and adolescents and 4% to 5% of adults in the United States, as well as 2.5% of adults worldwide, are diagnosed with this disorder (CDC, 2020d; National Institute of Mental Health, 2019). The number of children ever diagnosed with ADHD has been increasing at a rate of approximately 4% per year (CDC, 2020d). Although boys outnumber girls by at least three to one in terms of the incidence of this disorder, recent research suggests that gender bias might have a role in overdiagnosing boys (Slobodin & Davidovitch, 2019; Snowman & McCown, 2015). Some children outgrow symptoms of ADHD, but many do not (Braaten, 2017; Low, 2021). For example, a study by Miller et al. (2012) found that impaired executive functions (ability to plan and organize, response inhibition, sustained attention, set shifting, working memory, and reasoning) in girls with ADHD were still present in young adulthood.

ADHD in the adult population is estimated to be both underdiagnosed and undertreated and often exists with comorbid mental health and substance abuse disorders (Chen, 2016; Krans, 2018). Individuals with ADHD are often stigmatized, because ADHD is viewed by some as a behavioral disorder over which the individual should be able to assert control. The poor academic and work performance often associated with ADHD further exacerbates the problem (Sherman, 2021). For these reasons, adults with ADHD may be unaware that they have the condition or be reticent to disclose this diagnosis (Sherman, 2021).

ADHD affects individuals at all levels of intellect and is often compounded with other learning disabilities. The classic symptoms of inattention, hyperactivity, and impulsivity present numerous challenges for adults and children; as a result, people with ADHD often struggle in school and at

work. Social issues are also present and can be significant. Individuals, particularly children and young adults with ADHD, often feel that they are different than their peers and may experience stigma that is self-imposed (McKeague et al., 2015). Poor social skills exacerbate the problem and research has shown that children with ADHD have difficulty with friendships and peer interactions and are often bullied and victimized (Kok et al., 2016). Adults with ADHD are more likely to report being lonely than people without ADHD (Stickley et al., 2017). Often, medication therapy in combination with psychological interventions is the treatment of choice for both children and adults with ADHD.

Careful assessment is critical before working with anyone with ADHD. Nurses should have an open discussion with the patient, and with the parents if the patient is a child, to determine how they learn best. If the patient is unable to identify strategies that have been effective in school or work, the nurse must assess the patient's response to various techniques and make accommodations as necessary. The nurse can then develop an individualized education plan (IEP) to promote learning through use of patient teaching strategies that compensate for or minimize the effect of the disability (Crandell et al., 2019; Hockenberry & Wilson, 2019; Serrano, 2020). It is also important to remember, especially when working with adults or children who have symptoms of ADHD, that the patient may be undiagnosed or may choose to withhold this diagnosis.

Because ADHD is a condition that may persist into adulthood, a transition plan must be in place as the adolescent moves from pediatric to adult health care. Increasing autonomy in self-care and healthcare decision making is an important goal for adolescents with ADHD as they transfer into adult healthcare settings. However, adolescents and their families are often fearful to leave their pediatric practitioner, and in fact, some individuals experience negative outcomes as they move to adult care practitioners who are unfamiliar with their needs. The American Academy of Family Physicians and American College of Physicians have established guidelines, which are referred to as the *Got Transition Model*, for successfully streamlining adolescents to adult health care. This model has six core components: the establishment of transition policies, tracking and monitoring progress, determining transition readiness, transition planning, transfer of care, and follow-up after transfer is complete (Inman et al., 2017). The need for education for the youth and family is critical throughout the process.

Children and adults with ADHD have a wide range of needs that can be addressed through education. One area of importance relates to the misuse and/or diversion of stimulant medication often used to treat ADHD. This is a common problem, particularly among adolescents who may misuse the drug themselves, sell it, and/or give it to friends. Research has demonstrated that healthcare providers often neglect or fail to adequately address this important area for teaching (Colaneri et al., 2017).

Nurses should consider the following strategies when working with adults and children with ADHD (Climie & Mastoras, 2015; Serrano, 2020):

- Provide encouragement during teaching because they are likely to have experienced failure in school and work settings and may lack confidence in their abilities to manage their health care.
- Focus on the positives rather than on the deficits. Research indicates that they have many of the same cognitive strengths as those without ADHD.
- Consider the learning style of individuals. For visual learners, use colorful handouts and slides; for kinesthetic learners, incorporate movement and activity; and for auditory learners, have them read out loud and consider the use of a recorder so that teaching sessions can be replayed. Because patients with ADHD may have difficulty maintaining appropriate attention levels, these strategies likely will attract and hold their attention. Break content to be taught into small, focused sessions whenever possible. If they have multiple care-related tasks to accomplish on their own, teach them to break their care into smaller tasks.
- When teaching a child, consider using therapeutic play as a means of helping the child maintain control and manage anxiety, which may enhance learning.
- Structure the environment to eliminate unnecessary distraction.
- Consider using stress reduction techniques prior to teaching to enhance learning in patients who may be anxious.

Intellectual Disabilities

Intellectual disabilities (IDs) are among the most common developmental disabilities, affecting approximately 1% of the population (Psychology Today, 2019). ID is a condition that originates before the age of 18 and results in impaired reasoning, learning, problem solving, and adaptive

behavior (Schalock et al., 2021). A score of less than 75 on an IQ test is one of the major indicators of intellectual disability; use of such an instrument for diagnosis is typically supplemented with tests to assess limitations in conceptual, practical, and social skills (Center for Parent Information and Resources [CPIR], 2015).

Intellectual disabilities have multiple causes. First, intellectual disability is a major characteristic of several syndromes such as Down syndrome, fragile X syndrome, and fetal alcohol syndrome. Second, any factor that affects the developing neurologic system of the fetus can result in intellectual disability—for example, drugs, disease, and trauma. Third, birth trauma, low birth weight, disease, and other factors that negatively affect the newborn or young child can cause intellectual disability (Psychology Today, 2019; WebMD, 2016). Finally, intellectual disability can occur as a result of social factors such as lack of education and lack of stimulation from adults not being responsive to infants and young children (Jha, 2012; The Norwegian University of Science and Technology, 2017).

Nurses are likely to encounter a child or adult with an intellectual disability in a variety of settings and circumstances. The healthcare needs of this population, and subsequently their teaching needs, are often complex. People with intellectual disabilities have an increased incidence of a variety of chronic health conditions including seizure disorders, cerebral palsy, depression, diabetes, hearing impairments, and gastrointestinal disorders (Auberry, 2018). Communication may be impaired, and for those residing in residential facilities, the nurse may be working with one or many staff members responsible for care. Nursing education programs typically provide limited formal instruction and/or practice experience with this is population (Auberry, 2018).

The teaching needs of people with intellectual disabilities will range from simple explanations of medical procedures to more complex assessment and instruction in areas such as health promotion. In some areas, nurses may find that bias, misunderstanding, and lack of knowledge have resulted in the educational needs of these individuals being ignored. For example, although individuals with intellectual disabilities have the same needs for love, companionship, and sexual gratification as other people, sex education is often overlooked, sometimes with negative consequences, such as unplanned pregnancy or disease transmission

(Auberry, 2018; Bernert & Ogletree, 2015; Gurol et al., 2014; Schaafsima et al., 2014).

When planning a teaching intervention with an individual who has an intellectual disability, the nurse must keep in mind the patient's developmental stage, not their chronological age. It is important to remember that intellectual abilities can vary significantly from individual to individual, so assessment is critical. If the patient does not communicate verbally, the nurse should note whether certain nonverbal cues, such as gestures, signing, or other symbols, are used for communication purposes. Most people with intellectual disabilities are incapable of abstract thinking. Although the majority can comprehend simple explanations, concrete examples must be given. For example, instead of saying, "Lunch will be here in a few minutes," the nurse could show a clock and point to the time. Both adults and children with intellectual disabilities benefit from short, clear explanations and demonstrations prior to treatments to avoid misunderstandings and unnecessary anxiety.

When communicating with patients, nurses must always remember that facial expression and voice tone are more important than words spoken. They should talk with family members or other caregivers to learn about unique ways in which the patient communicates, including words they may use for body parts or any nonverbal cues for a "yes" or "no" response. Nurses should lavish any positive behavior with great praise. They should keep the information simple, concrete, and repetitive, and they should be consistent, but firm, setting appropriate limits. Avoid dominating any teaching session, but rather let patients actively participate and gain a sense of accomplishment. Nurse educators must assign simple tasks with simple directions and show what is to be done, rather than relying on verbal commands. They should give only one direction at a time. A reward system often works very well as, for example, giving children stickers with familiar childhood characters to place on their bed or pajamas that will remind the child of a job well done. For adults, rewards that are important to that individual will work as well.

Asperger Syndrome, Asperger Profile, and Autism Spectrum Disorder

Asperger syndrome is a pervasive developmental disability that falls at the high end of the autism spectrum and is characterized by impaired

communication, impaired social interaction, and repetitive or restrictive patterns of thought and behavior (National Institute of Neurological Disorders and Stroke, 2019). The statistics surrounding Asperger syndrome are uncertain as many individuals, particularly adults, remain undiagnosed. It is estimated that 1 in 54 children are affected (CDC, 2020c). Asperger syndrome is a brain dysfunction that is caused by a combination of genetics and environmental factors (Hosseini, & Molla, 2021). The exact genetic abnormality has yet to be identified.

In recent years, the title and classification of Asperger syndrome has been the subject of some controversy and change. The American Psychiatric Association voted in December 2012 to eliminate Asperger syndrome as a distinct diagnosis in the *DSM-5*. Instead, in the *DSM-5*, the condition falls under the umbrella term *autism spectrum disorder* (Autism Research Institute, 2013; Brennan, 2020). This decision was somewhat controversial, particularly among the Asperger syndrome community. Therefore, although the actual diagnostic label has changed, it is likely that the term *Asperger syndrome* will continue to be used for some time. Also, advocates within the autism community suggest that referring to this disability as a "syndrome" implies that it is a pathology. As such, it fails to acknowledge the many positive abilities, talents, and potentials of people with Asperger syndrome. As a result, there is a movement to change the title to *Asperger profile*, which is viewed as a more positive and accurate term (Asperger/Autism Network, 2020).

Children with Asperger syndrome, in addition to having impaired language, communication, and social interaction skills, exhibit distinguishing characteristics such as repetitive rituals, clumsiness, and obsessive interest in a single topic (National Institute of Neurological Disorders and Stroke, 2019). Although they have good cognitive skills, with average or above-average vocabularies, these children may have difficulty modulating the pitch of their voice and speak in a flat, monotone manner (Medical News Today, 2015). Asperger syndrome cannot be cured, but with treatment, many children with this condition can learn to grow into functioning adults. However, adults with Asperger syndrome may continue to display subtle symptoms of the disorder, particularly in relation to social interactions (Asperger/Autism Network, 2020; Hughes, 2016).

Teaching individuals with Asperger syndrome presents many challenges, particularly with children. Although the symptoms are typically less severe in adults, teaching involves social interaction between two people, so the adult with Asperger may struggle when communicating with the nurse. When teaching an adult or child with Asperger, it is important to remember that intellectual disability is typically not present. Therefore, the following teaching strategies should be used by the nurse to help individuals with this syndrome focus and communicate (Asperger/Autism Network, 2020; Falkmer et al., 2012; Hughes, 2016; Rumph & Becker, 2012):

- Provide multiple cues and a lot of repetition. Children have significantly more difficulty following verbal instructions than do children who do not have Asperger. For adults the stress of having to engage in an interaction with the nurse may make it difficult for them to attend to the information being presented.
- Avoid using facial expressions, body languages, or changes in the tone or volume of speech. People with Asperger tend to miss or misinterpret nonverbal cues.
- Be direct, avoid vague or ambiguous expressions, and stick to relevant topics. Individuals with Asperger syndrome tend to interpret communication in a very literal way, and they also have difficulty understanding subtlety in communication. Therefore, when teaching the client, the nurse should be direct, avoid vague or ambiguous expressions, and stick to relevant topics.
- Teach skills in context. Individuals with Asperger often have difficulty generalizing what they have been taught to other situations. For example, if working on specific motor skills, have them practice climbing the steps on the bus or using equipment in the playground.
- Ask directive questions rather than open-ended questions requiring a lengthy response. Children with Asperger have limitations in narrative competence; thus, when asked to tell a story, their tale tends to be shorter and less coherent than other children's stories.
- Provide a nonstimulating environment that is both quiet and familiar to the patient. Individuals with Asperger may be distracted by noise and have a strong need for sameness and routines. If teaching about equipment, give the patient a chance to become familiar with it before beginning. Likewise, the patient should be given a chance to become familiar with the nurse and it may be helpful to have the same staff assigned to care for the patient if hospitalized (NurseBuff, 2015).

As with other developmental disabilities, when the patient with Asperger syndrome is a child, parents are often a valuable resource for suggestions on how to relate to their child. Most children will have a treatment plan in place, and parents are taught how to help their children overcome their challenges in communicating, interacting with others, and learning. It is important that the nurse talk about the child's plan with the family to implement strategies that have proved effective.

Physical Disabilities

Traumatic Brain Injury

A fall, car accident, gunshot wound, and a blow to the head are just a few potential causes of traumatic brain injury (TBI). Falls are the leading cause of TBI, particularly for children from birth to 4 years old and adults older than 75 years (CDC, 2019b). Approximately 69 million people sustain a TBI worldwide each year (Dewan et al., 2018). In the United States, about 155 people die each day from head injury, and many of those who survive are left with both short- and long-term effects that include vision or hearing changes, memory problems, movement and sensory impairments, and personality changes (CDC, 2019b). Although most brain injuries are mild and classified as concussions, even mild injury can, in some cases, result in symptoms that last several months or longer (U.S. Department of Veterans Affairs, 2020). The potential long-term effects of TBI are significant and can seriously affect the quality of life of those affected. Nationally, billions of dollars are spent each year on hospital, rehabilitation, long-term, and palliative care for victims of this injury (Kline & Bondi, 2016).

Although anyone can sustain a TBI, in recent years, awareness has increased about the risks for TBI associated with military service and sports. Because of the development of protective devices for combat, soldiers are now surviving explosions that at one time were considered deadly. However, rarely do soldiers come out of these events unscathed, and many suffer from major or minor repeated head injuries over one or more deployments (McKee & Robinson, 2014; Mills-Gregg, 2020). Likewise, football players, skiers, cheerleaders, and others involved in high school, college, professional, and recreational sports are at greater risk than the general population for TBI. Considerable efforts are

underway to prevent and respond to these sports-related injuries including new rules and regulations regarding play and improved protective devices (Brainline.org, 2014). Nurse educators can play a role in teaching preventive measures.

TBI includes two specific types: closed head injury, which refers to nonpenetrating injury, and open head injury, which refers to penetrating injury resulting in brain tissue exposure and disruption of normal protective barriers. Males are 1.5 times more likely than females to sustain a TBI, as are individuals with ADHD (Schachar et al., 2015). The two age groups at highest risk for the injury are young children (age 4 years and younger) and older teenagers (15 to 19 years old). The CDC (2019b) estimates that at least 5.3 million Americans currently have a long-term or lifelong need for help to perform activities of daily living resulting from a TBI.

The cognitive deficits that occur depend on the severity and location of the injury but may include poor attention span, slowness in thinking, confusion, difficulty with short-term and long-term memory, distractibility, sleep disorders, mental fatigue, and difficulty with organization, problem solving, reading, and writing (ASHA, 2016; Mills-Gregg, 2020). Also, TBI is associated with an array of neurological and psychiatric abnormalities that affect behavior such as posttraumatic stress disorder, impulsivity, socially inappropriate behavior, and poor judgment (CDC, 2019b; McGee et al., 2016; U.S. Department of Veterans Affairs, 2020). As might be expected, communication skills will more than likely be an issue. Cognitive deficits may persist for an extended time.

The treatment of people with severe brain injury is most often divided into three stages:

1. Acute care (in an intensive care unit)
2. Acute rehabilitation (in an inpatient brain-injury rehabilitation unit)
3. Long-term rehabilitation after discharge (at home or in a long-term care facility)

When considering the teaching needs of patients with a TBI at each of these stages, it is important to remember that the family, not just the individual who was injured, must be addressed. The effects of TBI can be devastating and can affect everyone (Rashid et al., 2014; Warren et al., 2016). Careful assessment of the individual and the family must be done,

and teaching must focus not only on the ongoing care of the patient but also on the resources available to assist the individual and family.

At every stage of treatment, many hurdles need to be conquered. Once the injured person's life is assured and the physical condition improves, the client is discharged from the acute care unit. Although the client may look healthy upon discharge, they may still require rehabilitation. For this reason, families need to be kept up to date on their loved one's prognosis and progress from the very beginning. Throughout the rehabilitation process, family teaching must be consistent and thoughtful, because most of the residual impairments are not visible except for the sensorimotor deficits.

The communication, cognitive-perceptual, and behavioral changes associated with TBI may be dramatic. However, one of the most difficult problems for the family is often the recognition that their relative will probably never be the same person again. In fact, personality changes present a significant burden for the family. Studies have shown that the level of family stress is directly related to the extent of the individual's personality changes and the relative's own perception of the symptoms arising from the head injury (Hart et al., 2018; McGee et al., 2016).

Although most of the literature deals with the importance of family inclusion during the rehabilitation period, clearly persons with brain injury will always need the involvement of their family. Again, the benefits of participation in family groups are immeasurable. Considerable strength is gained from group participation, and learning is accomplished through a friendly, informal approach. Most important, people with brain injury need unconditional acceptance from their friends and family.

Patients recovering from TBI face many challenges. Just as the family needs to adjust to the changes in their injured family member, patients themselves must cope with loss of identity. The significant physical and cognitive changes caused by the brain injury often alter how the individual interacts with the world (Bai, 2018; Milders, 2018; Rabinowitz & Levin, 2014). They face not only recovery from physical injury but often an uncertain future.

Learning needs for this population center on the issues of patient safety and family coping. Safety issues are related to cognitive and behavioral capabilities. Families are faced with a life-changing event and will require

ongoing support and encouragement to take care of themselves. Recovery may require several years, and most often the person is left with some form of impairment.

Research studies have shown that adults and children diagnosed with a TBI have a number of unmet needs following discharge (Fuentes et al., 2018). The most frequently noted needs relate to managing stress and emotional upsets, controlling one's temper, improving one's job skills, and regaining memory and problem-solving ability. Marshall et al. (2015) describe a set of revised guidelines for the management of mild TBI and the symptoms that persist after injury. **Table 9-2** lists guidelines for teaching persons with a TBI.

Table 9-2 Guidelines for Effective Teaching of the Brain-Injured Patient

Do	Don't
Use simple rather than complex statements.	
Use gestures to enhance what you are saying.	
Give step-by-step directions.	Stop talking or give up trying to communicate.
Allow time for responses.	Speak too fast.
Recognize and praise all efforts to communicate.	Talk down to the person.
Use listening devices.	Talk to others as if the patient is not there.
Keep written instructions simple, with as small an amount of information as possible.	

Memory Disorders

Memory is a complex process that allows people to retrieve information that has been encoded and stored in the brain (Cherry, 2017). Typically, most people can retrieve information quite quickly and without much effort

from either their short-term or long-term memories. Short-term memory refers to information that is remembered if one is attending to it—for example, being able to complete the steps of a procedure in a return demonstration immediately following a presentation. Individuals with short-term memory deficits may be unable to recall what they learned an hour before, but they may be able to recall the information at a later point in time. Long-term memory consists of information that has been repeated and stored and becomes available whenever the individual thinks about it, such as being able to remember a telephone number over a long period of time. Brain injury, a wide range of diseases, and medical disorders can all result in mild to severe memory problems.

Brain injury often results in a memory disorder referred to as amnesia. Individuals with anterograde amnesia have memories from before the brain injury but are unable to form new memories in the present. Individuals with retrograde amnesia lose memories formed prior to the brain injury, but have the ability to form new memories after it. Most people with brain injury have a combination of both types of amnesia (Mayo Clinic, 2020). In some cases, amnesia can be permanent; however, despite what is depicted in movies and television, people with amnesia typically remember who they are (Mayo Clinic, 2020; Osborn, 2018).

Alzheimer's disease, multiple sclerosis, Parkinson's disease, brain tumors, and depression are just a few of the conditions that can result in some degree of memory disorder. In some conditions, such as Alzheimer's disease, memory loss increases as the disease progresses. In other conditions, memory impairment is more of a nuisance than a life-altering disability. Many clients with memory disorders, for example, those with Alzheimer's disease, also experience a decline in communication skills, which makes teaching more difficult (Machiels et al., 2017).

The nurse is likely to encounter a wide range of clients who have memory issues. The approach used in teaching will vary depending on the severity of the impairment. People with cognitive impairment, such as dementia, can be taught new information or skills by using the principle of errorless learning (EL). De Werd and colleagues (2013) present error-reducing teaching methods to help patients learn or relearn meaningful activities of daily living by means of EL.

The following general strategies may be helpful when working with patients who have memory loss for whatever reason and to whatever extent (Alexander & Larson, 2021; Carpenter, 2001; Cherry, 2020; de Werd et al., 2013).

- To relearn the memory process using a direct retraining strategy, emphasize memory techniques that focus on the need for attention, the benefit of repeating information, and the importance of practicing recall to grasp the information being taught.
- To help patients to relearn tasks, use the specific skills strategy technique that focuses on bypassing the damaged brain area to capitalize on intact alternative brain pathways when practicing skills that require attention.
- If the patient has intact communication skills, encourage them to take notes during teaching sessions or the session can be audiotaped to provide the patient and their family with reinforcement of information.
- If a patient has minor memory problems, assist them to create a system of reminders, such as use of a personal digital assistant (PDA), calendar, or sticky notes.
    - Use memory aids, such as writing out a list of daily activities, phone numbers, and instructions for usual tasks.
    - Be patient when responding to repetitive questions, behaviors, or statements.
- Use vivid pictures or have patients draw pictures to help them visualize concepts.
- Teach patients to “chunk information.” For example, rather than remembering the seven numbers in a phone number, they can think about a phone number in double digits—for example, 7-45-86-42. The same principle can be applied to any procedure that has multiple steps.
- Structure teaching sessions to allow for brief, frequent repetitive sessions that provide constant reinforcement of learning.
- Involve the family or caregiver in the teaching session whenever possible to support the patient and reinforce information.

Communication Disorders

Communication disorders can affect an individual’s ability to both send and receive messages. A cerebrovascular accident is the most common

cause of impaired communication and is the leading cause of long-term disability in the United States. A stroke occurs about every 40 seconds and death from a stroke happens on average every 4 minutes. Approximately 800,000 Americans have a stroke each year. African Americans and Native Americans are at greatest risk for stroke. More than 7 million Americans are living with its long-term effects; about one-third have mild impairments, another one-third are moderately impaired, and the remainder are severely impaired (American College of Cardiology, 2019; CDC, 2020i).

Aphasia

One of the most common residual deficits of a stroke is aphasia, which "is an impairment of language, affecting the production or comprehension of speech and the ability to read or write" (National Aphasia Association, 2020, p. 1). Aphasia results from damage to the language center of the brain and is not the result or cause of an impairment in intelligence. Although seen commonly in adults who have suffered a stroke, aphasia can also result from a brain tumor, infection, head injury, or dementia.

An estimated 1 million people in the United States today suffer from aphasia. The type and severity of the language dysfunction depend on the precise location and the extent of the damaged brain tissue (National Aphasia Association, 2020). Many forms of aphasia are possible, and newly diagnosed patients usually work with a speech therapist. Some of the more common types of aphasia include global aphasia, expressive aphasia, receptive aphasia, and anomic aphasia (National Aphasia Association, 2020; NIDCD, 2017). Determining the type of aphasia involved will assist the nurse in developing an appropriate teaching plan for the patient.

Global aphasia is the most severe form of aphasia and produces deficits in both the ability to speak and understand language as well as to read and write. Global aphasia is typically the result of extensive damage to the left side of the brain, which is where the primary function of language resides in most people.

Expressive aphasia affects the dominant cerebral hemisphere and results in patients having difficulty conveying their thoughts, speaking haltingly, and using sentences consisting of a few disjointed words, but

they understand what is being said to them. Specifically, expressive aphasia occurs when an injury damages the inferior frontal gyrus, just anterior to the facial and lingual areas of the motor cortex, known as Broca's area. Because Broca's area is so near the left motor area, the stroke often leaves a person with right-sided paralysis as well.

Receptive aphasia is a result of damage to Wernicke's area of the temporal lobe and affects auditory and reading comprehension. Although the hearing in patients is not impaired, they are nevertheless unable to understand the significance of the spoken or written word.

Individuals with **anomic aphasia** understand what is being said to them and can speak in full sentences, but they have difficulty finding the right noun or verb to convey their thoughts. For example, they have difficulty naming objects even though they know what the object is and what it may be used for. *Circumlocution*, or speaking around an issue, switching thoughts when they cannot remember a word, or taking new pathways to describe the word they can't remember is common. The specific anatomical abnormality that results in anomic aphasia, however, is unclear.

The inability to communicate normally is a devastating consequence of a brain injury and requires the full support of the healthcare team. Aphasia has the potential to be a highly frustrating experience for both the patient and their caregivers. Speech therapy should be one of the earliest interventions, and the nurse will need to incorporate those strategies identified as effective by the speech therapist into the teaching–learning plan. Every effort must be made to establish communication at some level. Without communication, nurses are hampered in their ability to conduct an assessment, establish a relationship with the patient, and engage in meaningful interaction (Shelat, 2020; Thompson & McKeever, 2014). Regardless of how severe the communication deficit is, with effort, it is almost always possible to assist patients who have had a stroke to communicate in some manner and to some extent.

Family plays a key role in working with patients who have aphasia. Knowledge of the person is key to establishing a therapeutic relationship between the patient and the nurse. Family can help to fill in the gap and assist the nurse in understanding who the patient is, where they have been, and where they had hoped to go in their lives. Also, family can

provide insight into the patient's likes and dislikes, habits, and ways of being (Thompson & McKeever, 2014).

First and foremost, when working with a patient who has expressive aphasia, it is important to remember that communication will take time. Patients who struggle to find the right word may need extra minutes to express themselves, so communication cannot be hurried. As these patients struggle to speak, nurses must resist the temptation to finish sentences or fill in the gaps for them without asking permission to do so. Patients with receptive aphasia may suddenly find that their native language sounds foreign. These individuals may need extra time to process and understand what is being said. They may find it especially difficult to follow very fast speech, like that heard on the radio or television news, and can easily misinterpret the subtleties of language (e.g., taking the literal meaning of sarcasm or a figure of speech such as "He kicked the bucket"). With any type of aphasia, the nurse should focus on what the patient can do rather than on the speech deficits (National Aphasia Association, 2020; Shelat, 2020).

Environmental control is critical for all teaching sessions with patients who have aphasia. The nurse must make sure that they have the individual's full attention before attempting to communicate and that a quiet, disruption-free area is created. Because patients are often frustrated or embarrassed by their disability, a private area also is preferred. Moreover, the nurse must always remember that the patient's difficulty with communication is not reflective of an inability to think or understand. Therefore, neither the nurse nor members of the family should talk down to the patient. Ample praise and positive reinforcement for attempts to speak or efforts to understand are also important. It is unnecessary and demoralizing to correct every misunderstanding or error in word selection and pronunciation—the goal is communication rather than perfection. Finally, it is important that the nurse, as well as the family, avoid the tendency to protect the patient by shielding them from group conversations, especially those conversations that are important to the patient (National Aphasia Association, 2020; Shelat, 2020).

The term **augmentative and alternative communication (AAC)** describes the strategies and technologies that can be used to aid communication with a patient who has aphasia following a brain injury, such as a stroke (Velayutham, 2019). Additional strategies and

technologies that can be used by the nurse include the following (American Stroke Association, 2018b; Jensen et al., 2015; Langford, 2020; Regional One Health, 2019):

- Be sure you have the patient's attention, and that they are comfortable and ready to attempt to engage in interaction before you begin communication.
- Speak in a normal tone of voice, making sure not to talk down to the patient.
- Establish a consistent system for everyone to use that allows patients to respond to yes/no questions. It is critical that all staff use the same system. If one person asks the patient to shake their head up and down for "yes" and side to side for "no" and yet another suggests squeezing the nurse's hand for "yes," the patient will become frustrated and confused. During teaching sessions, the nurse should use this system not only to get information from the person but also to verify that they are grasping the material being presented in a teaching session.
- Teach the patient to point to certain objects to quickly express common needs. For example, the nurse might explain that "when you point to your water pitcher, I will know that you want a drink of water."
- Use simple sentence structure, speak slowly, and emphasize important words. Repeat significant points using different words or phrases. Ask only one question at a time. Break questions down into parts so that simple answers are acceptable.
- Avoid jumping from topic to topic. Keep like topics together and announce when you are changing topics—for example, "We just finished talking about when to take your medicine; now I will talk about how to take your pills."
- Teach the patient to use exaggerated facial expressions, hand movements, or tone of voice to improve speech comprehension. For example, a patient who grimaces when attempting to ask for pain medication is more easily understood. It is important that the patient, the family, and the nurse be open to using different ways to enhance communication. The nurse also can model messages using exaggerated facial expressions to assist the patient who has difficulty with comprehension.
- Technology devices open up multiple avenues to communicate and connect with people who have aphasia. Smartphones and tablets can store photos of family and friends and can allow access to emails and

social media sites. Text-to-speech features on Kindle, Apple, and Android devices help with comprehension of written and spoken language. Language apps allow a person to click on a picture or word and hear it pronounced. Sketch pad apps allow someone to create drawings and save them for later use. Communication boards provide a platform for pictures, letters, or other symbols to be displayed so a patient can point or gesture to convey a message. Communication boards range in style and level of technological enhancement, but all provide a simplified way of assisting patients to communicate. Some are digitized so that, for example, a question mark on the board might be programmed to elicit a voice that says, “I don’t understand; please repeat.”

- If technology devices are not available, the nurse can create a communication board with personally relevant, context-related photographs specific to the learning that needs to take place. For example, when teaching the patient about medications, the nurse might illustrate the medicines ordered, the purpose of each one, and how it should be taken. When assessing the patient’s understanding of the information, the nurse could then say, “Point to the pill you will take for pain” or “Show me whether you are supposed to take this medicine with food or with water.”
- Support patients’ speech therapy programs by having them recall word images and by first naming commonly used objects (e.g., spoons, knives, forks) followed by those objects in the immediate environment (e.g., bed, table). Another strategy is to have the person repeat the words spoken by the nurse. It is wise to begin with simple terms and work progressively toward more complex phrases.

The act of communicating may be exhausting for the patient with expressive aphasia, so it is important to keep teaching sessions short and focused. Most people become tired when sessions are longer than 20 minutes. Often their speech will become slurred at this point, and they will experience mental fatigue. Whenever possible and if the patient agrees, it may be helpful to have a family member or significant other present during teaching sessions so that they can reinforce learning as needed.

As nurses attempt to work with and engage patients with aphasia in a teaching–learning intervention, they must be aware of their own attitudes. The effort to communicate with someone without using their usual speech and language can be a frustrating experience. Nurses should be sure to

take time out and reflect on the rewards of assisting the patient and family in overcoming this barrier.

Dysarthria

Many people with degenerative disorders, such as Parkinson's disease, multiple sclerosis, and myasthenia gravis, also have dysarthria. **Dysarthria** is a neuro-motor disorder that is caused by damage to the brain, nerves, or muscles associated with eating and speaking, including the mouth, tongue, larynx, or vocal cords. Individuals with dysarthria have problems that range from mild to severe, with typical speech symptoms that include slurring, slow or rapid talking, abnormal rhythm, difficulty changing the volume, or speaking softly or in a whisper. Difficulty controlling facial muscles, swallowing, abnormal movement of tongue, or drooling may also be present (Giorgi, 2019; National Aphasia Association, 2020). The type (flaccid, spastic, ataxic, hypokinetic, and mixed) and severity of dysarthria depend on which area of the nervous system is affected (National Aphasia Association, 2020).

The intervention of a speech-language pathologist may help improve the function of various muscles used for speech in patients with dysarthria. In some cases, for example, Parkinson's disease medication may help to improve speech. Some mechanical devices have been developed as well, such as a prosthetic palate, which is used to control hypernasality.

Sign language may be used if the person's arm and hand muscles are not significantly affected. The nurse should work with the speech-language pathologist to determine whether any of the other nonverbal aids would be appropriate, such as communication boards or a portable electronic voice synthesizer. With the advent of adaptive technologies, the possibilities are almost limitless.

To improve communication with people with dysarthria, the nurse should implement the following strategies (ASHA, 2020; American Stroke Association, 2018a; Dugdale, 2020):

- Control the communication environment by reducing distractions.
- Communicate face to face. Pay attention to the patient and watch them while speaking.

- Be honest and let the patient know when understanding them is difficult.
- Encourage the patient to speak more slowly if they are hard to understand.
- Convey the part of the message that is not understandable so that the patient does not have to repeat the entire message.
- Ask questions that require a “yes” or “no” answer or have the patient write out their message when the patient cannot be understood.
- Conduct teaching sessions when the patient is rested because fatigue causes speech to become more difficult to understand.

Chronic Illness

Chronic illness is the leading cause of death in the United States, accounting for approximately 70% of all deaths in the country each year. It is a major cause of blindness, amputations, stroke, and other cognitive, sensory, and physical impairments and accounts for 86% of the nation's healthcare costs (CDC, 2020a). Although defined as a condition lasting 3 months or longer, chronic illness often lasts a lifetime and can result in persistent health problems and/or permanent disabilities (CDC 2020a). Unlike acute illnesses, which usually have a clearly defined beginning and end, chronic illness is characterized by uncertainty, recurrence or persistence of symptoms, long-term risk, and/or lasting deficits. It is important to note, however, an important distinction: Although chronic illness can cause disabilities and some chronic illnesses are disabling, chronic illness in and of itself is not a disability.

The face of chronic illness is ever changing. Advances in treatment have turned diseases once considered death sentences, for example, cancer and HIV/AIDS, into chronic conditions. Increased awareness and greater understanding have resulted in changing perceptions and conditions like drug addiction and alcoholism, once viewed as human weaknesses, are now understood to be devastating chronic health conditions. However, with chronic illness like addiction, some stigma still exists, and it is important for the nurse to take steps to reduce stigma and help the person with a substance use disorder to feel accepted. An important first step is to avoid using derogatory words and phrases like *drug habit*, *addict*, *drug abuser*, or *addicted baby* and instead use words that emphasize that addiction is an illness (National Institute on Drug Abuse, 2020), e.g., *person with substance use disorder*, *person in recovery*, or *newborn exposed to substances*.

Every aspect of an individual's life can be touched by chronic illness —physical, psychological, social, economic, and spiritual. Because

successful management of a chronic illness is often a lifelong process, the development of good learning skills is a matter of survival. It is impossible within the confines of this chapter to cover specific teaching strategies for each chronic illness; instead, some general teaching and learning principles are suggested in the following pages.

The learning process for individuals with a chronic illness is fraught with hills and valleys. Most chronic conditions have several phases that affect the educational needs of both the ill person and their family. In turn, no single approach will fit each teaching–learning situation.

It is important to be aware of the timing, acuity, and severity of the disease progression. The family's reaction and perception of the chronic illness are also important influences on the teaching–learning process. Families need information and education to deal with the limitations and changes in their loved one's lifestyle.

People who are chronically ill often experience a conflict between their feelings of dependence and their need to be independent (Nilsson et al., 2016). Sometimes the energy and focus required to maintain independence are overwhelming, both physically and emotionally. Often, living with a chronic illness includes a loss and/or change in roles. When people suffer from role loss (e.g., a father who is no longer able to keep his job), their self-esteem may be affected as well. If lingering issues persist surrounding the individual's role loss and self-esteem, they need to be addressed, because they are obstacles to readiness to learn.

Controlling chronic illness is a major time-consuming activity. Golics et al. (2013), Lee et al. (2017), and the CDC (2020a) have identified key problem areas affecting quality of life that are experienced by chronically ill patients and their families:

1. Prevention of medical crises and the management of problems once they occur
2. Control of symptoms

3. Carrying out prescribed regimens and dealing with problems associated with adhering to continuous self-care management
4. Prevention of, or living with, social isolation that decreases contact with others
5. Adjustment to changes over the course of the disease through periods of exacerbation or remission
6. Keeping interactions normal with others as well as maintaining one's lifestyle as consistent as possible
7. Funding (finding the necessary money to pay for treatments or to survive despite partial or complete loss of employment)
8. Confronting psychological, marital, and family problems that often arise in dealing with long-term illness

Patients who are chronically ill often manage complex therapeutic regimens. Because chronic conditions are often complicated, need constant monitoring, and require follow-up, a patient and their family may become overwhelmed, exhausted, or discouraged and have a hard time staying motivated to manage their health (Festa, 2018). Braden's self-help model (learned response to chronic illness experience) is a nursing theory that provides a framework with which to describe factors that enhance learning and moderate responses in chronic illness. This model proposes a teaching approach that the nurse can use to encourage independence in patients versus them feeling helpless or responding passively to interventions (Braden, 1990).

The Family's Role in Chronic Illness or Disability

Families are usually the care providers and the support system for the person with a disability, and they need to be included in all the teaching–learning interactions. Their reactions and perceptions of the impact of chronic illness or disability, rather than the illness or disability itself, influence all aspects of adjustment. Family participation does have a profound influence on the success of a patient's rehabilitation program (Larsen, 2019; Turner et al., 2007).

When assessing the patient and family, it is important to note what the family considers high-priority learning needs. Most often, such needs will be related to the caregiver's perceived lifestyle change. A caregiver might ask, "Can I continue working outside the home?" or "Will I be able to maintain my relationships with friends?" It is important that the nurse assist the patient and family to identify problems and develop mutually agreed-upon goals. Adaptation is key. Communication between and among family members is crucial. If a family has open communication, the nurse is in a good position to help the family mobilize their resources to obtain needed educational and emotional support.

The education process also needs to take into consideration the family's strategies for coping with their relative's illness or disability. Without a doubt, the overwhelming nature of chronic illness affects the quality of life not only for the person who is ill but also for all the family members (Larsen, 2019). In their role as caregivers, family members have their own anxieties and fears.

A chronic illness or disability can either destroy or strengthen family unity. Siblings and children of the person with a disability may be at different stages of acceptance. Denial may be present during the initial diagnosis of an illness or disability. Later, as the patient and their family realize that the situation is likely to be permanent and

has many consequences, the nurse may witness them pass through periods of anger, guilt, depression, fear, and hostility. As these feelings gradually become less intense, teaching lessons will need to be readjusted to fit the new circumstances. Flexibility is vital to achieving successful outcomes. Be sure to treat each family member as unique and recognize that some family members may never fully adjust to the altered circumstances. **Table 9-3** lists some of the most common sources of tension in patient and family education.

Table 9-3 Relieving External Tensions in Patient and Family Education

Problem	Response
Family Dynamics	
Patient or family member feeling overwhelmed	Goal setting: Help family refocus on tasks at hand. Review goals that have been attained to boost morale.
Anxiety and fear of performing complex procedures	Establish an atmosphere of acceptance. Don’t be in a hurry. Offer opportunities for discussion and questions and answers. Reassure patient and family that they have made the right treatment choice.
Emotions associated with chronic or terminal conditions	Provide opportunities to express feelings. Offer referrals to community resources.

Problem	Response
	Family Dynamics
Caregiver burnout and illness	Simplify patient management where possible (e.g., scheduling drug doses to reduce nighttime treatment). Remain accessible. Remember: When caregiver needs are not being met, resentments increase. Provide information on respite care.
Patient fatigue, especially with chronic illness	Help the patient identify individual ability for as much active participation in the family life as possible.
Young patients are frequently overwhelmed by complex emotions about their illness and therapy	Encourage both children and adolescents to use artwork to express their feelings. Suggest support groups. Offer support to parents and siblings who must alter their family lifestyle.
	Geriatric Considerations

Problem	Response
Family Dynamics	
An increase in the number of drugs taken daily (on average four or more per day) leads to increased potential for adverse reactions	Use only one pharmacy so that one source keeps track of medications. Continually evaluate all drugs taken for need, safety, compatibility, potential adverse reactions, and expiration dates.
Decreased visual acuity	Use teaching materials with large, bold type. Encourage the use of corrective lenses or a magnifying glass.

Modified with permission from LaRocca, J. C. (1994). *Mosby's home health nursing pocket consultant*. Mosby–Year Book.

Nurses need to value their teaching role when they work with the family of a person with a chronic illness or disability. Unlike families dealing with an acutely ill member, families with a member who is permanently ill or disabled will have intermittent contact with the healthcare system throughout their lives. Therefore, whenever teaching sessions are required, the availability of families should be a primary consideration. Given adequate support and resources, families with a member who is chronically ill or disabled can adapt, adjust, and live healthy, happy, full lives (Association of Rehabilitation Nurses, 2020).

Assistive Technologies

The growth of modern technology has pervaded all areas of our lives, making them better in many ways. Personal computers, tablets, smartphones, and smartwatches are just a few examples of technologies that have had significant impact on our lives. Until recently, however, computers and computerized devices have been inaccessible to individuals with a disability. Yet, when assistive technology has been made available to them, individuals with disabilities have experienced dramatic changes in their lives. Computers and other technologies with the appropriate adaptations have liberated people from social isolation and feelings of helplessness and have instilled in them feelings of self-worth and independence.

Since the enactment of the ADA in 1990, the diversity of the patient population cared for by nurses has grown to include more individuals with disabilities in every practice setting. As nurses' understanding of assistive technology is enhanced in this country and worldwide, their ability to advocate, recommend, and assist persons to attain the appropriate equipment and training will likewise be bolstered (Desmond et al., 2018; Goyal, 2021; Lindberg et al., 2013; Stanhope & Lancaster, 2019). **Assistive technologies** are defined as "any item, piece of equipment, software program, or product system that is used to increase, maintain, or improve the functional capability of persons with disabilities" (Assistive Technology Industry Association [ATIA], n.d., para 2). This broad definition gives recognition to the fact that assistive technology can include both low- and high-tech devices. Examples of assistive technology include low-tech devices such as cardboard communication boards and high-tech devices such as voice-activated computer programs, devices that read aloud from the computer screen in either human or synthetic speech, specialized keyboards, arm and wrist supports, amplified telephone handsets, screen magnifiers, and environmental controls (ATIA, n.d.).

Most people use a combination of systems or devices depending on their needs. The good news is that mainstream technology is moving in the direction of universal design, which means that it will be available to almost anyone. Technology has the potential to improve the lives of people with disabilities by giving them the tools to become more independent, more productive, and better able to participate in a wide range of life experiences.

People with communication problems, especially those who are unable to speak or whose speech is difficult to understand, can use augmentative and alternative communication devices, such as the computer, to add a whole new dimension or quality to their lives. Technology has already made much of the previously impossible possible, and even greater advances can be expected in the future. It is incumbent upon the nurse to know how to help individuals with disabilities locate and access whatever assistive technology is needed to convey health information. This technology might include software programs with closed captioning built in for the hearing impaired or on-screen keyboards that can be accessed with a mouse, trackball, or an illuminated pointer device for someone with fine or gross motor deficits.

Every computer-based solution is the result of a carefully planned, individually determined process. Individuals with a disability are the experts on what works best for them. However, some guidelines should be considered when selecting the best adaptive computer. The best computer solution for individuals with disabilities will allow for independent and effective use. Other criteria include affordability, portability, flexibility, and simplicity of learning. If these criteria are met, then the adaptive computer is probably in compliance with the ADA's reasonable accommodations.

As the menu of assistive technologies has expanded, their use has become more widely considered and recommended. It remains a challenging and sometimes complex process to match the person with the right technology. The Center on Technology and Disability (https://www.ctdinstitute.org/) provides information on a host of

adaptive devices for individuals with physical, sensory, and/or cognitive impairments that affect their ability to use a computer.

Assistive technology is here to stay. Although it will probably be forever changing, the process for ensuring individualized computer solutions will remain much the same, and the benefits are enormous. It is exciting to reflect on the positive, possibly life-changing effects that the personal computer and other telecommunication devices can have on the lives of individuals with a disability. Such products have the potential to change what it means to be disabled.

The role of the nurse as educator includes a patient advocacy component. Acting on the patient's and family's behalf, the nurse can work with the multidisciplinary team, including the assistive technology specialist, to enable special populations to participate in all of life's experiences. Thanks to what assistive technologies will be able to do, more people with disabilities will enjoy greater independence and fulfillment.

State of the Evidence

The current debate on healthcare access and healthcare reform has created a growing awareness of the rising costs of providing care across the life span. The problems associated with chronic illness and disability in the United States continue to grow, as does concern about the mounting cost of managing the long-term health problems associated with these conditions. In the past, the national spotlight has been focused on obesity, tobacco and alcohol use, and other risk factors for chronic illness and disability. As healthcare research and government funding for programs designed to cut costs by preventing these costly health conditions are beginning to emerge, so, too, has the demand for personal accountability in areas such as weight management, where the individual plays a role in the incidence and management of the condition.

Responsibility for financing health care is another much-debated topic. Should responsibility for cost of care be with the federal or state government? Should individuals be mandated to have health insurance coverage? What is the responsibility of third-party payers in covering the cost of disabilities and chronic care?

For all the reasons cited previously, the need for health education is at an all-time high. Health education remains a viable solution for teaching people to reduce risk factors and manage their health, thereby preventing chronic illness and disability. Nurses need to continue to incorporate health education into their practice and conduct research on effective ways to influence behavior change.

The national spotlight on reduction of risk factors for chronic illness and disability is reflected in the U.S. Surgeon General's report on health promotion and disease prevention, *Healthy People 2020* (USDHHS, 2010). The planning framework for *Healthy People 2030* was recently released, and the emphasis on health promotion and disease prevention continues, with overarching goals to eliminate

health disparities by focusing on social determinants of health, achieving health equity, and attaining health literacy to improve the health and well-being of everyone in the nation (USDHHS, 2020). These documents support national endeavors to create a healthier nation by serving as the basis for prevention efforts, including the identification of national objectives and the provision of evidence-based resources and tools that can be used by communities to implement public health programs. *Healthy People 2020* and *2030* address health topics broadly and can be used by nurses to plan teaching programs in a wide range of settings. For example, in relation to nutrition and weight status, *Healthy People 2020* identifies objectives and strategies for people across the life span and in environments including schools, healthcare settings, the home, and the workplace (USDHHS, 2010).

Summary

This chapter covered some of the most common disabilities experienced by millions of Americans resulting from disease, injury, heredity, aging, and congenital defects. These conditions affect physical, cognitive, or sensory capacities and require behavioral change in one or more of these domains of learning. The nurse educator must be creative, innovative, flexible, and persistent when applying the principles of teaching and learning to meet the needs of these special populations of individuals, their families, and their significant others.

The shock of any disability, whether it occurs at the beginning of life or toward the end, has a tremendous impact on individuals and their families. At the onset of the condition and throughout the transition and recovery process, the patient and family face the prospect of having to learn new information or relearn previous skills, as successful habilitation or rehabilitation means acquiring knowledge and applying it to their situation. Inner strength and courage are attributes needed to face each new day, as the effort to live a normal life never ends. The physical, social, emotional, and vocational implications of living with a disability or the permanence of a chronic illness necessitate the nurse as educator to be well prepared to meet all members of these special populations right where they are in their struggle to live a life of quality and independence.

Review Questions

1. How widespread is the disability issue in the United States and worldwide?
2. What is meant by the term *disability*?
3. What is the disabilities model, and how does it differ from the moral model, the medical model, and the rehabilitation model?
4. What is the difference between people-first and identity-first language that requires nurses to incorporate these concepts into their writing and speaking?
5. Which questions should the nurse ask when assessing readiness to learn in a person with a disability or chronic illness?
6. Which teaching strategies can the nurse use when communicating with patients who have hearing impairments, visual impairments, or learning disabilities?
7. What are the characteristic behaviors of persons with ADHD that factor into choosing educational interventions for effective teaching and learning with this population?
8. How is the term *developmental disability* defined in relation to a developmental delay?
9. What approaches can the nurse use to teach children and adults with mental or physical impairments?
10. What are the key problem areas experienced by patients who are chronically ill and by their family members or significant others?
11. How can assistive technology devices improve the quality of life for a person with a disability?

CASE STUDY

Red Oaks Integrated Care Services is an organization dedicated to providing a full spectrum of services for adults living with developmental disabilities. Their services include supported living for adults with developmental disabilities who reside independently in the community and five residential group homes for those requiring

additional assistance. It is early in the morning, and the client support team is having their monthly meeting. Discussion begins with a report on the hospitalization of one of their group home residents.

Manuel Menez, MSW: “Ed Simpson was admitted to the hospital last night with pneumonia. Everyone in the house received flu shots this year, but so many of them have weakened immune systems that the flu is still a risk for them. The doctor thinks he will do okay, but he was so congested and dehydrated they wanted to admit him.”

Janet Coles, Senior Resident Coordinator: “Everyone in the house was upset when he left last night. I am glad they think he will do okay, but I hope no one else gets it. Anytime someone in the house gets sick, it seems to go through the whole group. It is not just the flu. We worry about infections of any kind.”

Seema Ahari, RN: “They live in close quarters. We have met with them before about handwashing and other things they can do to keep themselves safe. Is it time to meet with them again?”

Janet Coles, Senior Resident Coordinator: “I think that is a good idea. It has been a while and we have a number of new residents and some new staff as well. Although all staff go through a training program, once they get in the house it is helpful for them to have some reinforcement.”

Seema Ahari, RN: “We need to develop a teaching plan. Residents and staff both have a role to play in keeping everyone safe. I would be happy to outline a plan to have a group education session for the residents and another for the staff and then I can share this plan with you at our next meeting.”

Develop a teaching plan for the residents of the group home by responding to the following questions.

1. What information should be collected by the nurse as part of the assessment of this group?

2. Which challenges will the nurse face in holding a group session for the residents and staff??
3. Which teaching strategies should the nurse use to facilitate learning in residents and staff?

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CHAPTER 10

Behavioral Objectives and Teaching Plans

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CHAPTER HIGHLIGHTS

- Types of Objectives
- Characteristics of Goals and Objectives
- The Importance of Using Behavioral Objectives
- Writing Behavioral Objectives and Goals
  - Performance Words With Many or Few Interpretations
- Common Mistakes When Writing Objectives
- Taxonomy of Objectives According to Learning Domains
  - The Cognitive Domain
  - The Affective Domain
  - The Psychomotor Domain
- Development of Teaching Plans
- Use of Learning Contracts
  - Components of the Learning Contract
- The Concept of Learning Curve
- State of the Evidence

KEY TERMS

affective domain

augmented feedback

behavioral objectives (learning objectives)

cognitive domain

distributed practice

educational objectives

forgetting curve

goal

instructional objectives

intrinsic feedback

learning contract

learning curve

massed practice

mental imaging (mental practice)

objective

psychomotor domain

selective attention

situated cognition

subobjective

taxonomy

teaching plan

transfer of learning

OBJECTIVES

After completing this chapter, the reader will be able to:

1. Differentiate between the terms *goals* and *objectives.*
2. Assess opposing viewpoints of using behavioral objectives for teaching and learning.

3. Write behavioral objectives accurately and concisely using the four components of condition, performance, criterion, and who will do the performing.
4. Discuss the common errors made in writing objectives.
5. Distinguish among the three domains of learning: cognitive, affective, and psychomotor.
6. Explain the teaching methods appropriate for instruction in each domain.
7. Develop teaching plans that reflect internal consistency between elements.
8. Recognize the role of the nurse educator in developing objectives for the planning, implementation, and evaluation of teaching and learning.
9. Describe the importance of learning contracts as an alternative approach to structuring a learning experience.
10. Determine the potential application of the learning curve concept to the development of psychomotor skills.

Previous chapters have addressed the unique characteristics and attributes of the learner with respect to learning needs, readiness to learn, and learning styles. Clearly, assessment of the learner is an essential first step in the teaching–learning process. Assessment determines what the learner needs to know, when and under which conditions the learner is most receptive to learning, and how the learner learns best or prefers to learn.

Before a decision can be made about selecting the content to be taught or choosing the teaching methods and instructional materials to be used to change learner behavior, the educator must first decide what the learner is expected to accomplish. Individual needs are determined by identifying gaps in the learner's knowledge, attitudes, or skills. Identification of needs is a prerequisite to formulating behavioral objectives that serve as a "road map" (Nothwehr et al., 2007, p. 794) to guide subsequent planning, implementation, and evaluation of teaching and learning.

In the 20th century, noted educators and education psychologists developed approaches to writing and classifying behavioral objectives that offer assistance to teachers in organizing instructional content for learners functioning at various levels of ability. Mager (1997) has been the primary educator credited with developing a system for writing behavioral

objectives that serves to help teachers make appropriate instructional decisions as well as to assist learners in understanding what they need and are expected to know. The underlying principle has been that if one does not know where they are going, how will the person know when they have arrived?

In addition, the taxonomic system devised by Bloom et al. (1956) for categorizing objectives of learning according to a hierarchy of behaviors has been the cornerstone of teaching for over half a century. This concept of **taxonomy**—that is, the ordering of these behaviors based on their type and complexity—pertains to the level of knowledge to be learned, the kind of behaviors most relevant and attainable for an individual learner or group of learners, and the sequencing of knowledge and experiences for learning from simple to the most complex.

Based on the original work of Bloom and his colleagues (1956), Anderson et al. (2001) proposed a revision to this initial taxonomy for learning, teaching, and assessing behaviors. The most prominent differences include changing the names in the six categories from noun to verb forms and rearranging the last two categories. A comparison of the original taxonomy with the revised one is shown in **Figure 10-1**. The revisions to Bloom's taxonomy have the potential to make explicit teacher and student assessment, as well as teacher and student selfassessment, as patterns of use emerge.

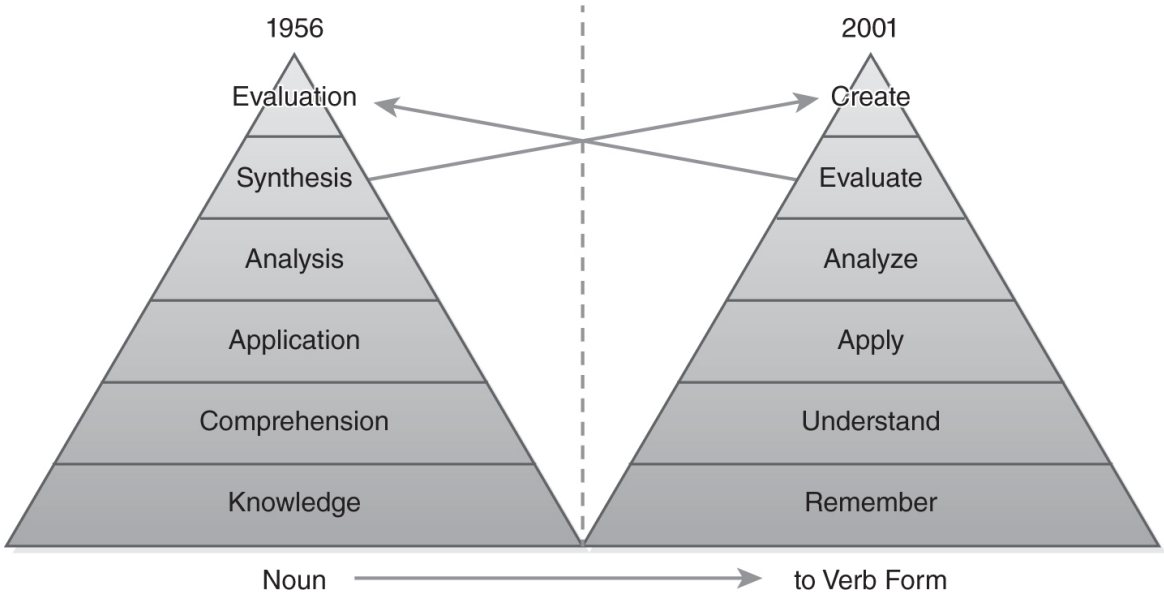


Figure 10-1 Revisions to Bloom's taxonomy.

Reproduced from Wilson, L. O. (2001). *Anderson and Krathwohl–Bloom's taxonomy revised*. https://thesecondprinciple.com/essential-teaching-skills/blooms-taxonomy-revised/

Description

Skill in preparing and classifying behavioral objectives is a necessary function of the educator's role, whether teaching patients and their families in healthcare settings, teaching staff nurses in inservice and continuing education programs, or teaching nursing students in academic institutions. The importance of understanding the systems of writing and categorizing behavioral objectives to specify learner outcomes is imperative if data yielded from educational efforts are to be consistent and measurable. Also, the knowledge and use of these techniques are becoming essential because of the need to quantify and justify the costs of teaching others in an environment characterized by ever-increasing cost-containment pressures.

This chapter examines the importance of behavioral objectives for effective teaching; describes how to write clear and precise behavioral objectives; provides an overview of the taxonomy levels of cognitive, affective, and psychomotor domains; and outlines the development of teaching plans and learning contracts. Also, the learning curve concept is discussed as it applies to mastering psychomotor skills. Each of these elements provides a framework for successful teaching.

Types of Objectives

It is important to clarify the meaning of the terms *educational objectives*, *instructional objectives*, and *behavioral* or *learning objectives*. Although often used synonymously, these terms can be distinguished from one another. **Educational objectives** are used to identify the intended outcomes of the education process, whether referring to an aspect of a program or a total program of study, that guide the design of curriculum units. **Instructional objectives** describe the teaching activities, specific content areas, and resources used to facilitate effective instruction (Morrison et al., 2010). **Behavioral objectives**, also referred to as **learning objectives**, make use of the modifier *behavioral* or *learning* to denote that this type of objective is action-oriented rather than content-oriented, learner-centered rather than teacher-centered, and short-term outcome-focused rather than process-focused. Behavioral objectives describe precisely what the learner will be able to do following a learning situation.

Characteristics of Goals and Objectives

The terms *goal* and *objective* are often used interchangeably as if they are one and the same. However, a real difference exists between the two terms. This distinction must be clearly understood because it is common to find confusion on the meaning of these terms among nurses and nurse educators alike (Krau, 2011; Wittmann-Price & Fasolka, 2010). Two factors differentiate goals from objectives: their relationship to time and their level of specificity (Haggard, 1989).

A **goal** is the final outcome to be achieved at the end of the teaching and learning process. Goals, also commonly referred to as learning outcomes, are global and broad in nature and are long-term targets for both the learner and the teacher. Goals are the desired outcomes of learning that realistically can be achieved usually in a few days, weeks, or months. They are considered multidimensional in that a number of objectives are subsumed under or incorporated into an overall goal.

An **objective**, in contrast to a goal, is a specific, single, concrete, one-dimensional behavior. Objectives are short term and should be achieved at the end of one teaching session or shortly after several teaching sessions. A behavioral objective is the intended result of instruction, not the process or means of instruction itself. Behavioral objectives describe precisely what the learner will be able to do following the instruction. Objectives are statements of specific, short-term behaviors. They lead step by step to the more general, overall long-term goal. According to Mager (1997), an objective describes a performance that learners should be able to exhibit before they are considered competent.

Subobjectives also may be written and reflect aspects of a main objective. They, too, are specific statements of short-term behaviors

that lead to the achievement of the primary objective. Objectives and subobjectives specify what the learner will be able to do after being exposed to one or more learning experiences.

Objectives must be achieved before the goal can be reached. They must be observable and measurable for the educator to be able to determine whether they have been met by the learner. Objectives can be thought of as advance organizers—that is, statements that inform the learner what is expected from a cognitive, affective, or psychomotor perspective prior to meeting the goal, which is the desired end result or intended outcome (Surbhi, 2015). Objectives are derived from a goal and must be consistent with and related to that goal. As an analogy, a goal can be thought of as an entire pie, the objectives as individual portions of the pie that make up the goal, and the subobjectives as bite-sized pieces of a single portion of the pie.

Together, objectives and goals form a map that provides directions (objectives) as to how to arrive at a specific destination (goal). For example, a goal might be that a patient with heart failure will learn to manage their disease to prevent hospital readmissions. To accomplish this goal, which both the nurse and the patient have agreed on, specific objectives must be outlined to address changes in behavior. These changes may be related to diet, medications, exercise, and fluid monitoring. The objectives to accomplish the goal become the blueprint for attaining the desired outcome of learning.

If the teaching–learning process is to be successful, the setting of goals and objectives must be a mutual decision on the part of both the teacher and the learner. Both parties must participate in the decision-making process and buy into the immediate objectives and ultimate goals. Involving the learner from the beginning in creating goals and objectives is crucial. Otherwise, time and effort on the part of the educator and the learner may be wasted, because the learner may choose to reject the content if it is deemed—at least from their perspective—to be unimportant, irrelevant, impractical, unattainable, or something already known.

Goal and objective setting for any educational experience should be as much a responsibility of the learner as it is of the teacher. Blending what the learner wants to learn with what the teacher has determined that the learner needs to know into a common set of objectives and goals provides for an educational experience that is mutually accountable, respectful, developmental, and fulfilling (Reilly & Oermann, 1990).

Objectives and goals must be clearly written, realistic, and learner-centered. If the objectives and goals do not specifically identify precisely what the learner is expected to do in the short and long term, then the learning process will lack clear guideposts to follow or an obvious outcome to strive for. Likewise, if goals and objectives are unrealistic in that they are too difficult to achieve, the learner can become discouraged, which dampens motivation and interferes with the ability to comply. For instance, a goal that a patient will maintain a *salt-free* diet is likely to be impossible to accomplish or to adhere to over an extended time. Establishing a goal of maintaining a *low-salt* diet, with the objectives of learning to avoid preparing and eating high-sodium foods, is a much more realistic and achievable expectation of the learner.

The Importance of Using Behavioral Objectives

The following key points justify the need for writing behavioral objectives (Ferguson, 1998; Krau, 2011; Morrison et al., 2010; Phillips & Phillips, 2010). The careful construction of well-written objectives:

- Helps to keep educators' thinking on target and learner-centered.
- Communicates to learners and healthcare team members what is planned for teaching and learning.
- Helps learners understand what is expected of them so they can keep track of their progress.
- Forces the educator to select and organize educational materials so they do not get lost in the content and forget the learner's role in the process.
- Encourages educators to evaluate their own motives for teaching.
- Tailors teaching to the learner's unique needs.
- Creates guideposts for teacher evaluation and documentation of success or failure.
- Focuses attention on what the learner will come away with once the teaching–learning process is completed, not on what is taught.
- Orients teacher and learner to the end results of the educational process.
- Makes it easier for the learner to visualize performing the required skills.

Robert Mager (1997) points out three other major advantages in writing clear objectives:

1. They provide a solid foundation for the selection or design of instructional content, methods, and materials.

2. They provide learners with ways to organize their efforts to reach their goals.
3. They help determine whether an objective has, in fact, been met.

As Mager (1997) asks, “If you don’t know where you’re going, how will you know which road to take to get there?” (p. 14). For example, mechanics do not select repair tools until they know what has to be fixed, surgeons do not choose instruments until they know which operation is to be performed, and builders do not buy construction materials before drafting a blueprint. Likewise, teachers should never prepare instructional materials or content until they know the knowledge and skills learners are expected to acquire. Thus, after a nurse educator has identified the needs of an individual learner or group of learners, it is important that the educator clearly state the behavioral objectives to be achieved as well as intended results of instruction (goal) even before proceeding with any other step of the educational process.

The following questions that are still relevant today, summarized by Haggard in 1989, will arise if objectives are not consistently written:

- How will anyone else know which objectives have been set?
- How will the educator evaluate and document success or failure?
- How will learners keep track of their progress?

Developing behavioral objectives not only helps educators explore their own knowledge, values, and beliefs about teaching and learning but also encourages them to examine the experiences, values, motivations, and knowledge of the learner. The writing of objectives is not merely a mechanical task but rather a synthesizing process. Establishing objectives and goals is considered by many educators to be the initial, most important consideration in the teaching and learning experience (Haggard, 1989; Mager, 1997).

Writing Behavioral Objectives and Goals

Well-written behavioral objectives give learners clear statements about what is expected of them. They also assist teachers in being able to measure learner progress toward achieving the objectives. Over the years, Robert Mager's (1997) approach to writing behavioral objectives has become widely accepted among educators. His message to them is that for objectives to be meaningful, they must precisely, clearly, and very specifically communicate the teacher's instructional intent (Arends, 2015).

According to Mager (1997), the format for writing concise and useful behavioral objectives includes the following three important characteristics:

Performance: Describes what the learner is expected to be able to do to demonstrate the kinds of behaviors the teacher will accept as evidence that objectives have been achieved. Activities performed by the learner may be observable and quite visible, such as being able to write or list something, whereas other activities may not be as visible, such as being able to identify or recall something.

Condition: Describes the situations under which the behavior will be observed or the performance will be expected to occur.

Criterion: Describes how well, with what accuracy, or within what time frame the learner must be able to perform the behavior so as to be considered competent.

These three characteristics translate into the following key questions: (1) What should the learner be able to do? (2) Under which conditions should the learner be able to do it? (3) How well must the learner be able to do it? A fourth component must also be included

that describes the “who” to guarantee that the behavioral objective is indeed learner-centered.

Thus, behavioral objectives are statements that communicate *who* will do *what* under *which conditions* and *how well*, *how much,* or *when* (Cummings, 1994). An easy way to remember the four elements that should be in a behavioral objective is to follow the ABCD rule proposed by Smaldino et al. (2019):

A—audience (who)

B—behavior (what)

C—condition (under which circumstance)

D—degree (how well, to what extent, within what time frame)

For example, the following behavioral objective includes these four elements: “After a 20-minute teaching session on relaxation techniques (C – condition), Mrs. Smith (A – audience) will be able to identify (B – behavior) three distinct techniques for lowering her stress level (D – degree).”

Table 10-1 outlines the four-part method of objective writing. **Table 10-2** gives examples of well-written and poorly written objectives.

Table 10-1 The Four-Part Method of Objective Writing

Condition (Circumstance or Testing Situation)	Audience (Identify Who Learner Is)	Behavior (Learner Performance)	Degree (Criterion Reflecting Quality or Quantity of Mastery)
Without using a calculator	the student	will solve	five out of six math problems

Condition (Circumstance or Testing Situation)	Audience (Identify Who Learner Is)	Behavior (Learner Performance)	Degree (Criterion Reflecting Quality or Quantity of Mastery)
Using a model	the staff nurse	will demonstrate	the correct procedure for changing sterile dressings
Following group discussion	the patient	will list	at least two reasons for losing weight
After watching a video	the caregiver	will select	high-protein foods for the patient with 100% accuracy

Table 10-2 Samples of Written Objectives

Well-Written Objectives	Poorly Written Objectives
Following instruction on hypertension, the patient will be able to state three out of four causes of high blood pressure.	The patient will be able to prepare a menu using low-salt foods. [Condition and criterion missing]
On completing the reading materials provided about the care of a newborn, the mother will be able to express any	Given a list of exercises to relieve low back pain, the patient will understand how to control low-back pain. [Performance not stated in measurable terms, criterion missing]

concerns she has caring for her baby after discharge.

After a 20-minute teaching session, the patient will verbalize at least two feelings or concerns associated with wearing a colostomy bag.

After reading handouts, the patient will be able to state three examples of foods that are sources high in protein.

The nurse will demonstrate crutch walking postoperatively to the patient. [Teacher-centered]

During discharge teaching, the patient will be more comfortable with insulin injections. [Performance not stated in measurable terms, condition missing, criterion missing]

The patient will verbalize and demonstrate the proper steps to performing self-catheterization. [Contains two expected behaviors, time frame missing]

After a 20-minute teaching session, the patient will appreciate knowing the steps required to complete a finger stick. [Performance not stated in measurable terms, criterion missing]

Performance Words With Many or Few Interpretations

When writing behavioral objectives using the format suggested by Mager (1997), the recommendation is to use precise action words or verbs as labels that are open to few interpretations when describing learner performance.

An objective is considered most useful when it clearly states what a learner must demonstrate for mastery in a knowledge, attitude, or skill area. A performance verb describes what the learner is

expected to do. A performance may be visible or audible. For example, the learner is able *to list*, *to write*, *to state*, or *to walk*. These performances are directly observable. A performance also may be invisible. For example, the learner is able *to identify*, *to solve*, *to recall*, or *to recognize*. Any performance, whether it is visible/audible or invisible, described by a "doing" word is measurable.

If a word is used to describe something a learner can *be*, then it is not a doing word but rather a being word. Examples of being words, known also as abstractions, include *to understand*, *to know*, *to enjoy*, and *to appreciate* (Mager, 1997). Understanding, knowing, enjoying, and appreciating are considered abstract states of being that cannot be directly measured but merely inferred from performances. Therefore, verbs that signify an internal state of thinking, feeling, or believing should be avoided because they are difficult to measure or observe.

It is impossible to identify all behavioral terms that might potentially be used in objective writing. The important thing to remember in selecting verbs to describe performance is that they must be specific, observable or measurable, and action oriented. As stated by Anderson et al. (2001), "if the teacher can describe the behavior to be attained, it will be easily recognized when learning has occurred" (p. 13). **Table 10-3** gives examples in two columns of terms: one column listing verbs that are not recommended for use because they are too broad, ambiguous, and imprecise to evaluate, and the other column listing verbs that are specific and relatively easy to measure (Gronlund, 1985; Gronlund & Brookhart, 2008).

Table 10-3 Examples of Verbs With Many or Few Interpretations

Terms With Many Interpretations (Not Recommended)	**Terms With Few Interpretations (Recommended)**

Terms With Many Interpretations (Not Recommended)	Terms With Few Interpretations (Recommended)	
to know	to apply	to explain
to understand	to choose	to identify
to appreciate	to classify	to list
to realize	to compare	to order
to be familiar with	to construct	to predict
to enjoy	to contrast	to recall
to value	to define	to recognize
to be interested in	to describe	to select
to feel	to demonstrate	to state
to think	to differentiate	to verbalize
to learn	to distinguish	to write

Data from Gronlund, N. E. (1985). *Stating objectives for classroom instruction* (3rd ed.). Macmillan; and Gronlund, N. E. (2004). *Writing instructional objectives for teaching and assessment* (7th ed.). Pearson Merrill Prentice Hall.

Common Mistakes When Writing Objectives

In creating behavioral objectives, many common mistakes can be easily made by novice and seasoned educators alike. The most frequent errors made in writing objectives are as follows:

- Describing what the teacher does rather than what the learner is expected to do
- Including more than one expected behavior in a single objective (avoid using *and* to connect two verbs—e.g., the learner will select *and* prepare)
- Forgetting to identify all four components of condition, performance, criterion, and who the learner is
- Using terms for performance that are open to many interpretations, are not action oriented, and are difficult to measure
- Writing objectives that are unattainable and unrealistic given the ability level of the learner
- Writing objectives that do not relate to the stated goal
- Cluttering objectives by including unnecessary information
- Being too general so as not to specify clearly the expected behavior to be achieved

If you use the SMART rule, it is easy to create effective objectives for different audiences in diverse settings. This objective-setting process is shown in **Table 10-4**.

Table 10-4 Writing SMART Objectives

Specific	Be specific about what is to be achieved (i.e., use strong action verbs, be concrete).

Measurable	Quantify or qualify objectives by including numeric, cost, or percentage amounts or the degree/level of mastery expected.
Achievable	Write attainable objectives.
Realistic	Resources (i.e., personnel, facilities, equipment) must be available and accessible to achieve objectives.
Timely	State when the objectives will be achieved (i.e., within a week, a month, by the day of patient discharge, before a new staff member completes orientation?).

Data from Glenn M. Parker Associates, Inc. (2000). *Team workout*. HRD Products.

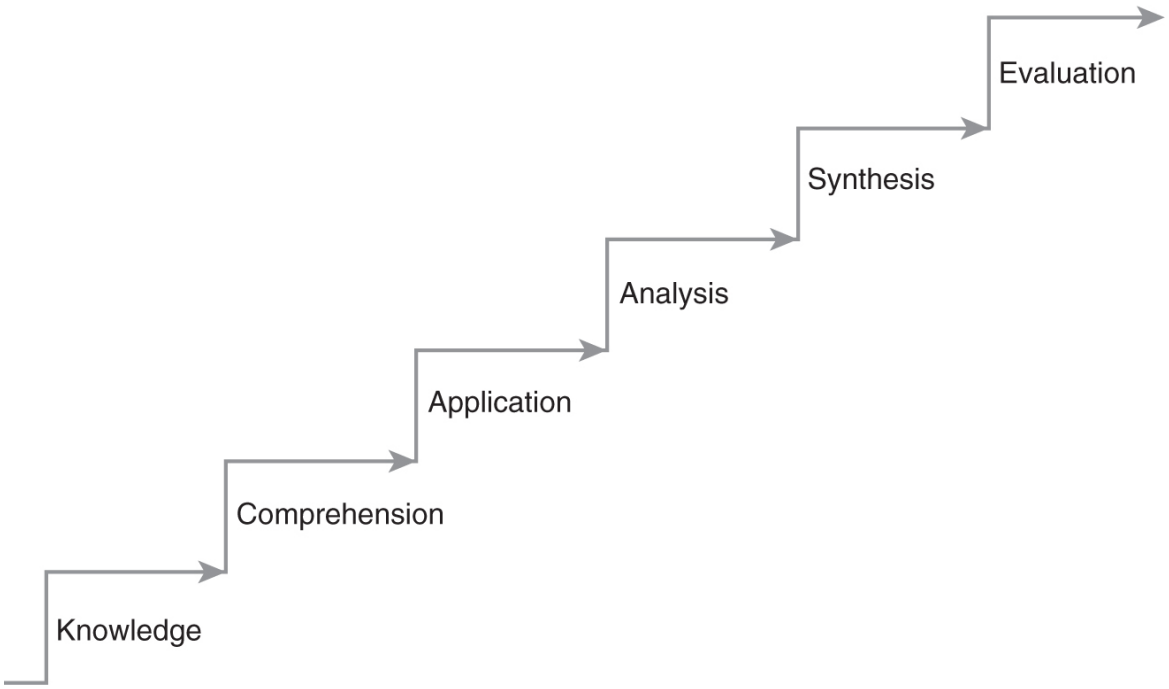
Taxonomy of Objectives According to Learning Domains

A taxonomy is a way to categorize things according to how they are related to one another. For example, in science, biologists use taxonomies to classify plants and animals based on their natural characteristics. In the late 1940s, psychologists and educators became concerned about the need to develop a system for defining and ordering levels of behavior according to their type and complexity (Reilly & Oermann, 1990). Bloom et al. (1956) and Krathwohl et al. (1964) developed a very useful taxonomy, known as the taxonomy of educational objectives, as a tool for classifying behavioral objectives. This taxonomy is divided into three broad categories or domains: cognitive (thinking domain), affective (feeling domain), and psychomotor (doing or skills domain).

Although these three domains of cognitive, affective, and psychomotor learning are described as existing as separate entities, they are interdependent and can be experienced simultaneously. Humans do not possess thoughts, feelings, and actions in isolation from one another and typically do not compartmentalize learning. For example, the affective domain influences the cognitive domain, and vice versa; the processes of thinking (cognitive) and feeling (affective) influence psychomotor performance, and vice versa (Menix, 1996).

In addition to each objective being classified by a domain, each domain is ordered in a taxonomic hierarchy. Behavioral objectives are classified into low, medium, and high levels, with simple behaviors listed first (at the lower end), followed by behaviors of moderate difficulty, with the more complex behaviors listed last (at the higher end). This concept of hierarchy realizes that learners must successfully achieve behaviors at lower levels of the domains before they are able to adequately learn behaviors at higher levels of the domains. Thus, to use an analogy of climbing a ladder, you cannot get to the top unless you go up one step at a time. See **Figure 10-2** for a diagram of the level of complexity of the behaviors in each domain.

COGNITIVE DOMAIN



Description

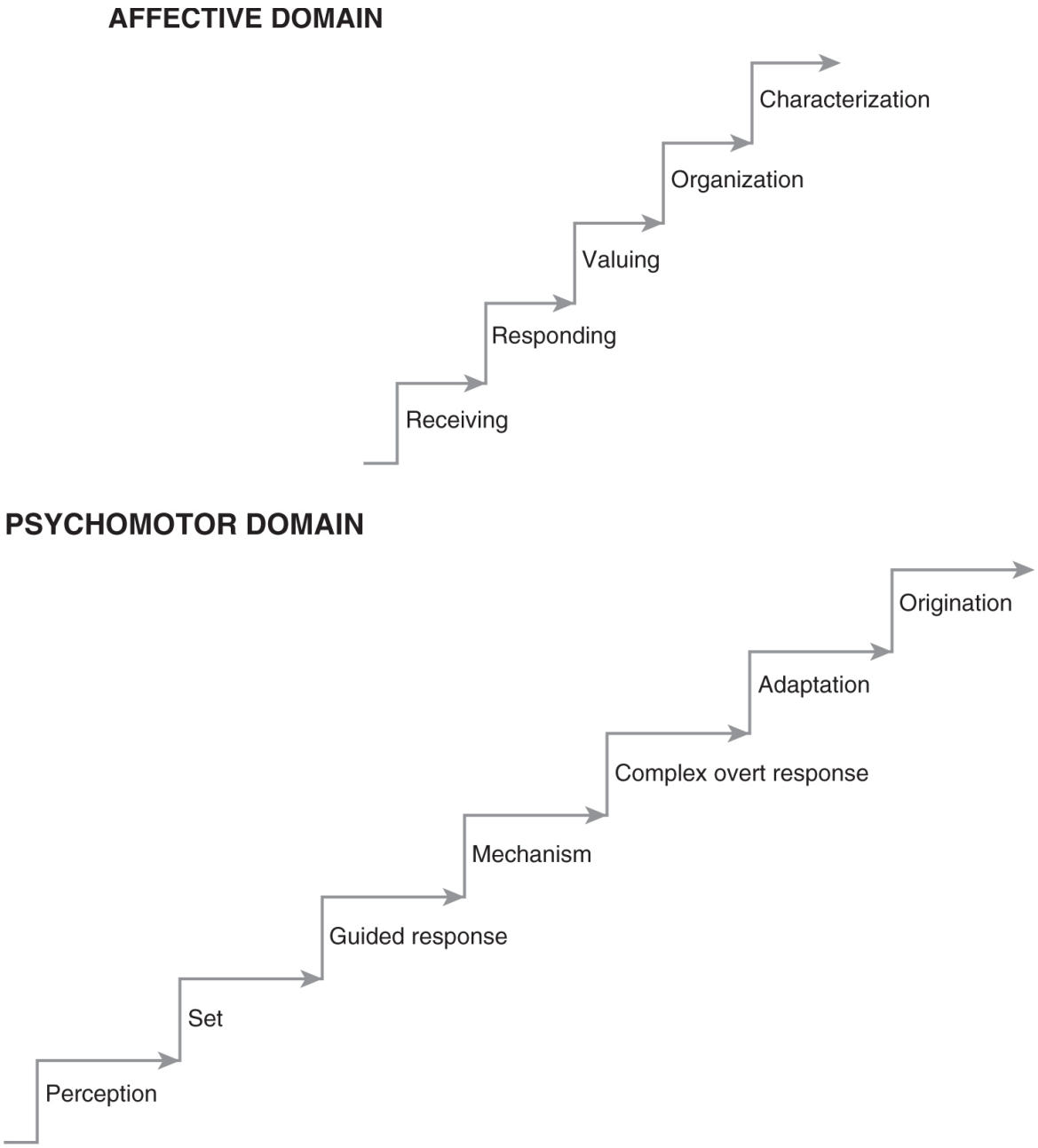


Figure 10-2 Domain hierarchies.

Data from Gronlund, N. E., & Brookhart, S. M. (2008). *Gronlund's writing instructional objectives* (8th ed.). Pearson Merrill Prentice Hall; Krathwohl, D. R., Bloom, B. J., & Masia, B. B. (1964). *Taxonomy of educational objectives: The classification of educational goals*. Handbook II: The affective domain. David McKay; and Simpson, E. J. (1972). The classification of educational objectives in the psychomotor domain. In M. T.

Rainer (Ed.), *Contributions of behavioral science to instructional technology: The psychomotor domain* (3rd ed.). Gryphon Press, Prentice Hall.

Description

The Cognitive Domain

The **cognitive domain** is known as the “thinking” domain. Learning in this domain involves acquiring information and addressing the development of the learner’s intellectual abilities, mental capacities, understanding, and thinking processes (Eggen & Kauchak, 2012). Objectives in this domain are divided into six levels (Bloom et al., 1956), each specifying cognitive processes ranging from the simple (knowledge) to the more complex (evaluation), as seen in Figure 10-2.

Levels of Behavioral Objectives and Examples in the Cognitive Domain

Knowledge level. Ability of the learner to memorize, recall, define, recognize, or identify specific information, such as facts, rules, principles, conditions, and terms, presented during instruction. *Example:* After a 20-minute teaching session, the patient will be able to state with accuracy the definition of chronic obstructive pulmonary disease (COPD).

Comprehension level. Ability of the learner to demonstrate an understanding of what is being communicated by recognizing it in a translated form, such as grasping an idea by defining it or summarizing it in their own words (knowledge is a prerequisite behavior). *Example:* After watching a 10-minute video on nutrition following gastric bypass surgery, the patient will be able to give at least three examples of food choices that will be included in his diet.

Application level. Ability of the learner to use ideas, principles, abstractions, or theories in specific situations, such as figuring, writing, reading, or handling equipment (knowledge and comprehension are prerequisite behaviors). *Example:* On completion of a cardiac rehabilitation program, the patient will modify three exercise regimes that can fit into their lifestyle at home.

Analysis level. Ability of the learner to recognize and structure information by breaking it down into its separate parts and specifying the relationship between the parts (knowledge, comprehension, and application are prerequisite behaviors). *Example:* After reading handouts provided by the nurse educator, the family member will calculate the correct number of total grams of protein included on average per day in the family diet.

Synthesis level. Ability of the learner to put together parts into a unified whole by creating a unique product that is written, oral, or in picture form (knowledge, comprehension, application, and analysis are prerequisite behaviors). *Example:* Given a sample list of foods, the patient will devise a menu to include foods from the four food groups (dairy, meat, vegetables and fruits, and grains) in the recommended amounts for daily intake.

Evaluation level. Ability of the learner to judge the value of something by applying appropriate criteria (knowledge, comprehension, application, analysis, and synthesis are prerequisite behaviors). *Example:* After three teaching sessions, the learner will assess his readiness to function independently in the home setting.

Table 10-5 lists verbs commonly used in writing cognitive-level behavioral objectives.

Table 10-5 Commonly Used Verbs According to Domain Classification

Cognitive Domain	*Knowledge:* choose, circle, cite, count, define, identify, label, list, match, name, outline, read, recall, repeat, report, select, state, tell, write
	Comprehension: associate, describe, discuss, distinguish, estimate, explain, express, generalize, give example, locate, recognize, review, summarize
	Application: apply, demonstrate, examine, illustrate, implement, interpret, modify, order, relate, report, restate, revise, solve, translate, use
	Analysis: analyze, arrange, calculate, classify, compare, conclude, contrast, determine, differentiate, discriminate,

	detect, distinguish, question *Synthesis:* assemble, arrange, categorize, combine, compile, correlate, create, design, devise, detect, generalize, generate, formulate, integrate, manage, organize, plan, prepare, propose, reorganize, revise, specify, summarize *Evaluation:* appraise, assess, conclude, critique, criticize, debate, defend, estimate, evaluate, grade, judge, justify, measure, rank, rate, recommend, review, score, select, test
Affective Domain	*Receiving:* accept, admit, ask, attend, focus, listen, observe, pay attention *Responding:* agree, answer, conform, discuss, express, participate, recall, relate, report, state willingness, try, verbalize *Valuing:* assert, assist, attempt, choose, complete, disagree, follow, help, initiate, join, propose, volunteer *Organizing:* adhere, alter, arrange, combine, defend, explain, express, generalize, integrate, resolve *Characterizing:* assert, commit, discriminate, display, influence, propose, qualify, solve, verify
Psychomotor Domain	*Perception:* attend, choose, describe, detect, differentiate, distinguish, identify, isolate, perceive, relate, select, separate *Set:* attempt, begin, develop, display, position, prepare, proceed, reach, respond, show, start, try *Guided response, mechanism, and complex overt response:* align, arrange, assemble, attach, build, change, choose, clean, compile, complete, construct, demonstrate,

discriminate, dismantle, dissect, examine, find, grasp, hold, insert, lift, locate, maintain, manipulate, measure, mix, open, operate, organize, perform, pour, practice, reassemble, remove, repair, replace, separate, shake, suction, turn, transfer, walk, wash, wipe

Adaptation: adapt, alter, change, convert, correct, rearrange, reorganize, replace, revise, shift, substitute, switch

Origination: arrange, combine, compose, construct, create, design, exchange, reformulate

Data from Gronlund, N. E. (1985). *Stating objectives for classroom instruction* (3rd ed.). Macmillan; and Gronlund, N. E. (2004). *Writing instructional objectives for teaching and assessment* (7th ed.). Pearson Merrill Prentice Hall.

Teaching in the Cognitive Domain

Several teaching methods and tools exist for the purpose of developing cognitive abilities. The methods most often used to stimulate learning in the cognitive domain include lecture, group discussion, one-to-one instruction, and self-instruction activities, such as computer-assisted instruction. Verbal, written, and visual tools are all particularly successful in enhancing the teaching methods to help learners master cognitive content. For example, research has shown computer assisted instruction (CAI) to be as effective as face-to-face nurse counseling to prepare patients for colonoscopy, including the proper methods for bowel preparation (Veldhuijzen et al., 2017).

However, cognitive skills can be gained by exposure to all types of educational experiences, including the instructional methods used primarily for affective and psychomotor learning. For example, the concept of group discussion has been shown as an effective method to teach prenatal care to improve perinatal outcomes (Rotundo, 2012) and as an effective educational strategy for behavioral change in patients undergoing bariatric surgery (Barros et al., 2018). Cognitive domain learning is the traditional focus of most teaching. In education of patients,

as well as nursing staff and students, emphasis remains on the sharing of facts, theories, and concepts. Perhaps this emphasis has evolved because educators typically feel more confident and more skilled in being the giver of information than in being the facilitator and coordinator of learning. Lecture and one-to-one instruction are the most frequently used methods of teaching in the cognitive domain.

With respect to cognitive learning, how much time for practice is necessary to influence the short-term and long-term retention of information? Cognitive scientists have been exploring the allocation of practice time to the learning of new material. Generally, research findings indicate that learning distributed over several sessions leads to increased retention more so than information learned in a single session.

This phenomenon has been described by Willingham (2002) as the "spacing effect." That is, learning information all at once on one day, an approach known as **massed practice**, is much less effective for remembering facts than learning information over successive periods of time, an approach known as **distributed practice**. Massed practice, commonly identified as "cramming," might allow the recall of information for a short time, but evidence strongly supports that distributed practice is very important in forging memories that last for years.

The effect of spreading out learning over time is clear. The average person exposed to distributed practice remembers 67% better than people who receive massed training. That is, spacing the time allocated for learning significantly increases memory. The longer the delays between practice sessions, the greater and more permanent is the learning. In fact, if learning is distributed over time, not only does this spacing effect hold, but it becomes even more robust (Dunlosky et al., 2013; Willingham, 2002). Learning over multiple sessions also has been shown to decrease mental workload and enhance performance (Jaquess et al., 2018; Shuggi et al., 2017).

In addition to the spacing effect to effectively store information (getting knowledge into one's mental space) in the brain, recent education psychology research on learning and memory has identified the importance of retrieval as critical for long-term learning. "Every time a memory is retrieved, that memory becomes more accessible in the future. Retrieval also helps people create coherent and integrated mental

representations of complex concepts, the kind of deep learning necessary to solve new problems and draw new inferences" (Karpicke, 2016, p.2). Often referred to as retrieval-based learning, spaced repetition is an effective and efficient way to enhance memory and has the potential to significantly improve educational outcomes (Goldentouch, 2014; Gupta, 2016; Kang, 2016).

This evidence, when applied to the education of patients, staff nurses, or student nurses, strongly suggests the need to allocate time for the acquisition and retrieval of knowledge. Such scientific findings explain, for example, why teaching a patient on the day of discharge from the hospital is ineffective or why students who cram for a test do not retain the information as well as their counterparts who distributed their learning over an extended length of time and used spaced repetition (Kang, 2016; Willingham, 2002).

The Affective Domain

The **affective domain** is known as the "feeling" domain. Learning in this domain involves an increasing internalization or commitment to feelings expressed as emotions, interests, beliefs, attitudes, values, and appreciations. Whereas the cognitive domain is ordered in terms of complexity of behaviors, the affective domain is divided into categories that specify the degree of a person's depth of emotional responses to tasks. The affective domain includes emotional and social development goals. As stated by Eggen and Kauchak (2012), educators use the affective domain to help learners realize their own attitudes and values.

Although nurses and other health professionals recognize the need for individuals to learn in the affective domain, constructs such as a person's attitudes, beliefs, and values cannot be directly observed but can only be inferred from words and actions (Holt & Hannon, 2006; Maier-Lorentz, 1999). Nurse educators tend to be less confident and more challenged in writing behavioral objectives for the affective domain. This is because it is difficult to develop easily measurable objectives and evaluate learning outcomes based on inferences of someone's observed behavior (Goulet & Owen-Smith, 2005; Morrison et al., 2010). Although the affective domain is the most neglected of the three domains, Pierre and Oughton (2007) contend that the affective domain is the "gateway to learning" (p. 1) in that

it focuses on learner beliefs, attitudes, and values, which influence motivation for learning in the cognitive and psychomotor domains.

Reilly and Oermann (1990) differentiate among the terms *beliefs*, *attitudes*, and *values*. Beliefs are what an individual perceives as reality; attitudes represent feelings about an object, person, or event; and values are operational standards that guide actions and ways of living. Objectives in the affective domain are divided into five categories (Krathwohl et al., 1964), each specifying the associated level of affective responses as seen in Figure 10-2.

Levels of Behavioral Objectives and Examples in the Affective Domain

Receiving level. Ability of the learner to show awareness of an idea or fact or a consciousness of a situation or event in the environment. This level represents a willingness to selectively attend to or focus on data or to receive a stimulus. *Example:* During a group discussion session, the patient will admit to any fears they may have about needing to undergo a repeat angioplasty.

Responding level. Ability of the learner to respond to an experience, at first obediently and later willingly and with satisfaction. This level indicates a movement beyond denial and toward voluntary acceptance, which can lead to feelings of pleasure or enjoyment resulting from some new experience (receiving is a prerequisite behavior). *Example:* At the end of one-to-one instruction, the child will verbalize feelings of confidence in managing their asthma using the peak-flow tracking chart.

Valuing level. Ability of the learner to regard or accept the worth of a theory, idea, or event, demonstrating sufficient commitment or preference to an experience that is perceived as having value. At this level, there is a definite willingness and desire to act to further that value (receiving and responding are prerequisite behaviors). *Example:* After attending a grief support group meeting, the patient will complete a journal entry reflecting their feelings about the experience.

Organization level. Ability of the learner to organize, classify, and prioritize values by integrating a new value into a general set of values; to determine interrelationships of values; and to establish some values as

dominant and pervasive (receiving, responding, and valuing are prerequisite behaviors). *Example:* After a 45-minute group discussion session, the patient will be able to explain the reasons for their anxiety and fears about their self-care management responsibilities.

Characterization level. Ability of the learner to display adherence to a total philosophy or worldview, showing firm commitment to the values by generalizing certain experiences into a value system (receiving, responding, valuing, and organization are prerequisite behaviors). *Example:* Following a series of teaching sessions, the learner will display consistent interest in maintaining good hand-washing technique to control the spread of infection to patients, family members, and friends.

Table 10-5 lists verbs commonly used in writing affective-level behavioral objectives.

Teaching in the Affective Domain

Several teaching methods are powerful and reliable in helping the learner acquire affective behaviors. Role model, role-play, simulation, gaming, questioning, case studies, and group discussion sessions are examples of methods of instruction that can be used to prepare nursing staff and students as well as patients and their families to develop values and explore attitudes, interests, and feelings.

The affective domain encompasses three levels (Menix, 1996) that govern attitudes and feelings:

1. The *intrapersonal level* includes personal perceptions of one's own self, such as self-concept, self-awareness, and self-acceptance.
2. The *interpersonal level* includes the perspective of self in relation to other individuals.
3. The *extrapersonal level* involves the perception of others as established groups.

All three levels are important in affective skill development and can be taught through a variety of methods specifically geared to affective domain learning.

Focusing on behaviors in the affective domain is critically important but is often underestimated (Pierre & Oughton, 2007; Russell-Babin, 2017). Unfortunately, priority is rarely given to teaching in the affective domain. The nurse's focus more often emphasizes cognitive and psychomotor learning, with little time being set aside for exploration and clarification of the learner's feelings, emotions, and attitudes (Miller, 2014; Morrison et al., 2010; Zimmerman & Phillips, 2001).

Nurses must address the needs of the whole person by recognizing that learning is subjective and value-driven (Schoenly, 1994). For nurses practicing in any setting, affective learning is especially important because they constantly face ethical issues and value conflicts (Guido, 2020). In an academic setting, in particular, problem-based learning, group discussions, and debates are ideal teaching methods for developing and refining students' ethical behaviors and decision-making skills (Harasym et al., 2013; Jagger, 2013).

Also, the pluralistic nature of U.S. society requires nurses to respect racial and ethnic diversity in the population groups they serve (Marks, 2009). Additionally, advancing technology also places nurses in advocacy positions when patients, families, and other healthcare professionals struggle with treatment decisions. In turn, patients and family members face the prospects of making moral and ethical choices as well as learning to internalize the value of adhering to prescribed treatment regimens and incorporating health promotion and disease prevention practices into their daily lives.

The setting for teaching and learning is key in helping learners achieve behavioral outcomes. An open, trusting, empathetic, and accepting attitude by nurses sets the foundations for engaging patients and their families in learning. Staff nurses' beliefs, attitudes, and values significantly influence their affective behavior and therefore the quality of nursing care they deliver, as they integrate cultural competency into their nursing practice. A nurse who is teaching students must have a personal value system that coincides with the values of the profession. Three American Nurses Association documents—*Code of Ethics for Nurses With Interpretive Statements* (2015a), *Nursing's Social Policy Statement* (2015c), and *Nursing: Scope and Standards of Practice* (2015b)—provide nurse educators with ethical and value guidelines for professional practice.

Although most teaching and learning of students and staff emphasize the cognitive domain, the affective domain can facilitate their professional identity and values formation (Taylor, 2014), enhance their critical thinking and clinical judgment about ethical and moral issues (Zimmerman & Phillips, 2001), and increase their cultural competence in the delivery of fair and equal treatment in caring for people from many different backgrounds (Hernández & Hadley, 2017; Krause, 2016).

The Psychomotor Domain

The **psychomotor domain** is known as the "skills" domain. Learning in this domain involves acquiring fine and gross motor abilities such as walking, handwriting, manipulating equipment, or performing a procedure. Psychomotor skill learning, according to Reilly and Oermann (1990), "is a complex process demanding far more knowledge than suggested by the simple mechanistic behavioral approach" (p. 81). According to Eggen and Kauchak (2012), "while intellectual abilities enter into each of the psychomotor tasks, the primary focus is on the development of manipulative skills rather than on the growth of intellectual capability" (p. 17).

To develop psychomotor skills, integration of both cognitive and affective learning is required. The affective component recognizes the value of the skill being learned. The cognitive component relates to knowing the principles, relationships, and processes involved in the skill. Although all three domains are involved in demonstrating a psychomotor competency, the psychomotor domain can be examined separately and requires different teaching approaches and evaluation strategies (Reilly & Oermann, 1990). Psychomotor skills are easy to identify and measure because they include primarily movement-oriented activities that are relatively straightforward to observe.

Psychomotor learning can be classified in a variety of ways (Dave, 1970; Harrow, 1972; Moore, 1970; Simpson, 1972). Simpson's system seems to be the most widely recognized as relevant to patient, staff, and student teaching. Objectives in this domain, according to Simpson (1972), are divided into seven levels, from simple to complex, as seen in Figure 10-2.

Levels of Behavioral Objectives and Examples in the Psychomotor Domain

Perception level. Ability of the learner to show sensory awareness of objects or cues associated with some task to be performed. This level involves reading directions or observing a process with attention to steps or techniques in developing a skill. *Example:* After a 10-minute teaching session on aspiration precautions, the family caregiver will describe the best position to place the patient in during mealtimes to prevent choking.

Set level. Ability of the learner to exhibit readiness to take a certain kind of action as evidenced by expressions of willingness, sensory attending, or body language favorable to performing a motor act (perception is a prerequisite behavior). *Example:* Following a demonstration of how to do proper wound care, the patient will express a willingness to practice changing the dressing on his leg using the correct procedural steps.

Guided response level. Ability of the learner to exert effort via overt actions under the guidance of an instructor to imitate an observed behavior with conscious awareness of effort. Imitating may be performed hesitantly but with compliance to directions and coaching (perception and set are prerequisite behaviors). *Example:* After watching a 15-minute video on the procedure for self-examination of the breast, the patient will perform the exam on a model with 100% accuracy.

Mechanism level. Ability of the learner to repeatedly perform steps of a desired skill with a certain degree of confidence, indicating mastery to the extent that some or all aspects of the process become habitual. The steps are blended into a meaningful whole and are performed smoothly with little conscious effort (perception, set, and guided response are prerequisite behaviors). *Example:* After a 20-minute teaching session, the patient will demonstrate the proper use of crutches while repeatedly applying the correct three-point gait technique.

Complex overt response level. Ability of the learner to automatically perform a complex motor act with independence and a high degree of skill, without hesitation and with minimum expenditure of time and energy; performance of an entire sequence of a complex behavior without the need to attend to details (perception, set, guided response, and mechanism are prerequisite behaviors). *Example:* After three 20-minute

teaching sessions, the patient will demonstrate the correct use of crutches while accurately performing different tasks, such as going up stairs, getting in and out of the car, and using the toilet.

Adaptation level. Ability of the learner to modify or adapt a motor process to suit the individual or various situations, indicating mastery of highly developed movements that can be suited to a variety of conditions (perception, set, guided response, mechanism, and complex overt response are prerequisite behaviors). *Example:* After reading handouts on healthy food choices, the patient will replace unhealthy food items she normally chooses to eat at home with healthy alternatives.

Origination level. Ability of the learner to create new motor acts, such as novel ways of manipulating objects or materials, as a result of an understanding of a skill and a developed ability to perform skills (perception, set, guided response, mechanism, complex overt response, and adaptation are prerequisite behaviors). *Example:* After simulation training, the parents will respond correctly to a series of scenarios that demonstrate skill in recognizing respiratory distress in their child with asthma.

Table 10-5 lists verbs commonly used in writing psychomotor-level behavioral objectives.

Another taxonomic system for psychomotor learning proposed by Dave (1970) is based on behaviors that include muscular action and neuromuscular coordination. Dave's system recognizes that levels of skill attainment can be achieved and refined over a period of months depending on the frequency with which the learner uses certain skills in practice. Objectives in this domain, according to Dave, are divided into five levels, as shown in **Table 10-6**.

Table 10-6 Dave's Levels of Psychomotor Learning

Imitation	At this level, observed actions are followed. The learner's movements are gross, coordination lacks smoothness, and errors occur. Time and speed required to perform are based on learner needs.

Manipulation	At this level, written instructions are followed. The learner's coordinated movements are variable, and accuracy is measured based on the skill of using written procedures as a guide. Time and speed required to perform vary.
Precision	At this level, a logical sequence of actions is carried out. The learner's movements are coordinated at a higher level, and errors are minimal and relatively minor. Time and speed required to perform remain variable.
Articulation	At this level, a logical sequence of actions is carried out. The learner's movements are coordinated at a high level, and errors are limited. Time and speed required to perform are within reasonable expectations.
Naturalization	At this level, the sequence of actions is automatic. The learner's movements are coordinated at a consistently high level, and errors are almost nonexistent. Time and speed required to perform are within realistic limits, and performance reflects professional competence.

These taxonomic criteria for the development of psychomotor skill competency suggest that accuracy should be stressed rather than the speed at which a skill is acquired (Reilly & Oermann, 1990). Dave's levels will apply when considering aspects of the learning curve, discussed later in this chapter. Nevertheless, the levels of psychomotor behavior, no matter which taxonomic system is used, require the general and orderly steps of observing, imitating, practicing, and adapting.

Teaching of Psychomotor Skills

Different teaching methods, such as demonstration, return demonstration, simulation, and self-instruction, are useful for the development of motor skills. Also, instructional materials, such as videos (DVDs), audiotapes (CDs), models, diagrams, and posters, are effective approaches for

teaching and learning in the psychomotor domain (Oermann, 2016; Ross, 2012; Salyers, 2007; Truskowski & VanderMolen, 2017). For example, an innovative teaching strategy described by Sterling-Fox et al. (2020) uses video “selfies” to help nursing students master psychomotor skills. They found that this approach to teaching and learning increases students’ confidence in performing the skills, motivates learners to increase the quality and length of practice for skill mastery, and the video served as a faculty assessment tool for individual student instruction and remediation as well as a peer evaluation tool.

When teaching psychomotor skills, it is important for the educator to remember to keep skill instruction separate from a discussion of principles underlying the skill (cognitive component) or a discussion of how the learner feels about carrying out the skill (affective component). Psychomotor skill development is egocentric and usually requires a great deal of concentration as the learner works toward mastery of a skill (Oermann, 1990). However, Nicholls et al. (2018) describe a shift toward competently communicating with a patient during skill performance to enable the delivery of patient-centered care. These authors provide a model to assist the nurse in integrating highly developed verbal communication skills while simultaneously performing psychomotor skills with accuracy.

It is easy to interfere with psychomotor learning if the teacher asks a knowledge (cognitive) question while the learner is trying to focus on the performance (psychomotor response) of a skill. For example, while a nursing student is learning to suction a patient, it is not unusual for the teacher to ask, “Can you give me a rationale for why suctioning is important?” or “How often should suctioning be done for this particular patient?” As another example, while the patient is learning to self-administer parenteral medication, the teacher may simultaneously ask the patient to respond cognitively to the question, “What are the actions or side effects of this medication?” or “How do you feel about injecting yourself?” These questions demand cognitive and affective responses during psychomotor performance.

What the educator is doing in this situation is asking the learner to demonstrate at least two different behaviors at the same time. This approach can result in frustration and confusion, and ultimately it may result in failure to achieve either of the behaviors successfully. It is

essential for the teacher to keep in mind that questions related to the cognitive or affective domain should be posed only *before* or *after* the learner practices a new psychomotor skill (Oermann, 1990).

In psychomotor skill development, the ability to perform a skill is not equivalent to having learned or mastered a skill. Performance is a transitory action, whereas learning is a more permanent behavior that follows from repeated practice and experience (Oermann, 1990). Riding a bicycle is a perfect example of the difference between being able to perform a skill and having mastered that skill. When one first attempts to ride a bicycle, movements tend to be very jerky, and a great deal of concentration is required. Falling off the bicycle is not unexpected in the learning process. Once the skill is learned, however, bicycle riding becomes a smooth, automatic operation that requires minimal concentration. The actual mastery of a skill requires practice to allow the individual to repeat the performance time and again with accuracy, coordination, confidence, and out of habit. Practice does make perfect, so repetition leads to perfection and reinforcement of the behavior.

However, once a task-oriented skill has been practiced, the teacher can introduce **situated cognition**, which is a theory that describes knowing as inseparable from doing. Within this constructivist perspective, learners are challenged to think critically about what they know and can do in the context of the specific situation in which they are functioning. Teaching learners to actively construct knowledge helps them make sense of their experiences and develop their skills of inquiry (Keating & DeBoor, 2017; Woolfolk, 2019).

Some behaviors that are learned do not require much reinforcement, even over a long period of disuse. Yet other behaviors, once mastered, need to be rehearsed or relearned to perform them at the level of skill once achieved. The amount of practice needed to acquire any new skill varies with the individual depending on many factors. Oermann (1990), Bell (1991), and Mwale and Kalawa (2016) have addressed some of the more important variables:

Readiness to learn: The motivation to learn affects the degree of effort exhibited by the learner in working toward mastery of a skill.

Past experience: If the learner is familiar with equipment or techniques similar to those needed to learn a new skill, then mastery of the new skill

may be achieved at a faster rate. The effects of learning one skill on the subsequent performance of another related skill are collectively known as **transfer of learning** (Gomez & Gomez, 1984; Moursund, 2016). For example, if a family member already has experience with aseptic technique in changing a dressing, then learning to suction a tracheostomy tube using sterile technique should not require as much time to master.

Health status: An illness state or other physical or emotional impairments in the learner may affect the time it takes to acquire or successfully master a skill.

Environmental stimuli: Depending on the type and level of stimuli as well as the learning style (degree of tolerance for certain stimuli), distractions in the immediate surroundings may interfere with the ability to acquire a skill.

Anxiety level: The ability to concentrate can be dramatically affected by how anxious someone feels. Nervousness about performing in front of another person is a particularly important factor in psychomotor skill development. High anxiety levels interfere with coordination, steadiness, fine muscle movements, and concentration levels when performing complex psychomotor skills. It is important to reassure learners that they are not necessarily being tested during psychomotor skill performance. Reassurance and support reduce anxiety levels related to the fear of not meeting expectations of themselves or of the teacher.

Developmental stage: Physical, cognitive, and psychosocial stages of development all influence an individual's ability to master a movement-oriented task. Certainly, a young child's fine and gross motor skills as well as cognitive abilities are at a different level from those of an adult. The older adult, too, likely exhibits slower cognitive processing and increased response time (needing more time to perform an activity) compared to younger clients.

Practice session length: During the beginning stages of learning a motor skill, short and carefully planned practice sessions and frequent rest periods are valuable techniques to help increase the rate and success of learning. These techniques are thought to be effective because they help prevent physical fatigue and restore the learner's attention to the task at hand.

Aldridge (2017) conducted a qualitative literature review to explore nursing students' perceptions of psychomotor skills learning. This author identified six themes as key to learning new skills: (1) peer support and peer learning are important; (2) practicing on real people is essential to mastery; (3) faculty members matter during the learning experience; (4) conditions of the environment are essential; (5) knowing that patients need good nursing skills; and (6) anxiety is ever-present because of fear of harming patients. These findings are useful and generalizable in helping faculty to understand students' experiences in the teaching and learning of psychomotor skills.

Performing motor skills is not done in a vacuum; that is, the learner is inevitably immersed in an environmental context full of stimuli. Learners must select those environmental influences that will assist them in achieving the behavior (relevant stimuli) and ignore those factors that interfere with a specific performance (irrelevant stimuli). This process of recognizing and selecting appropriate and inappropriate stimuli is called **selective attention** (Gomez & Gomez, 1984).

Motor skills should be practiced first in a laboratory setting to provide a safe and nonthreatening environment for the novice learner. Today, many nursing education programs have integrated skills labs that use simulation learning. Research by Korhan et al. (2018) has found simulation education to positively effect students' ability to perform psychomotor skills. Gomez and Gomez (1987) also suggest arranging for practice sessions to take place in the clinical or home setting to expose the learner to actual environmental conditions—a technique known as open skills performance learned under changing and unstable environments.

Mental imaging, also referred to as **mental practice**, has surfaced as a helpful alternative for teaching motor skills, particularly for patients who have mobility deficits or fatigue (Page et al., 2009; Page et al., 2001). Research indicates that learning psychomotor skills can be enhanced through use of such imagery. Mental practice, which involves imagining or visualizing a skill without body movement prior to performing the skill, can enhance motor skill acquisition (Page et al., 2009).

Another hallmark of psychomotor learning is the type and timing of the feedback given to learners. Psychomotor skill development allows for spontaneous feedback so that learners have an immediate idea of how

well they performed. During skill practice, learners receive **intrinsic feedback**. This is feedback generated from within the learners, giving them a sense of or a feel for how they have performed. They may sense that they either did quite well or that they felt awkward and need more practice. The teacher also has the opportunity to provide **augmented feedback**. In this case, the teacher shares information or an opinion with the learners or conveys a message through body language about how well they performed (Oermann, 1990). The immediacy of the feedback, along with intrinsic and augmented feedback, makes it a unique feature of psychomotor learning. In addition, performance checklists can serve as guides for teaching and learning and are another effective tool for evaluating the level of skill performance.

An important point to remember is that making mistakes is an expected part in the process of teaching or learning a psychomotor skill. If the teacher makes an error when demonstrating a skill or the learner makes an error during return demonstration, this occasion is the perfect teaching opportunity to offer anticipatory guidance: “Oops, I made a mistake. Now what do I do?” Unlike in cognitive skill development, where errorless learning is the objective, in psychomotor skill development, a mistake made represents an opportunity to demonstrate how to correct an error and to learn from the not-so-perfect initial attempts at performance. The old saying “You learn by your mistakes” is most applicable to psychomotor skill mastery.

The spacing of practice time improves the likelihood that learners will remember new facts, as described by Willingham (2002) earlier in this chapter. The spacing effect seems to apply to the learning of simple as well as complex motor skills. Willingham (2004) also addressed the necessity for practice to be repeated beyond the point of perfection if skill learning is to be long lasting, automatic, and achieved with a high level of competence.

In summary, learning is a complex phenomenon. It can occur in all three domains simultaneously, can happen formally or informally, and can occur in a variety of settings. Evaluation of learning is equally challenging, especially in the affective domain, because affective behaviors are not as obvious and clearly observable as the skills acquired in the cognitive and psychomotor domains.

Clearly, the cognitive, affective, and psychomotor domains represent separate behaviors, yet these domains are interrelated. For example, the performance of a psychomotor skill requires cognitive knowledge or understanding of information. Knowledge might be about the scientific principles underlying a practice or the rationale explaining why a skill is important to carry out. Also, an affective component to performing the skill must be acknowledged. Understanding the feelings and attitudes of learners is essential if the psychomotor behavior is to become integrated into their overall experience. Mastering behavioral objectives in all domains is necessary for the learner to ultimately attain the goal of competence and independence in self-care.

Development of Teaching Plans

After mutually agreed-upon goals and objectives have been written, it should be clear what the learner is to learn and what the teacher is to teach. A predetermined goal and related objectives serve as a basis for developing a teaching plan.

A **teaching plan** is a blueprint to achieve the goal and the objectives that have been developed. Along with listing the goal and objectives, this plan should indicate the purpose, content, methods, tools, timing, and evaluation of instruction. The teaching plan should clearly and concisely identify the order of these various parts of the education process.

Teaching plans are created for three major reasons:

1. To direct the teacher to look at the relationship between each of the steps of the teaching process to make sure that there is a logical approach to teaching.
2. To communicate in writing exactly what is being taught, how it is being taught and evaluated, and the time allotted to meet each of the behavioral objectives. This is essential for the involvement of the patient and each member of the healthcare team.
3. To legally document that an individual plan for each learner is in place and is being properly implemented.

Many healthcare agencies require evidence of teaching plans to meet internal policies, validate evidence-based practices, and adhere to guidelines for accreditation. Many of The Joint Commission's 2020 National Patient Safety Goals include required documentation and evidence of patient teaching (TJC, 2020). Agencies may look to standardize documented teaching plans through the electronic medical record as a means to measure improved outcomes (Zynx Health, 2015). Teaching plans can be presented in many different formats to meet institutional requirements or the preference of the user. However, all eight components must be included for the teaching plan to be considered comprehensive and complete.

A teaching plan should incorporate the following eight basic elements (Ryan & Marinelli, 1990):

1. Purpose (the *why* of the educational session)
2. Statement of the overall goal
3. List of objectives
4. An outline of the content to be covered in the teaching session(s)
5. Teaching method(s) used for instruction of the related content
6. Time allotted for the teaching of each objective
7. Instructional resources (materials/tools and equipment) needed
8. Method(s) used to evaluate learning

A sample teaching plan template is shown in **Figure 10-3**. This format is highly recommended because the columns allow the educator, as well as anyone else who is using it, to see all parts of the teaching plan at one time. Also, this format provides the best structure for determining whether all the elements of a plan fit together cohesively. Always keep in mind that the learner should be an active partner in identifying realistic objectives and goals for learning. The teaching/learning experience must be an interdependent process between the teacher and the learner.

PURPOSE: GOAL:					
Objectives and Subobjectives	**Content Outline**	**Method of Teaching**	**Time Allotted** (in min.)	**Resources** (Instructional materials)	**Method of Evaluation**

Figure 10-3 Sample teaching plan.

Description

When constructing a teaching plan, the educator must be certain that, above all else, internal consistency exists within the plan (Ryan & Marinelli, 1990). A teaching plan is said to be internally consistent when

all eight parts are related to one another. Adherence to the concept of internal consistency requires that the domain of learning for each objective be reflected across each of the elements of the teaching plan, from the purpose all the way through to the end process of evaluation. All parts of the teaching plan need to relate to each other, with the overall intention of meeting the goal. Internal consistency is the major criterion for judging the integrity of a teaching plan. For example, if the nurse has decided to teach a skill with an objective in the psychomotor domain, then the purpose, goal, objectives, content, methods of instruction, instructional materials, amount of time allocated for teaching, and evaluation methods should reflect that specific psychomotor domain. Nurses need to know how to organize and present information in an internally consistent teaching plan.

The following is an example of consistency among the first three elements of a teaching plan:

Purpose: To provide mothers of male newborns with the information necessary to perform postcircumcision care.

Goal: The mother will independently manage postcircumcision care for her baby boy.

Objective: Following a 20-minute teaching session, the mother will be able to demonstrate the procedure for postcircumcision care with each diaper change (psychomotor).

In this example, the purpose, goal, and objective reflect the psychomotor domain. The other elements of content, methods of instruction, instructional resources, time allotment, and evaluation methods also must be appropriate to the psychomotor domain as well to ensure internal consistency of the plan. See **Table 10-7** for a complete teaching plan on safe influenza vaccine administration.

Table 10-7 Teaching Plan for Influenza Vaccine Administration

Purpose: To instruct junior-level (third-year) BSN students on safe annual influenza vaccine administration.
Goal: The identified students will safely assess, administer, and evaluate patients who receive vaccinations during an outreach event, which is part of the students' community health clinical rotation.

Objectives	Content Outline	Method(s) of Teaching	Time Allotted	Resources (Instructional Materials)	Methods of Evaluation
Following completion of an immunization worksheet assignment, a 15-minute classroom lecture, and a simulation lab activity on vaccination immunizations, the nursing students will:					
1. Identify applicable age groups for vaccination and the indications, contraindications, and potential complications of the influenza vaccine (cognitive).	A. History of influenza vaccination B. Types of vaccinations (attenuated, inactivated, toxoid, subunit, mRNA) C. Indications, age groups, and contraindications D. Side effects and complications E. Strategies for patient teaching	Class/Lecture preparation reading and immunization worksheet assignment, PowerPoint lecture	15 minutes lecture time, not including assigned reading	PowerPoint presentation with audiovisual support and presentation screen Course textbook Worksheet assignment	Posttest Immunization worksheet assignment
2. Verbalize confidence in administration of influenza vaccine (affective).	A. Discussion with class, questions and answers B. Case scenarios C. Role-play	Discussion	20 minutes	Classroom Case scenario paperwork Whiteboard	Questions and answers
3. Demonstrate proper clean technique in the preparation and administration of repeated intramuscular vaccinations using model injection pads during simulation (psychomotor).	A. Demonstration by instructor B. Small group practice for skill familiarization C. Intramuscular injection, sign offs with instructor with standardized skills checklist	Demonstration Practice sessions Return demonstration	60 minutes	Assortment of syringes, needles of different gauges and lengths Aseptic technique equipment: gloves, sterile saline, alcohol swabs, gauze, band-aids, injection pad, sharps container, blank immunization record	Observation Return demonstration Skills check-off list

Description

Several factors must be considered when developing a teaching plan and organizing each of the eight components. Even before the teaching plan is developed, a decision needs to be made about what domains should be included. If the purpose and goal are written to accomplish a skill that may include more than one domain, then the teaching plan should reflect one or more objectives for every domain included. In addition, the content, methods of teaching, time allocation, resources, and methods of evaluation should flow across the plan in parallel with each objective and be appropriate for accomplishing the domain of learning related to each objective.

Also, the teacher needs to be conscious and realistic about developing certain elements of a teaching plan. For example, selecting self-instruction in an online format as a method of teaching may not be appropriate for some learners who do not know how to use or who cannot afford to have computers, smartphones, certain types of software, and access to the internet. Although the nurse may find one-on-one teaching the most effective with patients, the expense and time required may be prohibitive.

Selecting group discussion may be more cost effective and more appropriate in meeting the goals and objectives of a teaching plan that is the same for more than one patient with a similar need or problem.

The content outline for each objective depends on the complexity of that objective and how it relates to the goal. The detail of the content to be taught, that is, the amount and depth of information required, depends on the assessment of the learner's needs, readiness to learn, and learning style.

The method(s) of teaching chosen also should be appropriate for the information being taught, the learners, and the setting. If, for example, the purpose is to teach a patient to self-administer medication from an asthma inhaler (psychomotor domain), then the primary methods of teaching should be demonstration and return demonstration. However, if the purpose is to provide knowledge of what a low-fat diet is to a group of individuals with high cholesterol (cognitive domain), then lecture, programmed instruction, or group instruction would be more appropriate teaching methods.

The amount of time for teaching one or more objectives also must be specified. A teaching session should be no more than 15 to 20 minutes in length and certainly no more than 30 minutes. Additional teaching sessions may be required for the learner to achieve each objective and eventually reach the learning goal.

The resources to be used should match the content and support the teaching method(s). For example, when teaching ileostomy wound care and dressing changes, an anatomic model of the stoma plus written and audiovisual materials would be useful instructional tools. Using a variety of resources is ideal to keep the learner's attention, address various learning styles, and reinforce information. Incorporating many different types of resources is especially helpful to the learner with low literacy skills.

Finally, the method(s) of evaluation should match the domains of each objective and validate whether the goal has been met. Evaluation methods must measure the desired learning outcomes to determine if and to what extent the learner achieved the goal. For example, a learner recently diagnosed with coronary artery disease may have a behavioral objective to be able to *state*, *list*, or *circle* the three most important symptoms of a heart attack. In this teaching situation, the evaluation

method to test that knowledge could be a written posttest or the oral question-and-answer approach.

In summary, nurses need to be able to develop teaching plans as part of their professional practice. Developing teaching plans is a challenging skill that should not be underestimated. Just as with any nursing care plan, all elements of a teaching plan need to relate to each other to be truly effective. Table 10-7 is an example of a teaching plan that meets all the rules of construction and has internal consistency. The goal is reflective of the purpose, the objectives are derived from the goal, the content is appropriate to meet the objectives, and the teaching methodology and evaluation methods as well as the resources and timing relate to the content.

If any aspect in a teaching plan is not related to the overall goal, then these components must be revised. Keep in mind that the economics of the teaching plan are a realistic consideration in today's cost-driven healthcare system.

Use of Learning Contracts

The concept of learning contracts is an increasingly popular approach to teaching in nursing and in other health professions and can be implemented with any individual learner or group of learners. A **learning contract** is defined as a written (formal) or verbal (informal) agreement between the teacher and the learner that specifies teaching and learning activities that are to occur within a certain time frame. A learning contract is a mutually negotiated agreement, usually in the form of a written document, drawn up together by the teacher and the learner, that outlines what the learner will learn, what resources will be needed, how learning will be achieved and within what time period, and which criteria will be used for measuring the success of the experience (Jones-Boggs, 2008; Knowles et al., 1998; Matheson, 2003; Robles, 2015; Sajadi et al., 2017). With this contract "learning becomes an active rather than a passive process for students and allows them to become more independent and responsible for their own learning" (Swartz, 2019, p. 372).

Inherent in the learning contract is the existence of some type of reward for upholding the contract (Wallace & Mundie, 1987). For patients and families, this reward may be recognition of their success in mastering a task that helps them move closer to independence in self-care and a high quality of life. Learning contracts are considered an effective teaching strategy for empowering the learner because they emphasize self-direction, mutual negotiation, engagement, and mutual evaluation of established competency levels (Chan & Chien, 2000; Chien et al., 2002; Jones-Boggs, 2008). Many terms have been used to describe this approach, such as independent learning, self-directed learning, and learner-centered or project-oriented learning (Chan & Chien, 2000; Lowry, 1997; Robles, 2015; Sajadi et al., 2017; Waddell & Stephens, 2000).

Learning contracts stress shared accountability for learning between the teacher and the learner (Robles, 2015). The method of contract learning actively involves the learner at all stages of the teaching–learning process, from assessment of learning needs and identification of learning resources to the planning, implementation, and evaluation of learning activities (Jones-Boggs, 2008; Knowles et al., 1998). For example, learning contracts have been used as a low-cost tool to increase students'

academic performance both in the classroom and clinical setting and to encourage independence and self-direction (Bailey & Tuohy, 2009; Frank & Scharff, 2013; Gregory et al., 2009).

Translating the concept of learning contracts to the healthcare environment, they are a unique way of presenting information to the learner. They are the essence of an equal and cooperative partnership, which challenges the traditional teacher–client relationship through a redistribution of power and control. Allowing learners to negotiate a contract for learning shifts the control and emphasis of the learning experience from a traditionally teacher-centered focus to a learner-centered focus. Learning contracts can be especially useful in facilitating the discharge of patients to their home from the hospital or rehabilitation settings. In situations involving the care of a complex patient by multidisciplinary team members, a contract provides a patient-centered, cohesive communication tool between the patient, family caretakers, and the healthcare team (Cady & Yoshioka, 1991; Yetzer et al., 2011).

Components of the Learning Contract

A complete learning contract includes four major components (Knowles, 1990; Knowles et al., 1998; Wallace & Mundie, 1987):

1. *Content:* Specifies the precise behavioral objectives to be achieved. Objectives must clearly state the desired outcomes of learning activities. Negotiation between the educator and the learner determines the content, level, and sequencing of objectives according to learner needs, abilities, and readiness.
2. *Performance expectations:* Specify the conditions under which learning activities will be facilitated, such as instructional strategies and resources.
3. *Evaluation:* Specifies the criteria used to evaluate achievement of objectives, such as skills checklists, care standards or protocols, and agency policies and procedures of care that identify the levels of competency expected of the learner.
4. *Time frame:* Specifies the length of time needed for successful completion of the objectives. The target date should reflect a reasonable period in which to achieve expected outcomes depending on the learner's abilities and circumstances. The completion date is the actual time it took the learner to achieve each objective.

In addition to these four components, it is important to include the terms of the contract. Role definitions delineate the teacher–learner relationship by clarifying the expectations and assumptions about the roles each party will play. The educator is responsible for coordinating and facilitating all phases of the contract process. In the case of nursing staff and student nurse learning, the educator plays a major role in the selection and preparation of preceptors and acts as a resource person for both the learner and the preceptor. **Figure 10-4** presents a sample learning contract.

Name of Learner: _____

Name of Educator: _____

Name of Preceptor (if applicable): _____

Date of Contract Negotiated: _____

Terms of Contract: _____

_____

Objectives	Activities	Evaluation	Target Date	Completion Date
Lists cognitive, affective, and psychomotor behaviors mutually agreed on and intended to be achieved	Lists teaching–learning strategies and resources to be used to achieve the objectives	Lists the criteria to be used to measure learning demonstrated	Lists a realistic time frame for achievement of expected outcome(s)	Specifies the dates that each objective is accomplished

Signatures: _____ **(Learner)** _____ **(Educator)** _____ **(Preceptor)**

Figure 10-4 Sample learning contract.

Description

The Concept of Learning Curve

Learning curve is a common phrase used to describe how long it takes a learner to learn anything new. This phrase, however, often is used incorrectly when referring to learners who have acquired new knowledge (cognitive domain) or have developed new attitudes, beliefs, or values (affective domain). Research, to date, supports the correct use of the term *learning curve*, also sometimes referred to as the *experience curve* theory, only in relation to psychomotor domain learning. The concept of the learning curve is similar to the stages of motor learning described in Chapter 3.

McCray and Blakemore (1985) note that the learning curve "is basically nothing more than a graphic depiction of changes in performance or output during a specified time period" (p. 5). A learning curve shows the relationship between practice and performance of a skill. It provides a concrete measure of the rate at which someone learns a task. In many situations, evidence of learning (improvement) follows a very productive and predictable pattern. Understanding the key concepts surrounding the learning curve is essential for any teacher who is approaching the teaching and learning process when it involves skill development.

Although the learning curve concept has been used in business and industry to measure employee productivity since the early 1900s, a thorough search of the medical and nursing literature reveals little documentation until very recently that this concept was applied to skill practice. The medical profession began to describe the application of this concept to the learning of surgical and other invasive techniques in the first decade of the 21st century (Gawande, 2002; Waldman et al., 2003). Since then, physicians have realized the usefulness of the learning curve concept in determining how long it takes them to become competent in performing procedures using new technologies, such as simulators, laparoscopes, endoscopes, and robotic instruments (Eversbusch & Grantcharov, 2004; Flamme et al., 2006; Hernandez et al., 2004; Hopper et al., 2007; Kruglikova et al., 2010; Manuel-Palazuelos et al., 2016; Murzi et al., 2016; Pusic et al., 2015; Qiao et al., 2014; Resnic et al., 2012; Savoldi et al., 2009). For the nursing profession, only relatively few

sources reveal the concept's application to practice (Burritt & Steckel, 2009; Cheung et al., 2014; Gair, 2012).

Lee Cronbach (1963) was an educational psychologist whose classic work provides the foundation to understanding the concept of the learning curve. Cronbach defines the learning curve, specifically related to psychomotor skill development, as "a record of an individual's improvement made by measuring his ability at different stages of practice and plotting his scores" (p. 297).

According to Cronbach (1963), the learning curve is divided into six stages (**Figure 10-5**):

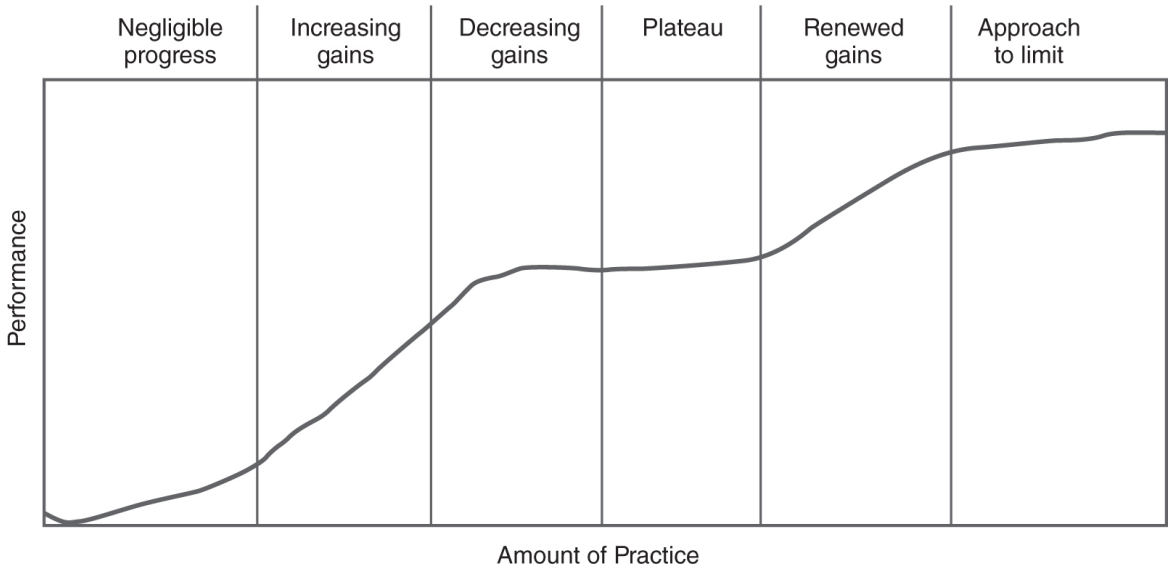


Figure 10-5 A schematic learning curve.

Modified from Cronbach, L. J. (1977). *Educational psychology* (3rd ed.). Harcourt Brace Jovanovich. © 1977 Global Rights & Permissions, a part of Cengage Learning, Inc. Reproduced by permission. http://www.cengage.com/permissions

Description

1. *Negligible progress:* Initially, very little improvement is detected during this stage. This pre-readiness period is when the learner is not ready to perform the entire task, but relevant learning is taking place. This period can be relatively long in young children who are developing physical and cognitive abilities, such as focused attention and gross

and fine motor skills, and in older adults who may have difficulty in perceiving key discriminations.
2. *Increasing gains:* Rapid gains in learning occur during this stage as the learner grasps the essentials of the task. Motivation may account for increased gains when the learner has interest in the task, receives approval from others, or experiences a sense of pride in discovering the ability to perform.
3. *Decreasing gains:* During this stage the rate of improvement slows, and additional practice does not produce such steep gains. Learning occurs in smaller increments as the learner incorporates changes by using cues to smooth out performance.
4. *Plateau:* During this stage no substantial gains are made. This leveling-off period is characterized by a minimal rate of progress in performance. Instead, the learner is making other adjustments in mastering the skill. The belief that there is a period of no progress is considered false because gains in skills can occur even though overall performance scores remain stable.
5. *Renewed gains:* The rate of performance rises again during this stage and the plateau period has ended. These gains usually are from growth in physical development, renewed interest in the task, a response to challenge, or the drive for perfection.
6. *Approach to limit:* During this stage, progress becomes negligible. The ability to perform a task has reached its potential, and the learner cannot improve no matter how much more they practice. However, this is a hypothetical stage because individuals never truly stop learning.

Individual learning curves are irregular (**Figure 10-6**) and often do not follow a smooth theoretical curve, as seen in Figure 10-5. Such factors as attention, interest, energy, ability, situational circumstances, and favorable or unfavorable conditions for learning provide the ups and downs that are expected in performance (Barker, 1994; Cronbach, 1963; Gage & Berliner, 1998; Woolfolk, 2019). It is important to note that the learning curve can be skewed by the reliability of the performance. Any novice can occasionally perform a skill correctly (beginner's luck), but what counts is consistency in the progress that is key to actually learning the skill. As Atherton (2013) states, it is incorrect to use the cliché "steep learning curve" to imply that something is difficult to learn. In fact, the opposite is true. As a learner practices a difficult skill, in almost all cases the line rises

slowly, not quickly, over time. In other words, a steep, short learning curve indicates that the learner mastered a skill rapidly and easily.

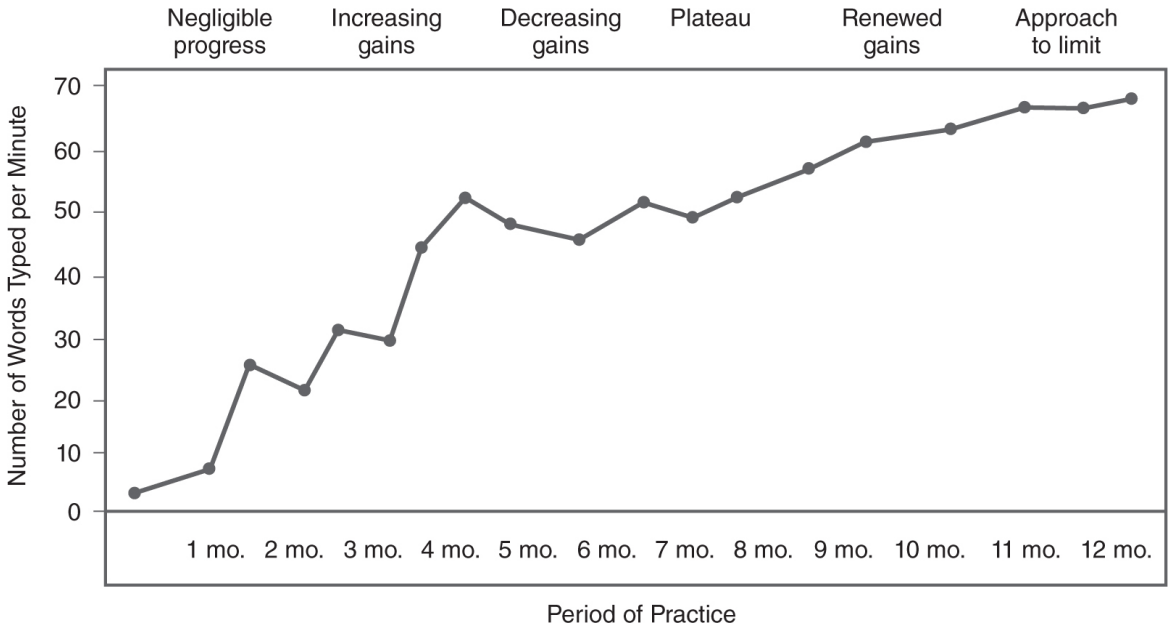


Figure 10-6 Learning curve during one year of typing practice.

Data from Cronbach, L. J. (1963). *Educational psychology* (2nd ed.). Harcourt, Brace & World.

Description

More nursing research needs to be conducted on applying the learning curve concept to the teaching and learning of psychomotor skills. Such studies would help educators to improve their understanding of various dimensions of the teaching and learning process related to mastering skills. Also, as Pusic et al. (2012) point out, learning curves show the relationship between practice and proficiency but a **forgetting curve**, a relatively new concept, demonstrates how skills can decay over time when not reinforced by repeated practice. These authors suggest that learning and forgetting curves can be combined to create experience curves, which are "longitudinal representation[s] of the relationship between practice, skill acquisition, and decay over time" (p. 1).

In relation to patient, staff, and student teaching, research might answer such questions about learning curves as the following:

- Can a learning curve be shortened given the characteristics of the learner, the situation, or the task at hand?
- Why is the learning curve steeper, more drawn out, or more irregular for some learners than for others?
- Can we predict the learning curves of our students depending on their educational or experiential backgrounds?
- How many times, on average, does a particular skill need to be practiced to improve competency and ensure consistency of performance?
- What can we do from an educational standpoint to influence the pace and pattern of learning that may result in earlier or more complete achievement of expected outcomes?
- How can the learning curve concept be applied to improve staff performance, thereby increasing work satisfaction and productivity, decreasing costs of care, and improving the quality and safety of care?

Answers to these questions might provide new approaches for evidence-based practice changes for nurses involved in the teaching and learning process.

Many advantages can result by applying concepts of the learning curve to patient teaching and staff and student education. Perhaps the most important understanding of this concept is the realization that the pattern and pace of learning are typically irregular. The learning of any task is initially slow, then more rapid, inevitably decreases, reaches a plateau, and then increases again. After this point, a limit is reached when no more significant improvement is likely to be achieved. Understanding this phenomenon can help educators adjust their expectations (or deal with their frustrations) when different paces and patterns of learning occur in individuals as they attempt to master any psychomotor skill. It can also provide early warning to an educator if a learner is falling behind the expected curve (Pusic et al., 2015).

When the teacher shares with patients, staff, and students that the amount of practice needed to improve performance is very individualized, these learners may find their frustrations are reduced and their expectations become more realistic. For example, a patient who is undergoing rehabilitation to learn how to walk again following an injury may easily become discouraged with the lack of progress they are

making. This happens as the pace of learning varies over time. Also, the patient may experience a time at the beginning or in the middle of the curve when they seem not to be learning at all. Educators can realistically support the learner if they understand that the pace and pattern of skill development are based on the concept of the learning curve.

State of the Evidence

Nurse educators not only require knowledge and experience to teach various audiences of learners effectively, but they also need the clinical evidence to prove their teaching methods and interventions are effective. Evidence should be based on up-to-date research to help guide the nurse in the delivery of evidence-based care. The nurse should identify the types of information needed in specific situations and be competent in accessing the appropriate databases to obtain the information and research necessary to carry out all aspects of the educator role (Horntvedt et al., 2018; Lehane et al., 2018). Pierce (2005) notes that this "leads to an increased awareness for the need for appropriate information to provide best care, solve an identified clinical problem, or facilitate a change in practice" (p. 236).

Plenty of evidence has established the value and utility of behavioral objectives for teaching and learning. Also, numerous research studies in the psychology literature have substantiated the framework, known as the taxonomic hierarchy, for categorizing behaviors (cognitive, affective, and psychomotor) according to type (domain) and complexity (level of difficulty). Furthermore, a body of knowledge is available on how to develop internally consistent teaching plans using these behavioral objectives to legally document and properly implement individual plans of care for patient education. Such plans are often mandated by accrediting bodies of healthcare agencies and organizations.

Although the use of learning contracts is a relatively new concept, educational psychologists have conducted developmental research that provides evidence of adult learners' need for independent, self-directed, problem-centered, and participatory learning. In contrast, the concept of the learning curve—although a term superficially and widely adopted by educators—has not been well defined, well explored, or well adopted for its theoretical application to teaching

and learning in the health professions. Only recently has evidence been uncovered regarding its reliability and validity in patient and nursing and medical education for psychomotor skill acquisition. Indeed, more research needs to be conducted in nursing to demonstrate that the learning curve concept is a useful principle for nurse educators to incorporate into the process of teaching and learning.

Summary

The major portion of this chapter focused on differentiating goals from objectives, preparing accurate and concise objectives, classifying objectives according to the three domains of learning, and teaching cognitive, affective, and psychomotor skills using appropriate teaching methods and instructional materials. Writing behavioral objectives accurately and effectively is fundamental to the education process. Goals and objectives serve as a guide to the educator in the planning, implementation, and evaluation of teaching and learning. The communication of desired behavioral outcomes and the mechanisms for accomplishing behavioral changes in the learner are essential elements in the decision-making process with respect to both teaching and learning.

Assessment of the learner is a prerequisite to formulating objectives. The teacher must have a clear understanding of what the learner is expected to be able to do well before selecting the content to be taught and the methods and materials to be used for instruction. Objective-setting must be a partnership effort engaged in by both the learner and the teacher for any learning experience to be successful and rewarding in the achievement of expected outcomes.

Also, this chapter outlined the development of teaching plans and briefly discussed learning contracts and the concept of the learning curve. Teaching plans provide the blueprint for organizing and presenting information in a coherent manner. Nurses need to develop skills in writing teaching plans that reflect internal consistency of all the components. Learning contracts can be an innovative, unique, patient-centered alternative to structuring an adult learning experience, especially in the home and rehabilitation settings. They also are an effective student-centered learning approach. Regardless of the audience, they are designed to encourage learners to be self-directed, which increases their level of active involvement and accountability during the learning process.

As for the concept of the learning curve, it is important that the nurse understand this concept as an essential teaching strategy in helping learners develop and refine their psychomotor skills. More nursing research needs to be done to yield findings from evidence-based practice in applying the learning curve concept to patient care, as well as staff and student education.

Review Questions

1. What are the definitions of the terms *goal* and *objective*?
2. Which two major factors distinguish goals and objectives from each other?
3. What reasons justify the importance of using behavioral objectives in teaching?
4. What are the four components that should be included in every written behavioral objective?
5. Which types of mistakes are commonly made when writing behavioral objectives?
6. What are the three domains of learning?
7. What levels of behavior are considered the simpler versus the more complex in the cognitive, affective, and psychomotor domains?
8. Why is it important for the nurse educator to keep psychomotor skill instruction for the novice learner separate from the cognitive and affective components of skill development?
9. Which factors influence the amount of practice required to learn any new skill?
10. What are the eight basic components of a teaching plan?
11. Why is the concept of the learning curve important in the development of psychomotor skills?

CASE STUDY

You are a home health nurse visiting a patient, Albert, who is an 83-year-old male. He was recently discharged from the hospital after a long inpatient stay for multiple medical issues including a congestive heart failure (CHF) exacerbation, coronary artery disease (CAD), and urinary retention from benign prostatic hyperplasia (BPH). Due to his BPH, he has been discharged with an indwelling Foley catheter. He received extra Foley-related supplies including a leg bag, which he can use instead of his larger urinary collection bag.

His 81-year-old wife and 55-year-old daughter are also at the house when you arrive for your visit.

Albert is happy to be home. He expressed that he had a lot of difficulty sleeping in the hospital and has had a hard time remembering all of the new instructions he was given, which include dietary and medication changes related to his CHF, CAD, and BPH. He has a follow up with a urologist in 1 week for trial removal of the Foley after starting alfuzosin. His wife and daughter have been emptying his urine bag, but they expressed a lack of confidence in how to switch to his leg bag for his follow-up appointment with his cardiologist tomorrow.

In addition to medication and dietary reconciliation, which will also be goals addressed during this visit, your first goal for today's visit focuses on Foley care instruction, including changing to a leg bag.

1. List two factors or variables that might affect the performance of catheter care as a new skill.
2. What additional assessments and information would you gather before formulating a teaching plan?
3. List the goal and purpose for learning in Albert's teaching plan.
4. List one cognitive, one affective, and one psychomotor objective to achieve the goal for learning.

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CHAPTER 11

Teaching Methods and Settings

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CHAPTER HIGHLIGHTS

- Teaching Methods
  - Lecture
  - Group Discussion
  - Cooperative Learning
    - Team-based learning (TBL)
    - Peer-assisted Learning
    - Debate
    - Problem-based Learning
    - Jigsaw
    - Think-Pair-Share/Write-Pair-Share
    - Self-Reflection
    - Service Learning
    - Concept Mapping
    - Case-Based Learning
    - Seminar
  - One-to-One Instruction
  - Demonstration and Return Demonstration
  - Gaming
  - Simulation
  - Role Play
  - Role Model
  - Self-Directed Learning
  - Remote Learning
- Selection of Teaching Methods
- Educator Self-Assessment
- Evaluation of Teaching Methods

- Characteristics of a Great Teacher
- Settings for Teaching
    - Sharing Resources Among Settings
- State of the Evidence

In the section “Settings for Teaching” in this chapter, the information was taken directly from Virginia E. O’Halloran’s work as the original author of Chapter 14, Instructional Settings, in Bastable, S. B. (Ed.). (2003). *Nurse as educator: Principles of teaching and learning for nursing practice* (2nd ed., pp. 465–492). Jones & Bartlett Publishers.

KEY TERMS

case-based learning

collaborative learning

concept mapping

cooperative learning

debate

demonstration

gaming

group discussion

healthcare setting

healthcare-related setting

jigsaw

lecture

nonhealthcare setting

one-to-one instruction

peer-assisted learning

problem-based learning

remote learning

return demonstration

role model

role-play

scaffolding

self-directed learning

self-reflection

seminar

service learning

settings for teaching

simulation

teaching method

team-based learning

think-pair-share/write-pair-share

Objectives

After completing this chapter, the reader will be able to:

1. Define the term *teaching method*.
2. Explain the various types of teaching methods.
3. Describe how to use each method effectively.
4. Identify the advantages and limitations of each method.
5. Discuss the variables that influence the selection of the various methods.
6. Recognize techniques used by great teachers to enhance teaching effectiveness.

7. Explain how to evaluate teaching methods.
8. Classify settings for teaching according to the primary purpose of the organization, institution, or agency in which the nurse functions as educator.

After an excellent learning experience, someone might comment, “Now, there is a born teacher!” This statement would seem to indicate that effective teaching comes naturally. Actually, being able to teach well is an acquired skill. Developing this skill requires understanding the educational process, including which teaching methods to use under what circumstances. Determining the most appropriate teaching methods depends on a variety of differences: the age and developmental level of the learners; what the learners already know and what they need to know to succeed; the subject-matter content; the objectives for learning; the available people, time, space, and material resources; and the physical setting. Stimulating and effective teaching–learning experiences are designed, not accidental or automatic, and involve the use of one or several methods of teaching to achieve the desired learning outcomes (Rothwell et al., 2016; Rothwell & Kazanas, 2008; Weimer, 2017).

A **teaching method** is the way information is taught that brings the learner into contact with what is to be learned. Examples of such methods include lecture, group discussion, cooperative learning strategies, one-to-one instruction, demonstration and return demonstration, gaming, simulation, role-play, role model, and self-directed learning techniques. As the use of technology evolves, these teaching methods also are being offered as blended opportunities by integrating online and hybrid learning strategies (Cook et al., 2008; Johnson et al., 2012). See Chapter 12 for information on instructional materials, including computer learning resources, and Chapter 13 for more information on technology in education.

Instructional materials or tools, in contrast to teaching methods, are the objects or vehicles used to transmit information that supplement the act of teaching. Audience response systems (ARSs), books, written materials, videos, podcasts, posters, and computers are just some examples of materials and tools that serve as adjuncts to communicate information by complementing the teaching method. It is important at this point to draw a distinction between the terms *teaching methods* and *instructional*

materials. Although they often are treated as being the same thing, they are very distinct and separate (see Chapter 12).

This chapter focuses on the types of teaching methods available and considers how to choose and use them most efficiently and effectively. In doing so, the advantages and limitations of each method, the variables influencing the selection of various methods, and the approaches for evaluating the methods are identified to improve the delivery of instruction. In all types of situations and settings, nurses are expected to teach a variety of audiences. Therefore, throughout this chapter, examples are provided about how to apply the various methods to enhance teaching and learning experiences. Settings in which the nurse educator functions also are highlighted.

Teaching Methods

There is no one perfect method for teaching all learners in all settings. Also, no one method is necessarily more effective for changing behavior in any of the three learning domains (cognitive, affective, and psychomotor). Whatever the method chosen, people learn best when it is used in conjunction with another method or with one or more of the instructional materials available to accompany the teaching approach (Friedman et al., 2011).

The importance of selecting appropriate teaching methods to meet the needs of learners should not be underestimated. The popular ancient Chinese proverb “I hear, I forget. I see, I remember. I do, I understand.” (authored by philosopher Xun Kuang) was later translated by Benjamin Franklin to “Tell me; I forget. Show me; I remember. Involve me; I understand.” (quoteinvestigator.com). This motto clearly implies that information retention rates vary with different teaching methods. Using methods of instruction that actively involve learners improves the amount of information they retain and their ability to think critically and, thus, positively affects their learning outcomes (Reuell, 2019; Ridley, 2007; Tedesco-Schneck, 2013).

The nurse educator functions in the vital role of teacher by facilitating, guiding, and supporting the learner in acquiring new knowledge, attitudes, and skills. Even though an educator may tend to rely on one teaching method, a single method is rarely adhered to in a pure fashion. Instead, various methods are often used in combination with one another. For example, an educator may choose lecture as the primary teaching approach but also allow the opportunity for question-and-answer periods and short discussion sessions throughout the lecture.

When considering the many teaching methods available, the following major factors should be taken into account:

- Audience characteristics (size, diversity, learning style preferences, needs, abilities)
- Educator's expertise as a teacher
- Objectives of learning
- Potential for achieving learning outcomes
- Cost-effectiveness
- Setting for teaching
- Evolving technology

These and many other variables are addressed in the following review of the methods of instruction available for teaching and learning. Keep in mind that some of the methods are more appropriately and commonly used for teaching patients and their families, other methods are more appropriate and more often used for teaching nursing students and staff, and some of the methods can be effectively used to teach any audience of learners. Although not formally categorized into traditional and nontraditional methods of teaching, some of these methods will be recognized as long-standing approaches to teaching whereas others are relatively newer strategies that emphasize more active and cooperative group work and include those that rely on computer technology delivery.

Lecture

Lecture can be defined as a highly structured method by which the educator verbally transmits information directly to a group of learners for the purpose of instruction. It is one of the oldest and most often used approaches to teaching. The word *lecture* comes from the medieval Latin term *legere,* which means "to read" and the French word *lecture*, which means "reading."

The lecture method has been highly criticized in recent years because, in its purest form, the lecture format is teacher centered and allows for only minimal exchange between the educator and the learner. Also, critics of the lecture method have specifically expressed concern about the passive role of learners (DeYoung, 2014; Kurle et al., 2018). However, as Brookfield (2006) points out,

“An abused method calls into question the expertise of those abusing it, not the validity of the method itself” (p. 99). Therefore, if a lecture is well organized and delivered effectively, it can be a very useful, time-efficient, cost-effective method of instruction (Bain, 2004; Bartlett, 2003; Brookfield, 2006; Kurle et al., 2018; Paris, 2014).

The lecture format primarily influences learning in the cognitive domain and is helpful as a means to describe patterns, highlight main ideas, and present unique ways of viewing information, such as introducing an agency’s mission statement to new nursing staff orientees or explaining diabetes mellitus to a group of patients. The lecture should not be employed, however, to give people the same information that they could read independently at another time and place. It is the lecturer’s expertise, both in theory and experience, that contributes significantly to the learner’s understanding of a topic.

The lecture is an ideal way to provide conceptual knowledge and foundational background information as a basis for follow-up group discussions (Charlton, 2006). Also, it is a means to summarize data and current research findings not available elsewhere (Brookfield, 2006). Although the lecture is considered by many to be boring, it can easily be complemented with transactional strategies, such as short question and answer sessions, or supplemented with instructional materials, such as audiovisual tools, to make it more stimulating, interactive, and effective (Bajak, 2014; DePaul University, 2016; Hultquist, 2021; Kelly, 2019).

Lecturing is an acquired skill that is learned and perfected over time, and it is a more complex task than commonly thought (Young & Diekelmann, 2002). Specific strategies exist to strengthen the effectiveness of a lecture (Cantillon, 2003; Kelly, 2019). According to Silberman (2014) and Kelly (2019), the following approaches enhance the effective transfer of knowledge during a lecture:

- *Set goals by using opening and summary statements*. At the beginning of the lecture, present major points to help learners become oriented to the objectives and the subject, and at the

end, provide conclusions to remind learners about the main points made.
- *Be flexible.* Practice responsive teaching by listening to what learners are saying and, if they say or do something that changes the lecture plan, adjust teaching to meet their needs in the moment.
- *Present key terms*. Reduce the major points in the lecture to some key words that act as verbal cues or memory jogs.
- *Offer examples*. When possible, provide real-life illustrations of the ideas in the lecture.
- *Use analogies*. If possible, compare the content that is being presented to the knowledge that learners may already have.
- *Use visual backups*. Use a variety of media to help learners see as well as hear what is being said.

Each lecture should include three main parts:

1. *Introduction*: An overview of behavioral objectives to be accomplished and their significance. An icebreaker related to the topic, such as a puzzle, a series of questions, a cartoon, or a song, can be used to grab the attention of the learners and focus them on the content.
2. *Body:* Delivery of the content, which can be enhanced with other teaching methods and/or instructional materials, such as audiovisuals tools to stimulate and engage the audience.
3. *Conclusion*: A summary of major concepts reinforces information presented. A short amount of time should be set aside for questions and answers, if possible.

The educator's speaking skills and nonverbal behavior also are important to the delivery of a lecture. According to Weimer (2017) and Palis and Quiros (2014), the variables of speech (e.g., volume, rate, pitch/tone, pronunciation, enunciation, grammar, and avoiding the use of "ums") and body language (e.g., eye contact with audience, nonrepetitive movement, enthusiasm) as well as conveying self-confidence and demonstrating professionalism need to be considered to capture and keep the audience's attention.

Nervous or inexperienced educators should practice first before a mirror, a video camera, or a colleague (Germano, 2003; Palis and Quiros, 2014). They should outline just the key points of their presentation on index cards, handouts, or PowerPoint slides. The panel beneath a PowerPoint slide is a place to add speaker notes. During the actual lecture, they can use the outline information to elaborate on the topic by giving examples and further explanations.

Educators should address a large audience as if speaking to an individual listener. Also, they should move around the stage or room and vary their presentation style and tone of voice to avoid monotony. Demonstrating enthusiasm, expertise, and interest in the topic will capture and hold the audience's attention. Finally, educators should be sure to keep within the time allotted. Lectures of long duration can result in loss of attention and boredom on the part of the learners.

Using audiovisual materials, such as videos, ARSs, or PowerPoint slides, also can add variety to a lecture. The widespread availability of technology makes it easy to enhance a presentation—but only if the technology is used wisely. When developing PowerPoint slides, for example, educators should adhere to the following general guidelines to keep the information being conveyed simple and easy to understand (DeGolia, 2016; Evans, 2000):

- Do not put all content on slides; only include the key concepts to supplement the presentation.
- Use the largest font possible.
- Do not exceed 25 words per slide.
- Choose colors that provide a high level of contrast between background and text if presenting in a large room with bright lights.
- Use graphics (figures and tables) to summarize important points, to succinctly present information, or to share large amounts of numerical data.
- Do not overdo the use of animation (moving figures), which can be very distracting to the audience.

Thanks to new technologies, lectures are now being delivered online to an even greater number and variety of learners in locations remote from one another. Although the lecture method is considered efficient and cost effective, no matter whether delivered in person or online at a distance, the effort put into its design and delivery should not be determined just by calculating the educator–learner ratio of contact hours. Educators must take into consideration other factors, such as educator preparation time, the frequency with which the same material needs to be repeated to different audiences, and follow-up time required to individualize learning and evaluate outcomes.

Table 11-1 highlights the major advantages and limitations of lecture as a method of teaching.

Table 11-1 Major Advantages and Limitations of Lecture

Advantages	Limitations

Advantages	Limitations
	Largely ineffective in influencing affective and psychomotor behaviors.
Influences cognitive learning, especially at lower levels of the cognitive domain.	Used alone in its purest form, does not provide for much stimulation or participatory involvement of learners.
An efficient, cost-effective means for transmitting large amounts of information to a large audience of learners at the same time and within a relatively reasonable time frame.	Very instructor centered and thus the most active participant is frequently the most knowledgeable one—the teacher.
Useful to describe patterns, highlight main ideas, summarize data, and present unique ways of viewing information.	Does not account for individual differences in background, attention span, or learning style.
Useful in providing foundational background information as a basis for subsequent learning, such as group discussion.	All learners are exposed to the same information regardless of their cognitive abilities, learning needs, or stages of coping.
Easily supplemented with printed handouts and other audiovisual materials to enhance learning.	The diversity within groups makes it challenging, if not impossible, for the teacher to reach all learners equally.

Group Discussion

Group discussion is defined as a method of teaching whereby learners get together to actively exchange information, ideas, feelings, and opinions with one another and with the educator. As an educational strategy, it is an effective teaching methodology for patient and family education. Group discussion provides not only a forum for the educator to share information with them, but also for participants to ask questions and exchange thoughts, doubts, and experiences (Barros et al., 2018). Also, it is a popular instructional strategy with health professional students and staff to enhance deeper understanding of a subject and promote reflective thinking. For all types of learners, it helps them achieve learning objectives.

In general, the benefits of group discussions are that they lead to longer retention of knowledge and skills, increased social support, greater transfer of learning from one situation to another, more positive interpersonal relationships, more favorable attitudes toward learning, and more active learner participation (Brookfield, 2006; Brookfield & Preskill, 2005; Harris, 2015; Johnson et al., 2007; Oakley & Brent, 2004). As a commonly used instructional technique, this method is learner centered as well as subject centered. Group discussion is a useful method for teaching in both the affective and cognitive domains (Feingold et al., 2008).

Preset behavioral objectives should be the focus when using group discussion as a methodology with patients, nursing staff, or nursing students. These objectives drive the achievement of learning outcomes for the interaction with all audiences of learners and should be presented at the beginning of each group session. Careful adherence to them will prevent the discussion from becoming an aimless wandering of ideas or a forum for the strongest group member to expound on their opinions and feelings (Billings & Halstead, 2020). The group, functioning as a cooperative “dynamic whole,” motivates its members to move toward accomplishing one or more common goals (Johnson et al., 2007).

Group size is a major consideration and should be determined by the purpose or task to be accomplished and concepts for application to personal situations or professional practice. Group size can vary somewhat, but discussion is most effective with relatively small groups (ideally between four to eight people). This allows learners the opportunity to ask questions, explore ideas and concerns, understand the significance of the topic to the real world, and to be more interactive with one another (DeYoung, 2014; Feingold, 2008).

Educator involvement and control of the process will vary with the needs of the group members. For example, although diversity within a group of patients is beneficial, a wide range of literacy skills, states of anxiety, and experiences with acute and chronic conditions may lead to difficulty in meeting any one member's needs. Also, group discussion requires the educator to be able to tolerate less structure and organization than other teaching methods, such as lecture or one-to-one instruction.

The group discussion method requires that the group itself have some amount of background knowledge of the content before this method can be effective (Billings & Halstead, 2020); otherwise, the discussion is just brainstorming and will be based on *pooled ignorance*. As an example, a group of staff with a significant amount of practical knowledge and expertise may need little input while they work out a complex patient problem. In contrast, a new group of patients or family members with little understanding of a topic will need to access information directly from the educator or other sources before they can meaningfully participate in problem solving as part of the discussion process.

The educator's role in group discussion is to act as a facilitator to keep the discussion focused and to connect important points together. The educator must be well versed in the subject matter to field questions, to move the discussion along in the direction intended, and to give appropriate feedback (Miller & Stoeckel, 2019). It is the educator's responsibility to make sure that every member of

the group has interpreted information correctly, because failure to do so will lead to conclusions based on faulty data.

Also, it is important for the educator to sustain trust within the group. Everyone must feel safe and comfortable enough to express their point of view; otherwise, the relationship between the educator and the participants will break down, which creates an environment unsuitable for learning. One helpful approach is for the educator to tell the group at the beginning of the session that the goal is to hear from all members by asking for their input and points of view during the discussion period. Learners who tend to dominate the discussion should be requested to hold questions that can be handled privately at the end of class, because these inquiries are important but unique to their circumstances.

Teaching people in groups rather than individually allows the educator to reach numbers of learners at the same time. The group discussion method is economically beneficial from a time-efficiency perspective when compared with educating each learner individually. With healthcare costs rising, this method should be considered efficient and effective to simultaneously teach patients and their families who have similar learning needs, such as information to prepare for childbirth or cardiac bypass surgery. In two different studies of the effects of group discussion on self-management education for patients with type 2 diabetes, one study found that this teaching method not only was more cost effective than individual education but also resulted in greater treatment satisfaction (Tang et al., 2006) while the other study discovered that the outcome of group education intervention led to significant improvement in lifestyle changes (Merakou et al., 2015).

Group discussion has proved particularly helpful to patients and their families dealing with chronic illness. Through group work, members share common concerns and receive reinforcement from one another. This teaching method is most effective during the accommodation stage of psychological adjustment to chronic illness, because the interactions reduce isolation and foster identification

with others who are in similar circumstances. The idea that everyone is in the same boat or if one person can do it so can the others serves to stimulate motivation for learning resulting from peer support.

Discussion in a group offers members a forum in which to share information for cognitive and affective growth as well as an opportunity to learn self-efficacy. The resulting increase in the motivation and confidence levels of patients enhances their ability to handle an illness (Cooper et al., 2001; Deakin et al., 2005; Odgers-Jewell et al., 2017; Olsson et al., 2005). Thus, the group process informs people about how to respond to situations, improves their coping mechanisms, and explores ways to incorporate needed changes into their lives.

A unique discussion strategy, known as *deliberative discussion*, is little recognized by nursing education but is an important method for use in the fields of public health and social sciences. Its purpose is to bring people and communities together to talk through issues and problems, weigh the costs and consequences of options, and deliberate on possible solutions. This innovative approach to working through conflicts, accepting the consequences of choices, and deciding on realistic actions offers nursing an innovative method of working in groups in the classroom on issues relevant to practice (Goodin & Stein, 2008).

It is important to note that third-party reimbursement for some types of group patient education programs may be difficult to obtain when the traditional fee-for-service payment system is not in place. Nevertheless, these programs may be economically valuable in preventing hospitalization or reducing time in acute care. Documenting these benefits based on measurable outcomes can justify the importance of group discussion as a cost-effective method of patient instruction.

Table 11-2 highlights the main advantages and limitations of group discussion as a method of teaching.

Table 11-2 Major Advantages and Limitations of Group Discussion

Advantages	Limitations
Enhances learning in both the affective and cognitive domains.	One or more members may dominate the discussion.
Is both learner centered and subject centered.	Easy to stray from the topic, which interferes with achievement of the objectives.
Stimulates learners to think about issues and problems.	Shy learners may refuse to become involved or may need a great deal of encouragement to participate.
Learning is more active and less isolating.	Requires skill to tactfully redirect learners who go off on tangents or who dominate without losing their trust and that of other group members.
Provides opportunities for sharing of ideas and concerns.	Particularly challenging for the novice teacher when members do not easily interact.
Fosters positive peer support and feelings of belonging.	Requires teacher's presence at all sessions to act as facilitator and resource person.
Increases learner motivation, confidence, and satisfaction.	

Reinforces previous learning.

Is cost effective and time efficient.

Cooperative Learning

Cooperative learning is a type of group teaching that uses group work activities when teaching students and professionals belonging to a variety of health disciplines. Group work is a learner-centered, active (also known as transactional), and very effective teaching and learning strategy for nursing students and staff to enhance their cognitive and affective skills. In most instances, though, teaching and learning activities related to group work sessions are not pertinent for patient and family education.

Working together in groups for learning is not a new idea—Socrates formed student circles and the ancient Hebrews used study partners—but recent interest in using group work for teaching students began in the 1980s to promote cognitive and affective learning and to help them develop interpersonal skills. Today the most familiar group work teaching strategies are categorized into two types: cooperative and collaborative learning. However, these two terms are often used interchangeably, although incorrectly, to describe what students are doing and how they operate in small groups. Cooperative and collaborative learning strategies are consistently mixed up or muddled because they share some common features, such as active learning, knowledge building, and critical thinking, yet they also have distinct features that make them different and unique (Clare, 2011; Davidson & Major, 2014; Weimer, 2015).

In essence, **cooperative learning** is a highly structured type of group work in that students are supplied with information to read and analyze; the teacher is the center of authority and observes, listens, and intervenes where necessary; students work jointly as a team in

an interactive and interdependent manner to build foundational knowledge and problem solve in the process of completing an activity or project; and individual students as well as the group as a whole submit their work for assessment to receive prompt feedback on their performance as a measure of success of intended learning. Teaching methods that use cooperative learning strategies are applied mainly to the education of health professionals.

Collaborative learning, on the other hand, is unstructured; students find their own sources of materials needed to carry out their role and complete an activity, the teacher takes a hands-off approach and the groups self-manage unless they ask for assistance, each student has a different part to play in constructing knowledge (a constructivist approach to discovering, understanding, and producing knowledge), and students assess their own individual performance as well as their group's performance (Brame & Biel, 2015; Davidson & Major, 2014; Tolsgaard et al., 2016; Weimer, 2015). Teaching methods that use collaborative learning are applied mostly to education in the humanities and social sciences fields and are rarely used in health professions education. Examples of collaborative learning include reports and presentations in which the tasks to develop them are split among group members.

The following are cooperative learning strategies that are common methods of group work for teaching nursing students and staff.

Team-Based Learning

Team-based learning (TBL) is a structured, evidence-based, innovative teaching strategy meant to engage students in active learning and enrich their experiences by working together to achieve one or more common learning objectives (Punja et al., 2014). The *flipped classroom* model is another term for TBL. As a cooperative learning approach, TBL expects learners to do their homework individually prior to class (lecture materials, reading assignments, and/or laboratory activities) and then come to the classroom to work in small groups to apply their knowledge and discuss new

information learned, rather than the instructor using the entire class time to lecture to all learners as a group (Trach, 2020).

TBL involves small, heterogeneous groups of 5 to 10 students working together as teams throughout the semester. TBL uses an organized combination of pre-class self-learning preparation, individual and team readiness assurance tests (iRAT and tRAT, respectively), and application exercises (Brame, 2013; Mennenga, 2012). This newly popular approach to teaching offers educators a strategy for a structured yet student-centered learning environment (Fatmi et al., 2013; Mennenga, 2012). According to Michaelsen & Sweet (2008) and Sisk (2011), TBL incorporates four key principles:

- Forming and managing heterogeneous teams
- Stressing student accountability in their pre-class preparation and teamwork
- Providing meaningful team assignments focusing on solving real-world problems
- Providing frequent and timely feedback to students

The purpose of TBL is to promote active learning in large-group, lecture-oriented sessions; to provide an opportunity for students to use their knowledge by making and defending judgments; and to help students develop and enhance their skills by functioning productively in team environments (Feingold et al., 2008; Michaelsen & Sweet, 2008).

The educator's role in TBL is to ensure adequate diversity within each team, oversee the development of group cohesiveness (avoiding coalitions), and provide time for each group to develop into a learning team (Michaelsen & Sweet, 2008). After team learning has taken place, the primary role of the instructor is to facilitate a discussion of the correct answers to the tests, clarify confusion that may exist regarding key concepts, and give opportunities for students to ask questions and address misconceptions regarding their responses to the iRATs and the tRATs (Feingold et al., 2008; Michaelsen & Sweet, 2008).

Grades are assigned based on group performance, outcomes on iRATs (taken by each student at the beginning of class) and tRATs (taken together as a group), and peer evaluations of each team member (Sisk, 2011). Students are given the opportunity to customize the grading system or to let the educator decide on the priority of the grading elements. If students choose to "customize" the weights for the grading components, then they must work together to come to consensus. Once an agreement has been established, the grading weights will apply for the rest of the course. Interestingly, research reveals that over time a well-functioning group will consistently outperform any single member of the group, often significantly (Feingold et al., 2008).

For detailed information about how to conduct TBL classes, see Feingold et al. (2008) for the Team Learning Handbook.

Peer-Assisted Learning

Peer-assisted learning (PAL) is associated with students acquiring knowledge and skills through shared learning of matched equals. Instead of professional teachers helping others to learn, students assist each other to learn. Common terminology associated with PAL include peer teaching, peer support, peer mentoring, and peer tutoring (Carey et al., 2018; Olaussen et al., 2016). PAL is an umbrella term that includes all types of teaching methods and is a popular teaching and learning approach in health education worldwide (Bugaj et al., 2019). Learning is a two-way, reciprocal experience in that not only do students help others to learn, but they learn themselves by teaching (Ross, 2019).

PAL has been found to not only increase the actual time students spend on learning, but also increases the frequency of feedback that students normally would get from teachers. Research indicates that knowledge, psychomotor skills, and socio-emotional development is enhanced during the process of cooperative learning with peers (Thurston, 2015). Furthermore, the additional benefits accrued to both learners and tutors include increased self-confidence and

improved communication skills (Ross, 2019). PAL can occur across a range of learning environments, such as the classroom, the skills labs, and the clinical practice setting (Carey et al., 2018; Bugaj et al., 2019).

Debate

Debate requires students to work as individuals and as a team to research critical and controversial issues or trends and then present "pro" and "con" arguments in support of various points of view. It is another active teaching and learning strategy that involves collaboration with peers and can be effective with students at all levels of nursing education (Cariñanos-Ayala et al., 2021). They must present logical arguments, listen carefully to different perspectives, ask relevant questions, integrate factual information, and come to their own conclusions (Hartin et al., 2017). Virtual synchronous debates also can be used in online nursing courses (George et al., 2020). Debate stimulates cognitive learning and to some extent affective learning as well. In particular it enhances students' competencies in verbal communication, critical thinking and analysis, synthesis, and evaluation of information (Bradshaw, 2021; Xu, 2016). Given the complexity of today's healthcare system, this pedagogical tool is an effective strategy to prepare creative, intelligent, and forward-thinking professionals to function in today's complex healthcare system (Hartin et al., 2017; Nurakhir et al., 2020).

Problem-Based Learning

Problem-based learning (PBL) is a method to stimulate learners to gather and apply information to solve problems based on realistic patient scenarios. The teacher facilitates the active learning process by presenting the scenarios and asking relevant questions to which students or staff are then required to seek holistic answers. Rather than the educator providing the knowledge by teaching relevant material, in PBL the problem is presented first. PBL requires

students or professional staff to work in groups to help them develop flexible ways of thinking, acquire effective skills in problem-solving, and enhance their self-directed learning, intrinsic motivational, and collaborative skills (Coman & Soloman, 2021; Hmelo-Silver, 2004; Mello et al., 2014; Xu, 2016).

Jigsaw

Jigsaw is a student-centered method that can be used at different levels of education (primary, high school, and college) and with different disciplines to teach topics in classroom and workplace settings (Moonaghi & Bagheri, 2017). Each learner is assigned a different piece of the "puzzle" needed to complete a specific task. Thus, learners are interdependent on one another, are individually accountable for a part of the task, and participate equally while working simultaneously. Home Groups (learning groups) are formed to take on and resolve a task. Each Home Group assigns one of its members to serve on the Research Group (expert group) to help collect data to bring back to their Home Group (Kritpracha et al., 2018). This strategy enhances learning in the cognitive and affective domains. It has been found to reinforce desirable group dynamics by improving learner motivation, listening skills, engagement with peers, and empathy toward other members of the group (Sanaie et al., 2019; Xu, 2016). Individually, students improve on their academic interest, learning achievement, self-confidence, critical thinking, and self-directed learning behaviors (Kritpracha et al., 2018; Moonaghi & Bagheri, 2017).

Think-Pair-Share/Write-Pair-Share

Think-pair-share and **write-pair-share** are group work strategies initiated by the instructor, who poses a discussion question and gives students time to individually think through a response or write an answer to the question. Each student then discusses their response with a peer. These paired groups then share their responses with the entire class. The main idea of this cooperative learning approach is

that students actively interact to accomplish a mutual, common goal (Davidson & Major, 2014). This method has the potential to enhance learning in the cognitive and affective domains based on the type of questions posed.

Self-Reflection

Self-reflection is a deliberate process that helps individuals to consider their experiences to gain insights and perspectives about themselves and their practice for the purpose of promoting their professional growth (Jootun, 2014). If self-reflection is to be authentic, it requires students and staff (and educators, too!) to provide reasons for their actions and constantly explore themselves and their own growth (Grech, 2021; Jacobs, 2016).

The following are two types of self-reflection: (1) *Reflective learning* involves "holding experiences up to a mirror in order to examine them from different perspectives" (Jacobs, 2016, p. 62). It requires the learner to consciously and deliberately think about and analyze what they are doing or have done (Johnson, 2013). (2) *Reflective practice* involves "nurses reviewing aspects of their practice to decide what's working and what could be done differently" (Jacobs, 2016. p. 62). Reflective practice requires one to develop self-awareness and to be able to critically reflect on experiences, present and past, that allow for lifelong learning (Johnson, 2013).

Shön (1983) extended the work of the famous philosopher and educator, John Dewey, and coined the terms *reflection-in-action*, which is the thought process occurring as experience unfolds that guides action, and *reflection-on-action*, which refers to thinking back on an experience that builds new knowledge and understanding (Miraglia & Asselin, 2015).

As an educational method, reflecting on experiences helps nursing students and nursing staff make connections between thoughts, beliefs, and actions. Reflective strategies allow these learners to explore clinical experiences in ways that stimulate learning, enhance

the motivation to apply new knowledge, and promote transformation in clinical practice (Miraglia & Asselin, 2015). Self-reflection facilitates the development of competencies in current and future professionals. For example, Dubé and Ducharme (2014) studied the effects of self-reflection by nurses to improve their care of hospitalized older adults.

In a very recent publication, Bain (2021) recognizes a new breed of innovative "super courses" that are being used in undergraduate and graduate schools to inspire students to improve their self-reflective reasoning abilities, foster intrinsic motivation, and enhance self-directed growth. Brookfield (2017) published a practical guide to becoming a critically reflective teacher through constructive self-critique.

Service Learning

Service learning is a valuable teaching method involving experiential activities that provide students with a rich and robust form of learning that takes place in the community. It provides opportunities for students to be engaged in projects beyond the classroom that not only benefit them as learners, but also benefit others with whom the learner interacts and serves (reciprocal learning). Integration into the environment of the recipients being served exposes students to actual life situations to develop and broaden their understanding of social, ethical, cultural, economic, and diversity issues and realities (Schmidt & Brown, 2016).

Service learning requires reflection, which is a critical component of this teaching method and is a vehicle to develop an appreciation for the vulnerabilities of marginalized segments of the population (Adegbola, 2013; George, 2015). Strategies involving reading, writing, doing, and telling, such as journaling, debriefing, sharing experiences with a group of peers and the teacher, and actively interacting with community members on projects, contribute to opportunities for self and group reflection, which is key to experiential learning (Schmidt & Brown, 2016). Immersion in the

community helps students develop critical thinking skills, social interaction skills, cultural competence, teamwork, leadership, civic awareness, and connections between theory and practice. Intentional inducement to learning as it applies to real-life situations creates civic minded, caring professionals (Dombrowsky et al., 2019).

The role of the educator is to facilitate extending opportunities for student learning into a community for the delivery of care to others (Adegbola, 2013). Often the educator identifies community partners (e.g., camps, shelters, clinics, community agencies), but students can also be responsible for finding experiential learning opportunities that are then vetted and approved by the faculty member. The teacher makes sure that the service-learning experience complements academic objectives and goals (George, 2015). Grading rubrics assist with the evaluation of student reflections (Schmidt & Brown, 2016).

Concept Mapping

Concept mapping, a contemporary teaching method, is a technique that uses visual graphics (two-dimensional drawings or diagrams) to help students logically organize ideas (concepts) and understand relationships between topics. Circles (nodes) represent the concepts, lines (links) represent the relationships between concepts, and words label the links to clearly explain the relationships. Concept maps allow students to see connections between new information and preexisting or established knowledge (Xu, 2016).

Concept mapping originated as a teaching and learning tool in the 1980s as an outgrowth of the constructivist learning movement, but only in the past couple of decades has this active learning technique been adopted by nursing and other disciplines (Daley et al., 2016). A concept map exercise can be used in nursing education as a homework assignment, small group activity, a whole class activity, a summary of information at the end of class, or a project (Tomaswick & Marcinkiewicz, 2018).

Mapping has been found to enhance student motivation, promote critical thinking, connect new concepts to existing ones, synthesize information from individual parts to the larger picture, and improve academic achievement and clinical-reasoning abilities (Alfayoumi, 2019; Garwood et al., 2018; Jaafarpour et al., 2016). Concept map applications are conveniently available on mobile devices for clinical care planning (Xu, 2016).

Case-Based Learning

Case-based learning (CBL), also known as case study or case method, is a method of teaching that actively engages learners to focus on real or invented case scenarios simulating life or world situations to understand and solve complex problems, dilemmas, or issues. It is used across many disciplines to promote learning, but is most common in schools of law, business, and the health professions (Columbia University Center for Teaching and Learning, 2019). In nursing education, this form of instruction offers learners an opportunity to become thoroughly acquainted with actual or fictional patient situations before they discuss what they have identified as health-related problems and needs of patients and their families.

CBL improves staff and/or student nurses' analytical and problem-solving skills, their ability to explore complex issues, and their acquisition of new knowledge and skills in clinical practice. Additionally, case studies increase the motivation and engagement of learners and enhance their reading, writing, and listening skills as they work in teams to make decisions based on their problem-solving skills (Bonney, 2015; Brattseva & Kovalev, 2015). A creative example of this teaching method with staff is arranging a panel presentation by patients who are coping with a specific disease or problem. Following the panel, a group discussion session is most beneficial, in particular, for influencing cognitive and affective domains of learning.

CBL has been found to improve critical thinking abilities, long-term retention of information, and self-directed study skills. CBL is a

means to help learners connect theory to practice and has the potential of changing patient care outcomes (Li et al., 2019; Sapeni & Said, 2020).

Seminar

Seminar is an educational format that consists of one or several sessions in which a small group of staff nurses or students, facilitated by an educator, discusses issues that emerge from assigned course content of practical relevance. Interactions in seminar groups are stimulated not only with questions posed by the educator but answers provided by the participants (Jaarsma et al., 2009; Palappallil et al., 2016).

Student-led seminars (SLS), a modified form of the traditional teacher-led approach, have been found to enhance students' active participation, peer interaction, and teamwork in pharmacology education (Palappallil et al., 2016). The goal of the seminar teaching method is to provide a variety of interactions between the educator and student or student and student (Tricio et al., 2019; Zeng et al., 2020).

Seminars should be designed so that each learner reviews the course content and considers questions prior to the discussion; with such preparation, all learners can actively participate in the discussion. The active engagement of sharing ideas and thoughts provides the learners with a deeper understanding of the content, heightened interest in learning, increased curiosity, improved communication and analytical abilities, enhanced teamwork, and cultivation of clinical thinking. When disagreements arise, students are expected to search for new evidence to justify their claims, which increases the development of independent thinking (Jaarsma et al., 2009; Zeng et al., 2020).

No matter which type of instructional approach outlined in this section is used for teaching and learning, it is the responsibility of the educator to provide an inclusive classroom whereby respectful

attention and tolerance toward others is modeled by the teacher and required of all group members. As education moves toward progressive pedagogical methods, it is important to establish a sense of belonging and self-efficacy to strengthen the classroom environment (Dewsbury & Brame, 2019). Of course, this consideration does not preclude correcting errors or disagreements. A clear message must be given that although personal opinions may be debatable, the inherent value of what each member says and the member's right to participate are guaranteed (Ridley, 2007; Sanger, 2020).

Strong evidence suggests that teaching techniques that stimulate active learning produce improved student outcomes at all levels of education based on test scores. However, students often feel they learn more through traditional lectures than they do when participating in active-learning strategies. A new Harvard study suggests that students' perceptions of their learning do not match how well they are actually learning. That is because active learning can be hard and initially frustrating and, therefore, students misinterpret that the amount of effort it takes to learn actively is a sign of poor learning. Eventually students see the value of participating in active teaching and learning strategies once they see the results, but it is incumbent upon educators to let students know that they are truly learning more than they think they are (Reuell, 2019).

Table 11-3 highlights the main advantages and limitations of cooperative learning as a method of teaching.

Table 11-3 Major Advantages and Limitations of Cooperative Learning

Advantages	Limitations
Stimulates learning, particularly in the cognitive	Participation may not always be equally reciprocal.

and affective domains. Encourages active learning. Develops interpersonal skills. Improves critical thinking skills. Connects theory to practice. Enhances analytical and problem-solving skills. Promotes self-confidence and self-directed learning. Fosters team building and interdependence.	Grades are dependent to some extent on the group's performance. Can create some degree of competitiveness among students and teams. Group work likely to be an uncomfortable approach for those who prefer working alone. Terminology to identify types of group work is often inappropriately applied. Difficult to distinguish between the different types of group learning.

One-to-One Instruction

One-to-one instruction, which may be given either formally or informally, involves face-to-face delivery of information specifically designed to meet the needs of an individual learner. One-to-one teaching can be tailored to meet objectives in all three domains of learning—cognitive, affective, and psychomotor. It begins with an assessment of the learner and the mutual setting of objectives to be accomplished (Burkhart, 2008). As a teaching method, one-to-one instruction has been found to have a positive effect on motivation and compliance (Martin et al., 2005; Vermeire et al., 2001), even though the learner is isolated from others who share similar needs, concerns, or circumstances. Singh (2018) makes a strong case for the importance of the "human factor" as the essence of teaching and learning. Even though this author recognizes the enormous power and outreach of technology and its indisputable role in the delivery of

healthcare education, the value and impact of face-to-face human interactions between the clinician-educator and patient, or the academic educator and student, must not be forgotten or underestimated.

Formal one-to-one instruction is a planned activity, whereas informal one-to-one instruction is an unplanned interaction, such as capitalizing on a teachable moment that occurs unexpectedly when the patient demonstrates a readiness to learn (Miller & Stoeckel, 2019). Such instruction offers an opportunity for both the educator and the learner to communicate knowledge, ideas, and feelings primarily through oral exchange, although nonverbal messages can be conveyed as well. Thus, this one-to-one method of teaching, also known as verbal instruction, is a process of mutual interchange between the patient and the health professional (Marcus, 2014). It requires interpersonal skill and sensitivity on the part of the educator and the ability to establish rapport with the learner (Falvo, 2010; Gleasman-DeSimone, 2012).

One-to-one instruction should never be a lecture delivered to an audience of one to meet the educator's goals. Instead, the experience should actively involve the learner and be based on their unique learning needs. Ideally, a one-to-one teaching session should be 15 to 20 minutes in length, and the educator should offer information in small, bite-sized portions to allow time for processing. Research shows that the more information that is given at any one time, the less it is remembered and correctly recalled (Kessels, 2003; Margolis, 2004; Martin et al., 2005). Thus, effective communication depends more on the quality of the information presented than on the quantity to increase adherence to, and patient participation in, a recommended plan of care (Kessels, 2003).

Whenever teaching is carried out on a one-to-one basis, instructions should be specific and enough time should be given for a response from the learner, followed by direct feedback from the educator. The teach-back or tell-back strategy that asks learners to restate in their own words what they understood should always be used by the

educator to be sure patients heard and interpreted the information correctly and completely (Fidyk et al., 2014; Hyde & Kautz, 2014; Jager & Wynia, 2012; Kemp et al., 2008). In a recent study, Mahajan et al. (2020) found teach-back to be an easy and non-time-consuming method to enhance patients' immediate and short-term recall and comprehension of discharge information in an emergency department setting.

The process of one-to-one instruction also involves moving learners from repeating the information that was shared to applying what they have just learned. For example, the educator teaching a patient about hypoglycemia might say, "Now that you understand what causes low blood sugar, let's talk about how to tell when you have it and what to do if you experience it after discharge." Also, during one-to-one exchange an actual or potential situation can be presented in a nonthreatening, anticipatory manner, such as asking a busy executive who has diabetes how they would respond to feeling shaky and sweaty at 2:00 p.m. on a day when a meeting runs late and they miss lunch. Educators should clearly state that these types of scenarios are not meant to be a test but rather a dress rehearsal for real-world situations.

With the one-to-one method of instruction, questioning is an excellent technique. It encourages learners to be active participants in the learning process and gives educators important feedback on their progress (Falvo, 2010). However, as mentioned previously but is very important to repeat, educators so often mistakenly ask learners the question: "Do you understand what I just taught you?" This type of question is closed ended and requires only a "yes" or "no" response, which does not provide information for the educator to confirm that the message was, in fact, received as intended. Instead, ask "What questions or concerns do you have?" (MedlinePlus, 2019). Thus, almost always avoid asking "Do you understand?" This is because, more likely than not, learners will say "yes," indicating they understood something even when research shows that on average only about half of the information taught the

first time is remembered, and only about 20% of it is recalled accurately (Kessels, 2003; Ley, 1972, 1979; Martin et al., 2005).

Questions can be matched with the behavioral objectives to be achieved and are a great way to exchange information and stimulate thinking. However, problems can occur with questioning, such as questions can be so unclear that the learner does not know what they are being asked or the questions are too broad to give a one answer response (English, 2013). The educator should watch the learner's nonverbal reactions and rephrase a question, if necessary. If the learner seems confused, it is helpful to state that perhaps the question was not clear. This technique guards against the learner feeling guilty, anxious, or becoming discouraged if the answer to a question was incorrect (Falvo, 2010).

Also, it is important that learners are given sufficient time to respond to questions posed. Sometimes educators are uncomfortable waiting in silence for an answer or are impatient and attempt to correct an answer before learners complete their responses. Questioning is ineffective as a technique when educators do not give learners enough time to process information. Preliminary interruption may further interfere with a learner's thinking abilities and create a tense atmosphere.

Individualized teaching of staff nurses or student learners often occurs in the skills laboratory and clinical settings. Clinical instruction is not a discrete teaching method but rather is an extension of one-to-one teaching for experiential learning. In addition, one-to-one instruction may be used during new employee orientations, student preceptorships, or staff continuing education activities. The learner is singularly guided in the actual practice setting, and each learning experience requires specific objectives, known to both the educator and the learner, that are tailored to meet the individual's needs (Emerson, 2007; O'Connor, 2015; Oermann et al., 2017).

From an economic standpoint, one-to-one instruction is a very labor-intensive method and should be thoughtfully tailored to make the expense worthwhile in terms of achieving learner outcomes. One-to-

one teaching of patients and their families is often considered an inefficient approach to learning because the educator is reaching only one person at a time. Clinical teaching of students and continuing education for staff are vital for professional development, but they are costly endeavors when carried out on a one-to-one basis.

One-to-one instruction has much strength as a teaching method. However, it also has its drawbacks.

Table 11-4 summarizes the major advantages and limitations of one-to-one instruction as a method of teaching.

Table 11-4 Major Advantages and Limitations of One-to-One Instruction

Advantages	Limitations
Good for teaching behaviors in all three domains of learning—cognitive, affective, and psychomotor.	The learner is isolated from others who have similar needs or concerns.
The pace and content of teaching can be tailored to meet individual needs.	Deprives learners of the opportunity to identify with others and share information, ideas, and feelings with those in like circumstances.
Ideal as an intervention for initial assessment and ongoing evaluation of the learner.	Can put learners on the spot because they are the sole focus of the educator's attention.
Especially suitable for teaching individuals with a learning disability, with low literacy, or who are educationally disadvantaged.	Questioning may be interpreted by learners as a technique to test their knowledge and skills.

Provides opportunity for immediate feedback to be shared between the educator and the learner.	The learner may feel overwhelmed and anxious if the educator makes the mistake of cramming too much information into each session. Costly and inefficient because this method reaches only one person at a time.

Demonstration and Return Demonstration

It is important to make a clear distinction between demonstration and return demonstration. **Demonstration** is done by the educator to show the learner how to perform a certain skill. **Return demonstration** is carried out by the learner as an attempt to establish competence by performing a task with cues from the educator as needed. These two methods primarily involve psychomotor domain skills. However, demonstration and return demonstration also may be used to enhance cognitive and affective learning, such as when helping a staff member develop interactive skills for crisis intervention or assertiveness training.

Prior to giving a demonstration, the educator should inform learners of the purpose of the procedure, the sequential steps involved, the equipment needed, and the actions expected of them. Equipment should be tested prior to the demonstration to ensure that it is complete and in good working order. For the demonstration method to be employed effectively, learners must be able to clearly see and hear the steps being taught. Therefore, the demonstration method is best suited to teaching individuals or small groups. A large screen or multiple screens for video or for streaming presentations of demonstrations can allow larger groups to participate.

Demonstrations can be a passive activity for learners, whose role is to observe the educator presenting an exact performance of a required skill. Demonstrations are more effective when instructions

are explained verbally either prior to or during the demonstration. This method of instruction can be enhanced if the educator slows down the pace of performance, exaggerates some of the steps (Radhakrishna et al., 2011), or breaks lengthy procedures into a series of shorter steps. This incremental approach to sequencing discrete steps of a procedure is known as **scaffolding** and provides the learner with a clear and exacting image of each stage of skill development (Brookfield, 2006).

In the process of demonstrating a skill to patients, staff, or students, it is important to explain why each step needs to be carried out in a certain manner to prevent bad habits from being acquired prior to the learner performing a new skill set (Brookfield, 2006; DeYoung, 2014). Demonstration as a teaching method provides educators with the opportunity to model their commitment to a learning activity, builds credibility, and inspires learners to achieve a level of excellence (Brookfield, 2006).

The key to performing a demonstration is practice, practice, and practice. If the demonstration is difficult for the educator, how can you expect your learner to easily perform a return demonstration of the skill? Thus, always determine whether the skill is appropriate for the experience level of your learner (Radhakrishna et al., 2011).

The educator's performance of a skill should be flawless, but it is important that the educator take advantage of a mistake to show how errors can be handled. If an error does occur, it may serve to increase rapport with the learners and allow them to relax and not feel intimidated, knowing mistakes do happen and can be corrected (Brookfield, 2006). However, too many mistakes disrupt the accuracy of the mental image that the learners are forming.

When demonstrating a psychomotor skill, if possible, the educator should work with the exact equipment that the learner is expected to use. This consideration is particularly important for novice learners. For instance, the patient or family member who is learning to carry out an activity of daily living at home will be anxious and frustrated if taught in the hospital or community-based agency with one type of

assistive device, such as a wheelchair or shower seat, when another type is used after discharge. Often the learner is too inexperienced to follow the skill pattern and, instead, may become confused when working with a different device. The seasoned staff nurse, in contrast, might find it easier to transfer what is already known about a type of assistive device if called on to learn to use a newly purchased piece of equipment from a different manufacturer.

Return demonstration, also known as the teach-back, show-me, or closing the loop method, should be planned to occur as close as possible to when the demonstration was given. Learners may need reassurance to reduce their anxiety prior to beginning the performance because they may view the opportunity for return demonstration as a test. Such a perception may lead them to believe they are expected to carry out a perfect performance the first time. In fact, return demonstration is not a test of the patient's skill level as it is a test of how well the educator taught the skill (MedlinePlus, 2019). Once a learner recognizes that the educator is a coach and not an evaluator, the climate will be less tense, and the learner will be more comfortable in attempting to practice a new skill. Educators can stress the fact that the first few tries at performing are never expected to be perfect.

In addition, allowing the learner to manipulate the equipment before being expected to use it may help to reduce anxiety levels. Some clients, however, may experience an increased sense of unease when faced with learning a new skill because they identify the need to learn a skill with their illness. For example, a young woman learning to care for a venous access device may be very anxious because her diagnosis of cancer has necessitated the need for this device.

It is important to note that when the learner is giving a return demonstration, the educator should remain silent except for offering cues when necessary or briefly answering questions. Learners may be prompted by a series of pictures or coached by a partner with a checklist. The first time that learners perform a return demonstration,

they may need a significant amount of coaching. Educators should limit their help to coaching—they should *not* do the task for the learner who is struggling. The next time the learner practices the skill the educator should observe and coach only if needed. Also, the educator should avoid casual conversations or asking questions because they merely serve to interrupt the learner's thought processes and interfere with efforts to focus on mentally imprinting the procedure while performing the task.

Breaking the steps of the procedure into small increments will give the learner the opportunity to master one sequence before attempting the next one. Praising the learner along the way for each step correctly performed reinforces behavior and gives the learner confidence in being able to successfully accomplish the task in its entirety. Emphasis should be on what to do, rather than on what not to do. Practice should be supervised until the learner is competent enough to perform steps accurately. It is important that the initial skill pattern be correct before allowing for independent practice. To ensure safety, high-risk skills should be performed first on a model prior to actual clinical application.

Different learners will need different amounts of practice to become competent, but once they have acquired the skill, they can then practice on their own to increase speed and proficiency. The value of practice should not be underestimated. For a new skill to become automatic and long lasting, repeated practice beyond the point of mastery is essential (Willingham, 2004). However, if a new task to be performed is similar to a task previously acquired, less time will be needed to master the new skill. For example, a mother who has already learned to use sterile technique at home to change the dressing on her son's abdominal wound will likely learn more quickly and with much more ease how to properly use aseptic measures if she also must learn how to manage home intravenous therapy. As another example, a spouse who has previously learned how to assist her husband in range-of-motion exercises following a stroke will likely learn more quickly and with much more ease how to properly assist with strengthening exercises.

Return demonstration sessions should be planned to occur close enough together that the learner does not lose the benefit of the most recent practice session. As with demonstration, the equipment for return demonstration needs to exactly match that used by the educator and expected to be used by the learner. Learners also will require help in compensating for individual differences. For instance, if you are right-handed and the learner is left-handed, sitting across from each other during instruction would be more helpful than sitting next to one another. As another example, if an individual has difficulty seeing the increments on a syringe, they may require a magnifying device to accurately perform the skill.

Perhaps the biggest drawbacks to demonstration and return demonstration are the expenses associated with these methods. Group size must be kept small to ensure that each learner is able to visualize the procedures being performed and to have the opportunity for practice. Individual supervision is required during follow-up practices. Furthermore, the cost of obtaining, maintaining, and replacing equipment can be significant and must be factored into the process.

Nevertheless, there are some ways to reduce the cost of these methods. If, for example, the audience is composed of a homogeneous group of health professionals who need yearly cardiopulmonary resuscitation (CPR) review, demonstration can be done via videotape or web cameras. Also, return demonstration can initially be performed with a partner supervising the competency of the skill. Nevertheless, the final evaluation of staff competency must be carried out by an expert to ensure the accuracy of learning. In addition, expenses can be reduced by reusing equipment if doing so will not interfere with the accuracy, safety, or completeness of the demonstration/return demonstration.

Table 11-5 summarizes the advantages and limitations of demonstration and return demonstration as methods of teaching.

Table 11-5 Major Advantages and Limitations of Demonstration and Return Demonstration

Advantages	Limitations
Especially effective for learning in the psychomotor domain.	Requires plenty of time to be set aside for teaching as well as learning.
Actively engages the learner through stimulation of visual, auditory, and tactile senses.	Size of audience must be kept small to ensure opportunity for practice and close supervision.
Repetition of movement and constant reinforcement increases confidence, competence, and skill retention.	Equipment can be expensive to purchase and replace.
Provides opportunity for overlearning to achieve the goal.	Extra space and equipment are needed for practicing most skills.
	Competency evaluation requires 1:1 teacher to learner ratio.

Gaming

Gaming is an innovative method of instruction requiring the learner to actively participate in a competitive activity with preset rules (Abigail, 2014; Allery, 2004). *Gamification* is a process of adding games or game elements to a teaching–learning experience to enhance learner participation by using rewards, badges, or points for completing a module (Gentry et al., 2019; Shawaqfeh, 2015). The goal of gaming as a teaching method is for learners to participate in active learning to solve clinical problems and acquire experiences in a safe environment. Games can be simple, or they can be more complex to challenge the learner's ability to use higher-order thinking and problem-solving strategies (Jaffe, 2021). In the technology world

of today, games can be delivered via digital devices (Gentry et al., 2019).

Educational games are those that incorporate curriculum content or deliver other subject-centered educational material (Michel, 2016). The use of gaming in higher education is of growing interest to educators seeking ways to engage and motivate learners and increase their knowledge, critical thinking and creativity skills, their confidence and satisfaction levels, their collaboration with peers, and their recall of information (Gentry et al., 2019; Zirawaga et al., 2017). This development is based on the perception that many of today's students belong to the "gamer generation" or "Net generation," meaning the generation that has grown up with computer games and other technology affecting their preferred learning styles, social interaction patterns, and technology use generally (Bekebrede et al., 2011). Games are flexible in that they can be combined with other teaching methods and can be played on a variety of mobile devices, such as computers, tablets, and smartphones (Xu, 2016). Higher education is in a unique position to look at the diversity of the student body and to provide teaching methods that correlate with their active, collaborative, and technology-rich learning style.

Gaming activities do not have to reflect reality, but they are designed to accomplish educational objectives. Gaming is primarily effective for improving cognitive functioning but also can be used to enhance skills in the psychomotor domain and to influence affective behavior through increased social interaction (Abigail, 2014; Aburahma & Mohamed, 2015; Beylefeld & Struwig, 2007; Shawaqfeh, 2015). Through this active learning, gaming has the potential to connect theory with experience for nurses without any risk to patient safety (Jaffe, 2021; Royse & Newton, 2007).

In comparison with other didactic methods, gaming is an interactive teaching method that creates a dynamic environment for learning in classroom, tutorial, and/or clinical settings (Abigail, 2014). As an experiential approach to learning, the use of games has been found to stimulate enjoyment of learning, and not only increase active

participation and engagement of learners, but provide variety from a teaching/learning perspective, enhance skill acquisition, and improve problem-solving abilities (Jaffe, 2021; Raines, 2010). Also, evidence suggests that gaming may improve recall and long-term retention of information (Abdulmajed et al., 2015; Allery, 2004; Beylefeld & Struwig, 2007; Blakely et al., 2008; Kinder & Kurz, 2018; O'Leary et al., 2005). For more information on the key principles of game-based learning and low-cost gaming strategies to motivate, engage, assess, and evaluate learners, see http://www.gametrainlearning.org, a nonprofit educational organization that promotes a variety of game-based learning solutions.

Games can be placed anywhere in the sequence of a learning activity (Abdulmajed et al., 2015). For example, they can be used as a device to conduct a needs assessment, introduce a topic, check learner progress, summarize information, or determine learning outcomes. However, some games may require prerequisite knowledge for the learner to participate effectively and, therefore, may require a prior session of teaching before the game can be played (Royse & Newton, 2007). For purposes of improving the subject knowledge of senior nursing students enrolled in a required course, Kinder and Kurz (2018) conducted an experimental study using the Kahoot! game. The research group played the game for four 20-minute sessions, but the control group played no games. The results of the study showed that gaming made a significant difference in the final exam scores of the research group versus the control group. Ignacio and Chen (2020) used a web-based platform in a classroom setting to determine if gaming facilitated cognitive integration in helping to prepare undergraduate nursing students for clinical practice. Although they found no significant difference in the pre- and post-test scores of the intervention group versus the control group, the study participants perceived the gaming strategy to be helpful in their learning.

Games can be designed for a single individual, such as word search and crossword puzzles, or for a group of players, such as bingo or

Jeopardy! For gaming activities that involve multiple participants, the educator's role is that of a facilitator (Zirawaga et al., 2017). At the beginning of a game, the educator tells learners the objectives and the rules, distributes any materials required to play the game, and assigns the various teams. Once the game starts, the educator needs to keep the flow going and interpret the rules. The game should be interrupted as seldom or as briefly as possible so as not to disturb the pace.

When the game is completed, winners should be rewarded. Prizes do not have to be expensive because the main purpose of them is to acknowledge achievement of learners in a public manner (Robinson et al., 1990). At the end of the game, the educator should conduct a debriefing session to evaluate the gaming experience. Learners should be given a chance to discuss what they learned, ask questions, receive feedback regarding the outcome of the game, and offer suggestions for improving the process.

Games may be either purchased or designed. Well-known commercial games such as Trivial Pursuit, Bingo, Monopoly, and Jeopardy! have the advantage in that their formats can be modified, the equipment is reusable for different topics, and many players already have familiarity with the rules of the games (Bender & Randall, 2006). Word searches, crossword puzzles, treasure hunts, and card and board games also are flexible in format in healthcare and academic settings and can be developed inexpensively and with relative ease. Educators should be sure to test any games prior to widespread use.

Examples of games in academic settings are numerous. Bauman (2012) provides a comprehensive resource for educators interested in integrating gaming to teach nursing students in a classroom and laboratory setting. Shiroma et al. (2011) used the game format to teach basic principles of psychopharmacology to medical students. Boeker et al. (2013) found that electronic game-based learning with medical students is an effective self-instruction teaching method. Whitman and Chow (2017) tested a board game that was developed

as a learning tool for a multidisciplinary group of health professionals managing burn injuries and concluded that the game increased their knowledge of burn care and stimulated discussion in practice among the team members. Akl et al. (2013) provide an extensive list of games used as an alternative teaching method to improve health professionals' knowledge, skills, and attitudes with the potential of enhancing their clinical competencies.

Also, gaming can be used for patient education. As a teaching method, it is particularly attractive to children, who enjoy the challenge of learning through play-like activity. Lieberman (2001) described an interactive video game designed for patients aged 8–16 years with type 1 diabetes. This game modeled the daily challenges of self-care, and participants were told to play the game as much or as little as they wished. By the end of the 6-month trial, there was a 77% drop in diabetes-related urgent care as well as an increase in self-efficacy in communication with parents about diabetes and in self-care related to diabetes.

Computer games, although much more expensive, are becoming increasingly available and are a popular option for many learners (Begg, 2008). Research indicates that electronic games as a tool for patient education have the potential to improve health outcomes ("Editorial," 2009). Such games, which are also referred to as *edutainment* (meaning educational software disguised in a game format), introduce content or involve the process of competition to attain a learning goal. They are an enjoyable and effective way to teach specific cognitive, psychomotor, and affective skills.

It is particularly important to remember that games, whether purchased or self-developed, must serve the purpose of helping the learner accomplish the predetermined behavioral objectives. Trainers Warehouse, which provides a wide array of gaming materials available to educators to create many types of games, can be accessed at http://www.trainer warehouse.com. ProProfs.com is an online platform for instruction and evaluation that helps instructors make games and quizzes and Moodle.net facilitates e-learning by

making games accessible via a link to the game on the portal (Zirawaga et al., 2017).

Although gaming is an approved instructional method, continued monitoring and evaluation is needed to determine its educational effectiveness in accomplishing objectives and goals for teaching and learning (Gentry et al., 2019). **Exhibit 11-1** is a game suitability checklist that remains relevant today for determining whether gaming is a viable alternative to meet the objectives for learning.

Exhibit 11-1 Game Suitability Checklist

Criteria	*Yes*	*No*
Does the game meet the program objectives?	_____	_____
Can the game be completed within the time allotted?	_____	_____
Is the size and layout of the room conducive to playing the game?	_____	_____
Will the available participants meet the minimum number required for the game?	_____	_____
Do staff members have the time and interest to design or adapt games? If not, are funds available to purchase games?	_____	_____
If the game requires equipment or supplies, are they readily available?	_____	_____

a. Are resources or funds available to design or purchase needed materials?

b. Does the game require replacement of materials following each use?

Does the game require preparation or cleanup time? _____ _____

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Economic considerations of using gaming include either the cost of purchasing a game or the time taken by the educator to design, test, and update the gaming material. Also, some types of games require the educator to be present as facilitator each time that they are played, which would add to the cost of this method of teaching.

Table 11-6 outlines the advantages and limitations of gaming as a method of teaching.

Table 11-6 Major Advantages and Limitations of Gaming

Advantages	Limitations
Effective primarily for improving cognitive function, but depending on the type of game can also enhance skills in the affective and psychomotor domains.	Creates a competitive environment that may be threatening to some learners.
Fun with a purpose.	

Retention of information promoted by stimulating learner enthusiasm and increasing learner involvement. Easy to devise or modify for individual or group learning. Adds variety to the learning experience. Excellent for dull or repetitious content that must be periodically reviewed.	Requires group size to be kept small for participation by all learners. Requires more flexible space for teamwork than a traditional conference or classroom. Potentially higher noise level; special space accommodations are needed as a result. May be more physically demanding than many other methods. May not be possible for some learners with disabilities to participate. May increase costs if games need to be purchased, designed, or facilitated.

Simulation

Simulation is a trial-and-error method of teaching in which an artificial experience is created that engages the learner in an activity that reflects real-life conditions but without the risk-taking consequences of an actual situation. Simulation-based education

(SBE) is a highly innovative teaching method to teach health professionals about the complex world of health care in their respective disciplines in an effective, efficient, safe, controlled, and high-quality fashion (Kim et al., 2016; Metola et al., 2013). Sometimes also referred to as simulation-based learning (SBL), simulation is being used to bridge the gap between practice and education. It is primarily focused on psychomotor skill development but can influence the cognitive domain and also the affective domain through interaction with teammates or with standardized patients (Metola et al., 2013; Meum et al., 2020). As Gaba (2007) explains, "Simulation is a technique, not a technology, to replace or amplify real experiences with guided experiences that replicate substantial aspects of the real world in a fully interactive manner" (p. 126).

Over the past 25 years, but especially in the last few years, interest in SBE/SBL has grown rapidly as a way to hone the knowledge and practice skills of the healthcare workforce for the ultimate purpose of improving patient safety, patient care outcomes, and teamwork (Beaubien & Baker, 2004; Chiniara et al., 2013; Gaba, 2007; Jones et al., 2015). No longer seen as a technological toy for learning basic skills, a variety of simulation experiences are now used to teach critical thinking and high-level decision-making skills, build self-confidence, and serve as a feedback tool for an assessment cycle of repeated performance, clinical practice, and improvement (Bluestone et al., 2013; Gaba, 2009; Kaufman & Ireland, 2016). A Rapid Cycle Deliberate Practice (RCDP) tool, built on a framework of several learning theories, has been developed to quantify the SBE assessment cycle, to identify performance gaps, and to provide targeted feedback to move students to a mastery level of learning. Early research has shown that the application of this tool has enhanced student performance (Perretta et al., 2020).

SBE also provides a means to foster interprofessional education (IPE) to improve teamwork, communication, and role valuing among the various healthcare disciplines (Dillon et al., 2009; Goulding et al., 2020). Simulation-based IPE (Sim-IPE) is a combination of simulation and IPE that enables students to learn from and with each

other to enhance procedural and critical thinking skills to prevent adverse events. Sim-IPE provides an opportunity to build confidence and value in discipline-specific competencies by walking in each other's shoes (Goulding et al., 2020). The International Nursing Association for Clinical Simulation and Learning (INACSL) has established definitions for common simulation terms, such as fidelity, the levels of fidelity, and debriefing, and has developed a set of seven Best Practice Standards (Aebersold & Tschannen, 2013).

When planning SBE activity, it is most effective if the educator makes the learning experience resemble real life as much as possible. The activity should challenge the decision-making ability of the learner by imposing time constraints, providing realistic levels of tension, and using actual equipment or other important features of the environment in which the specific skill will be performed. For example, a staff nurse along with other staff team members might be expected to make a rapid assessment and intervene with accuracy, coordination, and speed in caring for a chest trauma patient in a simulated emergency department setting. Such simulations are created to determine whether the learner has the necessary skills to perform the activity correctly. For students, simulations can be used to teach compassion for patients living in poverty (Loomis & De Natale, 2017; Meaux et al., 2019) and prepare them to transition from acute care hospital settings to making complex visits in homecare settings (Cockroft & Oppewal, 2018).

It is important, however, to acknowledge that SBE could potentially involve challenging and stressful scenarios that could manifest psychological effects on the learners, whether they be staff, students, or patients (Gaba, 2013). Each SBE activity needs to be carefully considered and deemed appropriate for the stage of competence expected of each learner. *Debriefing*, which is an essential component of SBE and SBL, is a discussion session that provides feedback to learners after a simulation event has occurred. Debriefing allows time for them to review and reflect on their performance as it relates to expected outcomes. It is important that they have the opportunity to derive meaning from the scenario,

identify performance gaps, explore their actions and reactions, understand the consequences of their choices, consider possible alternatives, and discover solutions (Grant et al., 2018; Lavoie & Clarke, 2017).

Many types of simulations are possible, including the following (Aebersold, 2018; Aebersold & Tschannen, 2013; Beaubien & Baker, 2004; Childs & Sepples, 2006; Gaba, 2007; Jeffries, 2020; Smith & Roehrs, 2009):

- Written simulations may use case studies about real or fictitious situations, with the learner being asked to respond to these scenarios. Staff nurses, for example, might be asked to describe how they would handle a personnel communication problem on a unit or complete a functional assessment of a physiologically complex patient in the critical care environment.
- Low-fidelity clinical simulations using noncomputerized manikins can be set up to replicate complex care situations, such as a mock cardiac arrest. An experienced nurse can serve as a buddy or a coach for the inexperienced nurse who is running the code. This simulation allows the novice to practice these skills in a nonthreatening situation with immediate feedback. Participants in such simulations have reported that these sessions helped them validate their thinking and allowed for ongoing thinking out loud in formulating questions they might otherwise not have asked.
- High-fidelity whole-body patient simulators, such as SimMan, reproduce in a sophisticated, lifelike manner the cardiovascular, respiratory, urinary, and neurological systems. The more sophisticated computer models (SimMan 3G) are able to respond to selected drugs; mimic heart, lung, and bowel sounds; and give oximeter and vital sign readings in response to a variety of interventions. However, widespread use within clinical practice settings remains limited by the high cost of this technology, but they are now commonly found in academic clinical learning laboratories.

- Standardized patients, people trained to act as real patients, are frequently used to teach a variety of audiences. An effective and economical method to teach mostly noninvasive skills is to ask a peer, educator, or trained individual to simulate a patient. Standardized or simulated patients were found to decrease student's anxiety and increase therapeutic communication and interviewing skills.
- Virtual simulation is an area that continues to grow. Virtual simulations are 3-D dimensional platforms used in learning laboratories to mimic situations whereby information and feedback are given to learners in helping them develop decision-making skills. For example, virtual anatomy tables allow students to visualize a person's anatomy via virtual dissection.

The learning laboratory is a commonplace teaching environment for nursing students on college campuses and also has been used for years to update the skills of nurses reentering the workforce. Nevertheless, these simulated experiences are not yet widely available to train patients or family providers in self-care skills because of lack of space and the high cost of simulators. In the future, simulation with high-tech, portable equipment could revolutionize client education.

Simulated experiences for the learner should be followed with actual experiences as soon as possible. Simulation is never the same as the real thing to prepare the learner. Therefore, the learner will need help with the transfer of skills acquired in a simulated experience to the actual situation. Virtual reality technology, which is emerging in healthcare education and practice settings, has the potential to narrow the distance even more between simulation and real life for the education of patients, nursing students, and staff (Cook et al., 2011; Gaba, 2009; Jenson & Forsyth, 2012; Kaphingst et al., 2009).

The Society for Simulation in Healthcare (SSH), established in 2004, represents educators, researchers, and advocates who use a variety of multimodal simulation methodologies, such as low- and high-

fidelity patient simulators, virtual reality, standardized patients, and task trainers, to facilitate interprofessional healthcare education. Recognizing simulation as a major paradigm shift in the education of healthcare professionals, the purpose of SSH is to improve simulation technologies, learner assessment tools, educational approaches, educator competencies, and patient safety outcomes. SSH serves as the accrediting body for simulation programs based on their compliance and fulfillment of core standards in the use of simulation techniques and simulators (SSH, 2013).

Simulation can be made more cost effective by reuse of supplies and the interprofessional sharing of simulation equipment. Given the shortage of healthcare faculty, the diminishing number of clinical sites available for practice teaching, and the growing knowledge base and skills needed to produce competent and confident care providers, simulation offers a cost-effective, time efficient, and accessible approach to student teaching, staff orientation, and continuing staff development (Jeffries, 2020; Jumah & Ruland, 2015).

Table 11-7 summarizes the main advantages and limitations of simulation as a method of teaching.

Table 11-7 Major Advantages and Limitations of Simulation

Advantages	Limitations
Excellent for psychomotor skill development, but also can stimulate learning in the cognitive and affective domains. Enhances higher level problem-solving and interactive abilities in the cognitive and affective domains.	Can be expensive. Very labor intensive in many cases. Educator and learner fatigue.

Provides for active learner involvement in a lifelike situation with consequences determined by variables inherent in the situation. Guarantees a safe, nonthreatening environment for learning. Improves team performance and collaboration. Provides experiences the learner may not get in the clinical area and fosters IPE.	Not readily available to all learners yet.

Role-Play

Role-play, sometimes alternatively referred to as role-playing, is a method of instruction by which learners actively participate in an unrehearsed dramatization. Participants are asked to play an assigned character as they think the character would act realistically. This technique is intended to arouse feelings, elicit emotional responses, and develop communication skills in the learners (Glover, 2014). It is used primarily to achieve behavioral objectives in the affective domain.

Unlike high-fidelity simulation, which teaches learners to master skills for application to their own real-life situations, role-play—a low-fidelity form of simulation—places learners in real-life situations to help them develop understanding of other people and why they behave the way they do (Aebersold & Tschannen, 2013; Comer, 2005; Lowenstein 2017; Redman, 2007). For example, a nurse attending an education program on sensory disabilities might be given the experience of wearing special glasses to see how it feels to function with impaired vision. Children can use role-play with puppets or acting out medical events to explore their responses to such illnesses as asthma, their feelings about hospitalization, and their ways to cope with medical treatments and procedures (Calfas, 2016; Priest, 2016).

Role-play is a technique that, according to Comer (2005), can be used to substitute for or supplement costly high-tech simulations to teach students various skills and develop clinical judgment at varying levels of difficulty. As a teaching method, role-play is a very useful technique because it serves multiple functions: it helps learners to explore their own and others' feelings; gain insight into their values, attitudes, and beliefs; develop problem-solving, decision-making, critical thinking, and reflection skills; explore a topic in more depth; and develop a better understanding of interpersonal relationships (Baile & Blatner, 2014; Billings & Halstead, 2020; Chan, 2012; Dawood, 2013; Dorri et al., 2019; Fuller, 2018; Rønning & Bjørkly, 2019).

The responsibility of the educator is to design a situation with enough information for learners to be able to assume the role of someone else without giving a script to them to follow. Occasionally, people are assigned to play themselves to rehearse desired behavior, or the educator takes a part in the role-play session to act as a positive role model for the learners. Most often, however, the educator acts as the facilitator and designates members in a group to play certain characters. They then pretend to be these people for the duration of the exercise. Participants do and say things that they perceive actual persons would do, say, and feel.

For role-play to be employed effectively, the educator must be sure that the group has attained a comfort level that allows each member to feel secure enough to participate in a dramatization. This method should never be used with learners at the beginning of a group session encounter. Members need time to establish a rapport with one another as well as with the educator, or else learners may feel embarrassed or self-conscious about playing a part. All members of the group should be given an assignment to ensure that they are actively involved in the teaching–learning experience (Comer, 2005; Lowenstein, 2017). Those who are actual participants need to be informed about the roles they are to portray so that they can effectively develop the appropriate actions. Those who are

designated as observers require specific instructions about what to attend to during the role-play session.

The actual length of a role-play session can be as short as 5 minutes, but it should not exceed 15 to 20 minutes. Role-play is best done in small groups so that all learners can serve as either players or observers. Active participation by learners is particularly important during a post-activity discussion or debriefing session. Because this teaching method is most effective for learning in the affective domain, all participants need to discuss how they felt, receive feedback, take time for reflection, and share what they observed to gain insight into their understanding of interpersonal relationships and their reactions to role expectations or conflicts (Comer, 2005; Joyner & Young, 2006; Lavanya et al., 2016).

The role-play method is effective in improving student learning outcomes not only for students playing the role of the patient or the nurse, but for peers observing the role-play sessions. Role-playing helps learners understand their social behavior and their role in social interactions, facilitates helper-user equality, increases students' self-efficacy, improves their empathetic abilities, and promotes their understanding of patients' concerns and the physical and mental problems patients encounter (Dorri et al., 2019; Rønning & Bjørkly, 2019). Studies have shown that role-play is time efficient and cost-saving and can be used at all levels of nursing education (Dorri et al., 2019).

Table 11-8 summarizes the main advantages and limitations of role-play as a method of teaching.

Table 11-8 Major Advantages and Limitations of Role-Play

Advantages	Limitations
Particularly suitable for enhancing learning in the	Limited to small groups.

affective domain. Opportunity to explore feelings and attitudes. Potential for bridging the gap between understanding and feeling. Narrows the role distance between and among patients and professionals.	Tendency by some participants to overly exaggerate their assigned roles. A role part loses its realism and credibility if played too dramatically. Discomfort felt by some participants in their roles or inability to develop them sufficiently.

Role Model

A **role model** is defined as someone whom others look to as an example of behavior and/or success to be imitated—a person to be emulated. The use of self as a role model is often overlooked as a teaching method. Role modeling, the verb form of the term role model, is defined as “teaching by example and learning by imitation” (Boettcher-Dale & Taylor, 1994, p. 140). Learning from a role model is called identification and emanates from learning and developmental theories, such as Bandura’s social learning theory and Erikson’s psychosocial stages of development, which explain how people acquire new behaviors and social roles (Crandell et al., 2019; Snowman & McCown, 2015). This teaching method primarily is known to achieve behavior change in the affective domain, but it also can be a powerful tool for cognitive and psychomotor skill acquisition (Cruess et al., 2008).

Role model is a teaching method that can help new health professionals develop critical thinking competencies and interpersonal skills, as well as assist them to assume the responsibilities and values of the profession with which they identify (Cruess et al., 2008; Joneja & Sandhu, 2011; Sorensen & Yankech, 2008). A role model facilitates learning in students and staff by

helping them bridge the gap between theory and practice and develop professional identity (Felstead, 2013; Haider et al., 2016). Preceptors, mentors, academic nurse educators, and clinical staff development educators are excellent examples of experienced health professionals who, through use of role modeling, they guide, support, and socialize students and novice practitioners in their transition to a new level of functioning (Doherty, 2016).

Nurse educators have many opportunities to demonstrate behaviors they would like to instill in learners, whether the learners are patients or family members, nursing staff, or students. The competency with which the educator performs a skill, interacts with others, sets a personal example, and conveys enthusiasm and interest about a subject or problem all can influence learners' motivation levels and the extent to which they successfully perform a desired behavior. Although the qualities and attributes of exceptional role models are important to examine, Sandhu et al. (2015) also point out that it is important to focus on the act of role modeling itself—what a professional role model is thinking, saying, and doing to enhance the learning experience for others.

An individual's behavior is regulated by the social norms and professional expectations that specify what are appropriate versus inappropriate actions and reactions. Role conflict can arise when a learner's past behavior patterns are incompatible or different from another role that person must assume (Crandell et al., 2019). Educators can teach students and staff new behaviors by consistently setting examples and living the standards of the nursing profession. "Actions speak louder than words" is a popular notion relevant to the use of self as a role model (de Tornyay & Thompson, 1987).

Table 11-9 summarizes the main advantages and limitations of role model as a method of teaching.

Table 11-9 Major Advantages and Limitations of Role Model

Advantages	Limitations
Influences attitudes to achieve behavior change primarily in the affective domain, but also can influence the cognitive and psychomotor domains as well. Potential of positive role models to instill socially desired behaviors. Enhances critical thinking, interpersonal skills, and professional identity Helps bridge the gap between theory and practice	Requires rapport between the role model and the learner. Potential for negative role models to instill unacceptable behaviors. Role conflict can occur if past behaviors are different than that required of a new role.

Self-Directed Learning

Self-directed learning, also commonly referred to as self-instruction, is a learner-centered teaching method used by the educator to provide or design instructional activities that guide the learner in independently achieving the objectives of learning. The hallmark of this method is autonomy, and self-directed learning is based on the principles of adult education whereby the learner assumes responsibility for learning (Knowles et al., 2011). Initiative to learn rests with the individual and the individual often determines the objectives and goals for learning and the sources for learning with or without the help of others. Control rests with the learner about how, what, where, and when to learn (Senyuva & Kaya, 2014). The self-directed method is effective for learning in the cognitive and psychomotor domains, where the goal is to master information and apply it to practice. Self-instruction also can be an effective adjunct for introducing principles and step-by-step guidelines prior to demonstration of a psychomotor skill.

This teaching method is sometimes difficult to identify as a singular entity because of the many different formats attributed to it, such as *learning modules, minicourse*, *self-instructional package*, *independent study*, *self-study,* and *programmed instruction*. For the purposes of this discussion, the term *self-instruction* is used. As a self-contained educational activity, learners are allowed to progress by themselves at their own pace. Readiness to learn, motivation, curiosity, learning style, and perseverance are learner characteristics that play an important role in successful self-directed study (Montin & Koivisto, 2014; Senyuva & Kaya, 2014; Shirazi et al., 2017).

Self-directed activities, which usually focus on one topic or concept at a time, come in a variety of forms, including, but not limited to, workbooks, study guides, workstations, video, internet modules, Web-based applications (apps), and computer programs (Senyuva & Kaya, 2014). They are specifically designed to be used independently. With this teaching method, the educator serves as a facilitator/resource person to provide motivation and reinforcement for learning. This method requires less educator time to give information, and each session with the learner is intended to meet individual needs (Murad & Varkey, 2008).

Some learners and educators resist the self-instruction method because it appears to depersonalize the teaching–learning process (DeYoung, 2014). That perception is not necessarily valid because it does not preclude the educator's availability for guidance in learning. Communication can still occur between the educator and the learner, but the focus of instruction is different. However, time allotted for direct interaction between the educator and the learner is more limited than with other methods of teaching such as lecture, group discussion, and one-to-one instruction.

A self-instruction module is carefully designed to achieve preset objectives by bringing learners from diverse knowledge and skill backgrounds to a similar level of achievement prior to undertaking the next step in a series of learning activities. For example, a self-instructional activity might be made available to educate all staff on

new infection-control practices in an agency, and clients might learn breast self-examination or CPR techniques by using specifically prepared self-study materials.

Modules can be made readily accessible to learners along with any resources that are needed to complete the self-study program. Each self-instruction module needs to contain the following elements:

- An introduction with statement of purpose and directions for how to use the module.
- A list of prerequisite skills that the learner needs to have to use the module.
- A list of behavioral objectives, which are clear and measurable statements describing which skills the learner is expected to acquire.
- A pretest to determine whether the learner needs to proceed with the module based on areas of strength or weakness.
- An identification of resources and learning activities, such as videos, slides, written materials, or webcasts.
- An outline of the actual learning activities that will be presented in small units of discrete information called frames.
- An estimated total length of time to complete the module. A well-designed module is kept relatively short so as not to dampen the motivation to learn.
- Different presentations for the material based on the objectives and the resources available. For example, information may be given via programmed instruction or through a series of readings. This can be followed by a video presentation of a relevant case study, with the requirement that the learner write a response to what has been read and observed.
- Periodic self-assessments to provide feedback to the learner throughout the module. The user is frequently required to do periodic self-assessments prior to moving on to the next unit. This allows the learner to decide whether the previous information has been processed sufficiently enough to move on to the next unit.

- A post-test to evaluate the learner's level of mastery in achieving the objectives. If learners are aware that a post-test needs to be completed, this requirement encourages them to pay attention to the information. Keeping a record of final outcomes is helpful in staff, students, and client education as documentation of competency, as proof that standards were met, and in planning for continuing education.

Self-directed learning represents an attractive alternative to traditional classroom and group learning methods in today's rapidly changing healthcare environment. Hospitals and community agencies are not always able to release staff in large numbers for continuing education programs that are rigidly timed—a constraint that conflicts with the need to share information on the newest advances and documentation of continuing competence of staff. Self-instruction modules, therefore, are excellent choices for annual training updates on selected topics or skills that require periodic review to determine competency (Centers for Disease Control and Prevention, 2018a, 2018b; Chaghari et al., 2017; Murad & Varkey, 2008).

The internet also offers a myriad of continuing education self-directed learning modules. Nurse practitioners, for example, can be educated about numerous problems and issues in primary care through the independent use of interactive, realistic case studies. E-mail to and from educators can facilitate communication (Hayes et al., 2000).

The information explosion coupled with the rapidly advancing technology of computers and smartphones has made web-based teaching and learning available for client education, staff development, and student instruction (Stuart & Triola, 2015). Self-instruction modules have been found to be cost effective because they are designed for use by large numbers of individuals with minimal and infrequent revisions. It may be less time consuming and more efficient to purchase, rather than produce, a self-instruction

module if the information presented in a commercial product is appropriate for the target audience.

Computer-assisted instruction (CAI), for example, is an individualized method of self-study using technology to deliver an educational activity. CAI allows learners to proceed at their own pace with immediate and continuous feedback on their progress as they respond to a software program. Most computer programs assist the learner in primarily achieving cognitive domain skills (DeYoung, 2014), but psychomotor skills can be effectively taught through a web-enhanced approach (Bluestone et al., 2013; Salyers, 2007). CAI offers consistent presentation of material and around-the-clock accessibility. This teaching method not only saves time, but also accommodates different types of learners. It allows beginning learners to repeat lessons as many times as necessary, whereas learners who are already familiar with material can skip ahead to more advanced material (DeYoung, 2014).

Although this technology delivers content, it allows more time for the educator to concentrate on the personal aspects of individual reinforcement and ongoing assessments of learning. For example, CAI has been used with high satisfaction by caregivers of older adults to provide education on the benefits of exercise (Ponpaipan et al., 2011). Noh and Kim (2019) examined self-directed learning combined with blended coaching, which proved to be an effective approach to improve nursing students' competency and satisfaction in clinical practice.

Recently, computer programs, known as interactive health communication applications (IHCAs), have been used by people with chronic disease. Research findings indicate that IHCAs can improve user knowledge, have a positive effect on social support, lead to better clinical outcomes, and increase self-efficacy when compared to nonusers of IHCAs (Murray et al., 2005). See Chapter 12 for more detailed information on using the computer as an instructional tool for teaching and learning.

Table 11-10 lists the main advantages and limitations of self-directed learning as a method of teaching.

Table 11-10 Major Advantages and Limitations of Self-Directed Learning

Advantages	Limitations
Effective for learning in the cognitive and psychomotor domains.	Limited with learners who have low literacy skills.
Allows for self-pacing.	May not be appropriate for learners with visual and hearing impairments unless accommodations and resources are made available.
Stimulates active learning.	
Provides opportunity to review and reflect on information.	Requires high levels of independence and self-motivation.
Offers built-in, frequent feedback.	Not good for learners who tend to procrastinate.
Indicates mastery of material accomplished in a particular time frame.	May induce boredom in a population if this method is overused with no variation in the activity design.

Remote Learning

Remote learning, also commonly referred to as online learning, distance learning, e-learning, web-based learning, distance education, and virtual learning, is an ideal way to maximize resources and to transmit current information to people separated by

space and time. Through this strategy, the cost, time, and inconvenience of travel no longer can keep an audience from meeting face-to-face with an expert (Cook et al., 2008; DeGolia, 2016).

The various terms used to describe education via electronic technology delivered across space and time are often considered synonymous but there are distinctions. These terms share many similarities, but they also have some differences. These remote modes of teaching and learning are alike in that they all rely on the internet, the intranet, and/or the web to receive and to share information; they all take place at a distance (space); and they can use both synchronous and asynchronous modes of communication (time). They also can vary in the electronic tools used for teaching and learning. For example, web-based learning environments have discussion forums that rely on email, videoconferencing, and/or videostreaming (live lectures), whereas virtual learning environments typically combine functions, such as chat rooms and discussion boards, with student assessment measures and course administration techniques (McKimm et al., 2003; Moore et al., 2010; de Tantillo & Christopher, 2020; Wasim et al., 2014).

Recently, remote learning seems to be accepted as the umbrella term for any learning that takes place across distance (not in a classroom located in a school building) and with instruction and learning materials accessible electronically. In nursing education, online learning and e-learning have been, and still are to some extent, common terms found in the literature, but since the onset of the COVID-19 pandemic, *remote learning* and *remote working* have become the lexicon in primary, secondary, and higher education and in work settings. For years, education has been delivered *on-site* and the workplace for the majority of people also has been onsite. *Off-site* conferences and meetings can be held with groups at a location away from the typical workplace or typical teaching and learning setting, but remote means people are physically removed from one another but still can communicate in real time or at a time convenient to them.

Using different types of technology—computers, laptops, and mobile phones as well as online platforms such as Zoom and Cisco Webex—has not only helped educators to meet learners' individual needs and styles of learning but also to meet their own needs to interact with students, other educators, and administrators. Technology has, in many cases, made the teaching and learning process more convenient, accessible, and stimulating, particularly for students and staff nurses seeking continuing education who desire more control over their study time, prefer to independently absorb the materials for learning, and whose work schedules vary or are inflexible (Xu, 2016). However, the COVID-19 pandemic certainly has brought attention to the benefits and barriers of remote learning. Without the means for educators to communicate with students remotely, structured learning for the most part would have ceased during the pandemic. Debate, though, has arisen among educators, students, and public stakeholders about the drawbacks of online courses for teaching and learning, particularly in the generation of very young learners who need peer socialization and who may not have the required technology resources, and among older adults who may not feel comfortable and confident using various modes of technology and who also may not have the necessary technology resources.

The role of the educator may be more complex with remote learning in comparison to the educator's traditional role in the classroom. It is essential that the educator maintain open lines of communication with all learners, must be accessible, and must establish clear expectations of student responsibilities. Especially during COVID, psychological support of faculty and students is essential, especially in light of having to use advanced technologies and learning management systems (de Tantillo & Christopher, 2020). More research needs to be conducted on the role of adaptation with this contemporary method of teaching (Koch, 2014). As for the impact on student learning, indications are that remote education has positive influences, such as primarily improving cognitive skills and to some extent the development of affective and psychomotor skills, increasing participant satisfaction, enhancing critical thinking, and increasing independence and self-directed learning, but much more

evidence is needed through empirical research. See Chapter 12 for computers as an instructional tool and Chapter 13 for technology as a multipurpose and multimedia resource for teaching and learning.

Currently, remote learning has grown into a platform that augments knowledge acquisition and further captures the attention of a wider audience (Paudel, 2021). Educators' perspectives on and talents with online learning are key to the integration and success of supporting learners, needs and expectations. Through meaningful faculty–student and student–student interactions, learning at a distance has the potential to enable students' self-efficacy via a greater self-centered learning platform. As the cost of education continues to rise and resources become limited or reduced, it also has been suggested that connectivity at a distance can be an effective tool to save time, provide flexibility, increase cost-effectiveness, and possibly improve student learning outcomes (Paudel, 2021).

Table 11-11 lists the advantages and limitations of remote learning as a method of teaching (Wasim et al., 2014).

Table 11-11 Major Advantages and Limitations of Remote Learning

Advantages	Limitations
Primarily effective for cognitive learning, but also can influence learning in the affective and psychomotor domains.	Decentralized nature precludes in-person interactions.
Internet, intranet, and web can link resources in many different formats.	Learners can feel isolated.
Efficient in delivering course materials.	Access to appropriate computer equipment can be a problem for some students.
	Frustrating if learners have difficulty accessing information,

Resources can be made available from any location at any time.

Encourages more independent and active learning.

Increases accessibility for part-time, mature, employed students.

Technology provides a source of supplemental materials for learning.

Potential to provide multisensory stimulation.

Enhances critical thinking and decision making.

such as graphics and video clips, or if downloading is slow.

Quality of teaching can vary depending on teacher skills and adherence to standard criteria.

Infrastructure not always available and affordable to support necessary communication and exchange of information.

Selection of Teaching Methods

The process of selecting a teaching method requires a prior determination of the behavioral objectives to be accomplished and an assessment of the learners who will be involved in achieving the objectives. Also, consideration must be given to available resources such as time, money, space, and materials to support learning activities.

The following are six major questions that should be asked by educators to help them decide which teaching methods to choose based on effectiveness, efficiency, and appropriateness:

1. *Does the teaching method help the learners to achieve the stated objectives?* This question is the most important criterion for evaluation—if the method does not match the learning domain of the predetermined objectives, then all the other criteria are unimportant.
2. *Does the teaching method accommodate the learners who have been targeted?* Accommodation takes into consideration accessibility in terms of the location and setting in which teaching takes place, the availability of resources and equipment to deliver and receive the message, and the appeal it has to learners in terms of their learning needs, learning style(s), and readiness to learn.
3. *Does the teaching method promote inclusivity?* Attention needs to be given to the diversity characteristics of the audience. Inclusive pedagogy “is an approach that aims to make learning as accessible and welcoming to all students as possible” (Sanger, 2020, p. 32). With this in mind, several contexts are necessary to consider, such as the racial, gender, cultural, intellectual, and socioeconomic diversity. Inclusivity promotes student engagement and a sense of belonging when topics, authors, assignments, and activities are selected with student diversity in mind (Sanger, 2020).

4. *Is the teaching method efficient given the time, energy, technology, and other resources available in relation to the number of learners the educator is trying to reach?* Various instructional formats are geared to teaching large audiences (e.g., lectures or team-based learning), teaching smaller groups (e.g., discussion sessions or cooperative learning strategies), or teaching individuals (e.g., one-to-one instruction or self-instruction formats) with consideration given to resources and equipment that are adequate and sufficient to deliver the message intended.
5. *To what extent does the teaching method allow for active participation to accommodate the needs, abilities, and style of the learner?* Active participation has been well documented as an approach to increase interest in learning, promote the retention of information, and improve educational outcomes. No one method can satisfy all learners, but adhering to one method exclusively addresses the preferred style and needs of only a segment of the audience.
6. *Is the teaching method cost effective?* In this era of cost containment, employers and insurers expect patient education programs to yield the best possible outcomes at the lowest price as measured in terms of preventing illness and injury, minimizing the severity and extent of illness, and reducing the length of hospital stays and readmissions. Healthcare agencies want the best staff performance with the most reasonable use of resources and the least amount of time taken away from actual practice. The goal of educational institutions is for the greatest number of students to achieve at the highest level possible based on available resources, such as realistic student/faculty ratios, the latest type and amount of equipment needed for teaching and learning, and the use of evolving technology.

No one method is right because the best approach is to provide flexible teaching methods that take into account the criteria included in the previous questions to be considered. Learners need to be challenged by a variety of learning experiences. Also, educators should provide rich learning opportunities for everyone with the

understanding that “some concepts are best taught through hands-on work, some are best taught through lectures, and some are best taught through group discussion” (Glenn, 2009, para. 16).

Educator Self-Assessment

Another important consideration is the comfort level of the educator using certain teaching methods. Educators are at different levels of teaching on the novice-to-expert continuum, which may influence their choices of teaching methods. For example, an expert skilled at facilitating small-group discussion might be a novice in the design or selection of games. A nurse may be an expert clinician but have only limited education and experience that would enable them to be effective in the teaching role. Nurses are expected to teach but may not have adequate time, inclination, energy, or capability for developing the quality and variety of instruction necessary.

Teaching is a skill that can be developed in formal academic settings, in continuing education programs, or through guidance by an expert peer mentor. A novice teacher should begin instruction with very familiar content so that the focus can be on the teaching process itself before they feel more confident in trying out different techniques and strategies for instruction. Questions should be asked of learners and peers in the assessment and evaluation process to determine whether the teaching method chosen was appropriate for accomplishing the behavioral objectives and for meeting the expectations of different learners in terms of their learning needs, learning styles, and readiness to learn.

Most educators have a preferred style of teaching, but some tend to rely on that approach regardless of the content to be taught. Because different styles of teaching exist, it is possible for teachers to conduct a personal inventory (self-evaluation) of their strengths and weaknesses so that a specific teaching style can be integrated with effective classroom management skills (Gill, 2017). In that way, teachers can determine what fits best with their personalities, the content to be taught, and their learner population.

Also, it is equally important that teachers periodically and independently examine their role as educators by assessing such factors as energy, attitudes, knowledge, and skills, which influence the priority they assign to teaching, the teaching methods they select, and the ability to teach effectively. If the teaching–learning process is to be a partnership, not only is it crucial to assess the learner, but it is equally important for nurse educators to assess themselves.

Weimer (2017) points out that for decades educators have focused on teaching and more recently on learning, but both are important and inseparable. This author has studied teacher characteristics and behaviors that make a difference and has created a list of those known to improve learning outcomes and those that are recognized as prominent from a wide variety of qualities. Students were then asked to prioritize these qualities from their perspective. For teachers, the list of characteristics, such as assertiveness, responsiveness, trustworthiness, caring, and competence, merits review, self-appraisal, and recommitment to the educator role by all teachers. With respect to competence, in 2016 the World Health Organization (WHO) put forth a set of nurse educator core competencies that outlines performance expectations to ensure they possess the knowledge and skills to effectively carry out their role in delivering contemporary teaching and learning strategies that will prepare nurses for practice in the 21st century.

Evaluation of Teaching Methods

An important aspect of evaluating any instructional program is to assess the effectiveness of teaching methods for patient, staff, and student learning. Friedman et al. (2011) conducted a systematic review of a variety of teaching methods and delivery strategies (instructional materials) for patient education addressed in this chapter and Chapter 13. He identified demonstrations, computer technology, audio- and videotapes, and written materials to be most effective for increasing patients' knowledge and satisfaction and decreasing their anxiety. The more structured, culturally appropriate, and patient-specific teaching methods and strategies were the most effective.

Other, more recent studies have focused on evidence-based teaching strategies that facilitate transfer of knowledge between theory and practice for students at all levels of nursing education. For example, Breytenbach et al. (2017) conducted an integrative review of eight teaching methods and concluded that all of them increased knowledge to some extent, which indicated that educators should select a variety of teaching approaches for instruction. However, these researchers concluded that additional investigation is needed to compare impact and best use of different teaching strategies. Culver et al. (2018) used a descriptive study design to explore educators' knowledge, beliefs in effectiveness, and use of teaching strategies that helped close the gap between theory and practice as well as identify facilitators and obstacles to using these strategies. They discovered that reflection, simulation, small-group learning, case-based learning, and problem-based learning were the five top methods of choice for teaching in prelicensure nursing education programs.

Thrower et al. (2020) have proposed an eight-step evaluation process to determine the effectiveness of teaching methods that may lead to achievement of course objectives in undergraduate and

graduate nursing education programs. O'Connell and Kaur (2020) reviewed 145 experimental and quasi-experimental studies on teaching and learning methods, of which more than half were published outside the United States, 80% focused on undergraduate student education, and more than 60% were conducted since 2010. Their findings revealed a need for more research studies to be conducted with greater methodological rigor as well as a need for more funding for education research.

To that end, the National League for Nursing (NLN), whose purpose is to promote excellence in nursing education for a strong and diverse workforce for the nation, has set forth research priorities to advance the science of learning for the achievement of quality patient care outcomes. The NLN has called for rigorous evidence-based research to develop innovative strategies for teaching and learning in nursing education programs across the spectrum of higher education (NLN, 2016).

Characteristics of a Great Teacher

Exceptional teachers have one thing in common—a passion to keep improving their abilities. One never fully arrives at being an expert educator. Instead, the drive toward excellence and creativity is an ongoing process that continues throughout the educator's entire professional life.

The following are characteristics and qualities, not listed in any priority order, that a skilled educator demonstrates in teaching any audience of learners and when using any instructional methodology to stimulate learning (Bradshaw et al., 2021; Brookfield, 2006; Clement, 2018; Crandell et al., 2019; D'Amico & Jaffe, 2021; Dunlosky et al., 2013; Falvo, 2010; Fidyk et al., 2014; Foronda, 2018; Goodboy et al., 2015; Lukehart, 2009; Marcus, 2014; Miller & Stoeckel, 2019; Orlando, 2013; Snowman & McCown, 2015; Weimer, 2014, 2017).

Presents Information Enthusiastically

The educator who comes across as invested in the material excites the learner to identify with the subject at hand. An effective teacher demonstrates an ardent interest in and love for the topic to attract and fascinate an audience. Enthusiasm, passion, and an energetic attitude is contagious and enticing.

Maintains Professionalism

Each day a great teacher projects a professional manner in personal appearance, preparedness, and organization. Communication skills are exemplary when interacting with students, colleagues, or administrators. Constructive criticism and advice are accepted as a way to grow and develop as an educator. A commitment to lifelong learning transmits an important value to others regarding their own

need to pursue continuous personal or professional development. A love of learning, a willingness to share new insights, and a quest to provide learners with the highest quality of education possible are hallmarks of professionalism.

Projects an Attitude of Caring

The ease and patience with which educators conduct themselves, their willingness to receive and answer questions, the simple courtesies extended, and the responsiveness demonstrated toward an audience are all actions that set the tone for a friendly, warm, receptive, and inclusive atmosphere for learning. A great teacher is accessible and approachable; exhibits respect, sensitivity, and caring toward others; and makes learners feel comfortable, confident, and secure in the learning environment. If the educator comes across as believable, trustworthy, and considerate, the audience is put at ease, which serves as an invitation for them to learn. When the educator exercises sensitivity to age, race, culture, and gender, this attitude projects an acceptance of others, which serves to establish a rapport and opens avenues of communication for the sharing of ideas and concerns.

Exhibits Flexibility and Risk-Taking Behavior

Effective educators are willing to use a variety of teaching methods and develop exercises in which many variables can lead to any number of possible outcomes. They use this technique to encourage learners to reach their own conclusions about controversial issues. Teachers who allow learners freedom to experiment and express their ideas focus more on the process than on the result. Regardless of the outcome, great teachers welcome change, are prepared to deal with uncertainty, and are willing to “shift gears” if a method of teaching or an activity is not working well.

Delivers Material Dramatically

Effective educators seek ways to arouse the learner emotionally by using surprise, controlled tension, or ploys. Strategies, such as games and role-play, test the learners' capacities and make information more understandable and relevant. Taping mock test questions randomly under student chairs and then rewarding them for right answers adds some drama and fun to the classroom. If playing a game as teams, ask them to generate their own team names, which adds some humor and creativity to the learning situation. These strategies help connect the educational material directly to the learner's life experiences to make information more understandable, enjoyable, and relevant. These activities engage the learner in the learning experience and can leave a profound, lasting impression that can be recalled vividly and drawn upon when faced with a real situation.

Sets High Expectations

Great teachers know that learners give as much or as little as is expected of them. Learners need to be immersed in demanding activities that require them to search and sort data, uncover problems, stretch their imaginations, think critically, and find solutions. For example, staff and students must have the ability to identify both patient and system needs and are expected to cooperatively work within interprofessional teams to determine and implement solutions to healthcare problems. Patients, especially those with chronic conditions, need problem-solving skills to know how to flexibly respond to the demands of and changes in their health. What should they do differently on a sick day? What constitutes an emergency? Patients and their families need more than just low-level cognitive information to make the needed adjustments in their lives. Educators must devise and orchestrate opportunities that challenge learners to critically analyze situations as well as support learners in exploring possible alternative solutions to meet their needs. Expectations greatly influence the achievement level of learners.

Serves as a Role Model

Educators are viewed as credible role models when they are actively engaged in scholarly activities, are experienced in the field, and have advanced credentials to teach complex skills. The believability of a role model is greatly affected by the values displayed and the congruence demonstrated between what the educator says and does. Educators should constantly seek out new information by keeping abreast of current research, theories, and issues that apply to clinical practice. Expanding their own knowledge base gives credence to what they teach and gains the confidence of learners in the educator's expertise. If learners regard the behavior of the creative educator as positive and desirable, they will likely imitate that behavior.

Uses Anecdotes and Examples

The creative educator uses stories and examples of incidents and episodes to illustrate points. Anecdotes, whether amusing, alarming, sad, or anger provoking, are valuable in driving a point home, clarifying a topic under discussion, or helping someone better relate to an issue. Often simple examples relevant to past experiences can assist the learner to grasp complex ideas and connect in concrete ways with the material being taught. For example, a child with a serious infection can be helped to understand how the body is working to heal itself by using the analogy of police cells (lymphocytes) fighting against outlaw cells (bacteria).

Takes Advantage of Technology

Innovative educators continue to increase the level of their own skills by taking advantage of the advances in technology to introduce and coach others in new ways of learning. Using different types of technology not only helps educators meet the learner's individual needs and styles of learning but also makes the teaching–learning process more convenient, accessible, and stimulating. The

sophisticated use of technology is a primary skill the educator will need to teach in educational programs of the future and to prepare students for learning in the 21st century.

Gives Positive Reinforcement

Acknowledging ideas, actions, and opinions of others by using words of praise or approval, such as “That’s a good answer,” “I agree with you,” and “You have a very good point,” or using nonverbal expressions of acceptance, such as smiling, nodding, or a reassuring thumbs up, encourages learners to participate more readily or try harder to improve their performance. A great teacher realizes that recognizing and rewarding even a small success can instill satisfaction and motivation in the learner.

Is Organized and Gives Direction

Teaching is effective if it is logically organized, objectives are clearly defined and presented up front, and directions are given in a straightforward, specific, and easily understood manner. Excellent discussions, meaningful experiences in role-play, and successful attempts at self-study are examples of teaching that do not happen by accident. Instead, they are a result of hours of skilled preparation, careful planning, and organization on the part of the teacher, which allows the learner to stay focused on the objectives to have the opportunity for success.

Uses Humor

Gifted teachers make learning interesting and enjoyable. One technique is to use humor to grab, arouse, and maintain the attention of the learner. Appropriate humor can help establish a rapport with learners by humanizing the educator. Humor establishes an atmosphere that allows for human error without embarrassment and encourages freedom and comfort to explore alternatives in the

learning situations. Humor is a means to reduce anxiety when dealing with sensitive material, to provide poignant examples of everyday life experiences, and to reinforce information.

Elicits Feedback

Influential teachers realize that feedback is important, because teaching and learning is a two-way process. The effectiveness of teaching depends to a large extent on the learners' reactions to the content. Feedback should be encouraged during as well as at the end of each teaching–learning encounter. The educator should be direct in requesting feedback from the learners by asking open-ended questions such as "What questions do you have?" "How clear is this to you?" "What needs to be explained further?" or "What more can I help you with?" Remember to avoid asking closed-ended questions that elicit only a "yes" or "no" response, such as "Do you understand?" Also, the educator should be sensitive to nonverbal expressions such as a nod, a smile, a look of bewilderment, or a frown indicating an understanding or lack thereof.

Whether positive or negative, verbal or nonverbal, feedback enables the educator to determine whether they should maintain or modify their approach to teaching, proceed with the lesson or take time to review or explain, change the pace of delivery, or cease instruction altogether for the moment. Learners appreciate the teacher who is tuned into their needs and open to suggestions. Also, answers to questions allow the educator to arrive at an evaluative judgment as to the progress the learner is making in the achievement of the behavioral objectives.

Uses Teach-Back

No matter what teaching methods are used, a key strategy that effective teachers employ is to always take time to pause for a minute or two during the course of any educational encounter to determine how well and how much learners understand the

information that has been presented. The teach-back approach, also known as the tell-back, closing the loop, or show me approach, asks learners to explain in their own words or demonstrate what they just learned. Great teachers know that evaluation is an ongoing process (formative) and should not occur just at the end of an educational experience (summative). This technique is particularly emphasized as important in patient and family education, but it can be used by any audience of learners. In fact, the return demonstration method of teaching is equivalent to the teach-back strategy.

Immediate feedback from the learner is especially important in patient and family education because of the relatively short time nurses have to teach clients before they leave their care and are expected to independently manage on their own. The expert nurse educator recognizes that for various reasons many gaps and errors occur in patient's interpretation and recall of information the first time it is taught to them (Griffey et al., 2015). The hallmark of a great teacher is that this technique is used habitually to assess and evaluate learners.

Uses Repetition and Pacing

Skilled teachers adapt their delivery of content to a pace that holds the learners' attention. They are in tune with their audience to know if their pace of teaching is slow enough to allow learners to absorb the information presented yet fast enough to maintain their interest and enthusiasm. Also, repetition, if used in the right amount, is a technique that strengthens and reinforces learning by aiding in the retention of information (Karpicke, 2016). Expert teachers are perceptive and sense when learners are confused or lost. They know that saying the same thing in a different way is a form of repetition that can clarify and reinforce information.

Settings for Teaching

When working with students and staff, it is customary for educators to categorize places for teaching and learning into structured and unstructured settings. The typical atmosphere for structured teaching is in the classroom, the clinical learning lab, and clinical practice sites within acute care hospitals. Unstructured settings are considered to be community-based environments as well as virtual environments (internet and web-based) for teaching and learning.

Traditionally when teaching patients, the primary focus of nurses in the role of educators has been in acute care hospital settings. Although this remains an important place for teaching, in recent years the delivery of patient education in community-based and outpatient settings has experienced tremendous growth. The reasons relate to the trends affecting the nation's healthcare system in its entirety. These trends include shortened hospital stays, greater responsibility expected by patients for self-care management, shifts in public and private reimbursement policies, changing population demographics, advances in healthcare technology, an emphasis on wellness care, and increased consumer interest in health. In response to these trends, nursing practice has broadened its focus to include a greater emphasis on the delivery of care in community settings, such as homes, clinics, health maintenance organizations, physicians' offices, public schools, and the workplace.

With increased attention on prevention, promotion, and independence in self-care activities, today's newly emerging healthcare system mandates the education of consumers more than ever before. Opportunities for client teaching have become increasingly varied in terms of the types of learners encountered, their specific learning needs, and the settings in which healthcare teaching occurs. Because health education has become an increasingly valued responsibility of nurses in all practice environments, it is important to acknowledge the various settings in which clients, well or ill, may be consumers of health care.

Thus, **settings for teaching** also can be classified according to the need for health education in relationship to the primary purpose of the organization or agency that provides health instruction. These settings are defined as any place where nurses engage in teaching for disease prevention, health promotion, health maintenance, and rehabilitation. They comprise any environment in which health education takes place to provide individuals with learning experiences to improve their health or reduce their risk for illness and

injury. O'Halloran (2003) identified three types of settings for the education of clients:

1. A **healthcare setting** is one in which the delivery of health care is the primary or sole function of the institution, organization, or agency. **Figure 11-1** provides examples of organizations whose specific purpose is to deliver health care, and health education is a part of the overall care provided within these settings. Nurses function to give direct care to patients in this setting, and their role encompasses the teaching of them as part of that care.

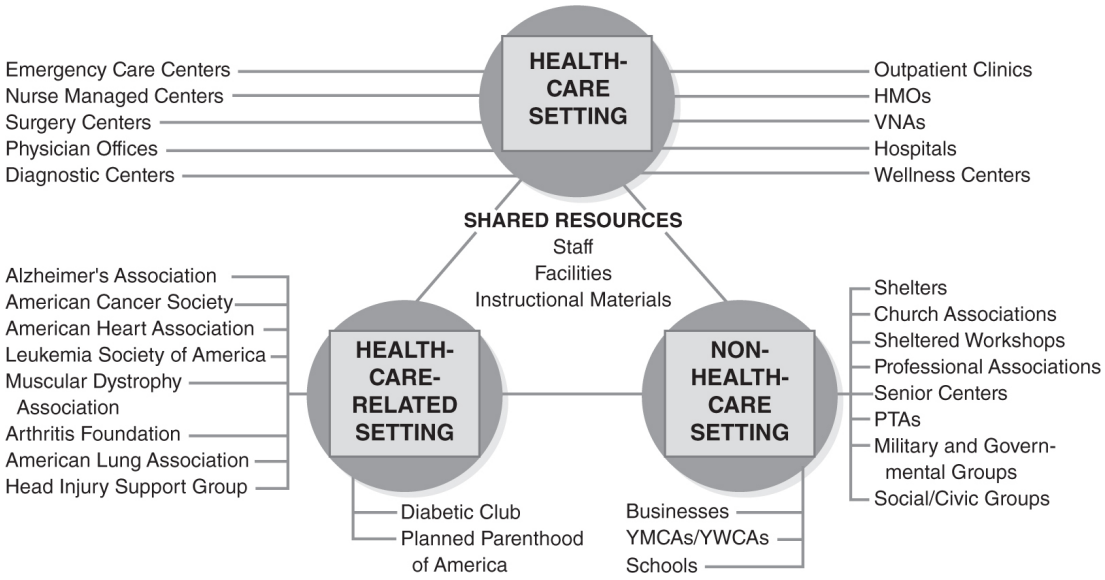

Figure 11-1 Examples of settings for health teaching.

Reproduced from O'Halloran, V. E. (2003). Instructional settings. In S. B. Bastable (Ed.), *Nurse as educator: Principles of teaching and learning for nursing practice* (2nd ed., pp. 465–492). Jones & Bartlett Learning.

Description

2. A **healthcare-related setting** is one in which healthcare-related services are offered as a complementary function of the agency. Examples of this type of setting are included in Figure 11-1. These organizations provide client advocacy, conduct health screenings and self-help groups, distribute health education information and materials, and support research on disease and lifestyle issues for the benefit of consumers within the community. Education on health promotion, disease prevention,

and improving the quality of life for those who live with an illness or disability is the key function of nurses within these agencies.
3. A **nonhealthcare setting** is one in which health care is an incidental or supportive function of an organization. Examples of this type of setting are listed in Figure 11-1. The primary purpose of these organizations is to produce a manufactured product or offer a non-health-related service to the public. Industries, for example, are involved in health care only to the extent of providing health screenings and non-emergency health coverage to their employees through a health office within their place of employment, making available instruction in job-related health and safety issues to meet Occupational Safety and Health Administration (OSHA) regulations, or providing opportunities for health education through wellness programs to reduce absenteeism or improve employee health status and morale.

Classification of these three teaching settings in which the nurse functions as educator provides an alternative frame of reference through which to better understand the interrelationship between the components of the organizational climate, the target audience, and the resources within the environment influencing the educational tasks to be accomplished. The role and functioning of the nurse are affected differently by these components in each of the three previously identified settings.

Nurses must recognize the numerous opportunities available for the teaching of those individuals who are currently or potentially consumers of health care. Given that teaching is an important aspect of healthcare delivery and that nurses function as teachers in a multitude of settings, they will inevitably encounter clients of differing ages and at various stages along the wellness-to-illness continuum. Wherever and whenever teaching takes place, nurses need to recognize the importance of consciously applying the principles of teaching and learning to these encounters for maximum effectiveness in helping clients to attain and maintain optimal health.

Sharing Resources Among Settings

Professional nurses involved in patient and client health education should use available opportunities to share resources among the three identified settings. Many already perform this service, as printed or audiovisual materials are borrowed, rented, or purchased for small fees from area institutions, organizations, or agencies. Also, nurse educators from healthcare or healthcare-related settings are contracted for or voluntarily provide health education programs to small and large groups in another setting. Ideally,

nurses from each of these settings could potentially collaborate on major community health projects. In addition, a health education committee in their community could be established to coordinate health education programming, ensure effective use of all resources, and reduce duplication of efforts. The members of this committee can develop standardized health education content, delineate roles and services for each of the teaching settings, and share resources to provide a well-planned, comprehensive community program of health education for a wide spectrum of clients.

State of the Evidence

As this chapter has revealed, many traditional and nontraditional methods are available for teaching and all of them have advantages and disadvantages for both teaching and learning. Certainly, in the past couple of decades the methods that stimulate active learning have become adopted at virtually all levels of education because evidence suggests that learner participation produces better educational outcomes. However, as Reuell (2019) points out, students often initially find active learning to be hard, frustrating, and less effective than lectures, but eventually they perceive the value of active participation once they see the results of higher test scores and greater achievement of outcomes. Furthermore, cooperative learning strategies that require active involvement build skills that are transferrable from theory to practice and produce learners who can deal better with real-world problems and function more effectively in teams (Brame & Biel, 2015; Clare, 2011; Xu, 2016).

The difficulty with measuring the effectiveness of different teaching methods, whether teaching students, staff, and patients, is that a number of studies identified through a literature search do not make a distinction between teaching methods and instructional materials (tools), such as the studies conducted by Friedman et al. (2011), Saha et al. (2005), and the systematic review protocol proposed by Parasuram et al. (2014). Instead, these authors treat teaching methods and tools as one and the same. This means that the studies' findings cannot be compared or applied as evidence in this chapter, which deals exclusively with methods of teaching. Chapter 12 addresses instructional materials as a distinctly separate entity.

Another factor in determining the effectiveness of teaching methods are the many methods and the multiple variables that can be studied in any combination. For example, problem-based learning may be the method being examined, but one study focuses only on how this method affects critical thinking of nursing students (de Oliveira et al.,

2015) while other studies are interested in how one or more different teaching methods impacts on other learner variables, such as satisfaction levels, retention/recall of information, decision-making skills, achievement of learning outcomes, or a multiple combination of these variables.

Also, some studies are interested in learner characteristics, such as generational differences or learning style differences, yet other research examines the influence of methods on students at different levels of education (undergraduate or graduate) or at all levels of nursing education. In other words, it is difficult to compare the results of one study with the results of another to come to a conclusion about which teaching methods are more effective than others.

As for the education of learners, their backgrounds and circumstances can be very different and complex. In particular, patients and their families present with a wide variety of illness prevention and wellness needs, chronic and acute illnesses, socioeconomic levels, developmental stages, cultural values, reading abilities, learning styles, motivation levels, and social support. Also, nursing students and nursing staff differ widely in terms of their own educational and experiential backgrounds and their learning needs. This reality makes it difficult to generalize the results of research studies as to the cause-and-effect relationship between the teaching method(s) used and the outcomes achieved.

Breytenbach et al. (2017) explored a variety of evidence-based teaching methodologies available to nurse educators and found that these identified methods increased learner knowledge in some ways and to some extent. However, these authors noted that no integrative review of the literature was found that summarized the best teaching strategies for nurse educators to use and that further research is needed to actually compare the impact of different teaching strategies and best use of these strategies in nursing education. O'Connell and Kaur (2020) called for more experimental studies on a variety of teaching methods to be conducted to generate the highest level of evidence for nurse educators to base

their selection decisions. Also, more systematic reviews and meta-analysis research studies are needed.

Many empirical studies and expert reviews have been used in this chapter to substantiate the effectiveness of the various teaching methods available to educate different patient, student, and staff populations. However, further research is needed to determine the effectiveness of various teaching methods for reaching different audiences about selected topics they need to learn. For example, what is the most effective and efficient method to teach healthcare consumers about important safety behaviors for optimal self-care management?

Summary

This chapter presented an in-depth review of the various teaching methods, traditional and nontraditional, and compared the advantages and limitations of each approach. In particular, attention was focused on the newer cooperative learning methodologies that stimulate active learner involvement. Given the vast array of methods at the educator's disposal, a number of factors must be considered in selecting a method, such as the characteristics of the audience, the educator's expertise, and the learning objectives to be achieved. Major questions were posed to help educators decide which teaching methods to choose based on effectiveness, efficiency, and appropriateness. In addition, this chapter included the importance of educator self-assessment, of evaluating teaching methods, and of the characteristics possessed by great teachers. Finally, this chapter briefly addressed the many settings in which teaching takes place.

What is important to stress is the fact that no one teaching method is better than another. The effectiveness of any method depends on the purpose for and the circumstances under which it is used. Nurses in the role of educators are urged to take different approaches to teaching rather than rely on any one method. Varying the teaching methods or using methods in combination with one another can assist educators in accomplishing the objectives for learning while meeting the different needs and styles of every learner.

Multisensory stimulation is best for increasing the acquisition of skills and the retention of information. Research regarding patient, staff, and student education is increasing. It is imperative that nurse educators demonstrate a willingness to make decisions about choosing and using teaching methods based on the evidence that is emerging as to the most effective ways to teach in relation to learner and situational variables.

Review Questions

1. Are teachers born or made? Explain.
2. How is the term *teaching method* defined?
3. What are the advantages and limitations of each teaching method?
4. Which teaching methods are most effective in encouraging active participation by the learner?
5. Which teaching methods are best for learning cognitive skills? Psychomotor skills? Affective skills?
6. Which major questions should educators ask themselves when selecting a teaching method? Identify the most important question in the selection process.
7. What are the characteristics that make great teachers?
8. What are the ways to classify settings for teaching?

CASE STUDY

Raphael Romano, RN, EdD, is a nurse educator in a traditional 4-year baccalaureate nursing program. He has been teaching for 5 years and is highly invested in his role as both an academic and clinical instructor. His undergraduate course of 30 students consists of second-year students enrolled in a professional socialization course. Students range in age from 18 to 27 years.

The learning objectives for this week's class are to enhance students' knowledge, attitudes, and practice interventions for the delivery of optimum care to older adults in any healthcare setting. Raphael's focus for the next 3-hour class is on characteristics of professionalism in caring for this population, with emphasis on exploring therapeutic communication strategies, applying ethical principles, and counteracting the unfortunate prejudice of ageism in meeting the special needs of older adults and their families.

1. Prior to the selection of teaching methods for learning, what major questions should Raphael be asking himself?
2. What are two teaching methods that Raphael could choose that will be effective and efficient in helping students in this class to learn the cognitive and affective skills needed to gain perspectives on how to optimize care for this specific population?
3. Why are these methods good choices for this particular audience of learners?

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CHAPTER 12

Instructional Materials

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Chapter Highlights

- General Principles
- Choosing Instructional Materials
- The Three Major Components of Instructional Materials
  - Delivery System
  - Content
  - Presentation
- Types of Instructional Materials
  - Written Materials
  - Demonstration Materials
  - Audiovisual Materials
- Evaluating Instructional Materials
- State of the Evidence

KEY TERMS

analogue

audiovisual materials

characteristics of the learner

characteristics of the medium

characteristics of the task

delivery system

haptic device

illusionary representations

instructional materials

multimedia learning

realia

replica

symbol

symbolic representations

tailored instruction

OBJECTIVES

After completing this chapter, the reader will be able to:

1. Differentiate between instructional materials and teaching methods.
2. Discuss general principles that apply to all types of instructional materials.
3. Identify the three major variables (learner, medium, and task characteristics) to be considered when selecting, developing, and evaluating instructional materials.
4. Cite the three components of instructional materials required to effectively communicate educational messages.
5. Identify the many types of instructional materials—printed, demonstration, and audiovisual media—available for client and professional education.
6. Describe the general guidelines for development of printed materials.
7. Analyze the advantages and disadvantages specific to each type of instructional material.
8. Evaluate the type of materials suitable for instruction depending on such variables as the size of the audience, the resources available, and the characteristics of the learner.
9. Identify where instructional materials can be found.
10. Critique instructional materials for value and appropriateness.
11. Recognize the supplemental nature of instructional materials in client, staff, and student education.

Whereas teaching methods are the approaches the nurse uses to deliver education, **instructional materials** are the objects or vehicles by which information is communicated. Often these terms are used interchangeably, and they frequently are referred to, in combination with one another, as *teaching strategies and techniques*. Nevertheless, teaching methods and instructional materials are not the same, and a clear distinction can and should be made between them. Teaching methods are the way information is taught. Instructional materials, which include printed, demonstration, and audiovisual media, are the tools used to enhance teaching and learning. How effective these multimedia approaches are must be based on theory about the way people learn, on studies that examine the effects of each tool on the learner, and on evidence from practice (Mayer, 2014; Stuart & Triola, 2015).

Instructional materials are the tools and aids used to transmit information that supplement, rather than replace, the act of teaching and the role of the nurse as educator. These materials by which information is shared with the learner must be examined closely because they represent an important aspect of the education process. Given the numerous factors affecting both the teacher and the learner, such as the increase in nursing staff workloads, the decrease in length of inpatient stays or outpatient visits, the increase in patient acuity, the alternative settings in which education is now delivered, the varied learner characteristics and preferences, and the shrinking resources for educational services, it is imperative that the nurse educator understand the various types of printed, demonstration, and audiovisual materials available to help nurses teach efficiently and effectively.

Instructional materials provide the nurse educator with tools to deliver education messages creatively, clearly, accurately, and in a timely manner. They help the educator reinforce information, clarify abstract concepts, and simplify complex messages. Multimedia resources serve to stimulate a learner's senses as well as add variety, realism, and enjoyment to the teaching–learning experience. They have the potential to assist learners in not only acquiring knowledge and skills but also retaining more effectively what they learn. Research indicates that a variety of printed, demonstration, and audiovisual materials do, indeed, enhance teaching and learning (Agarwal et al., 2020; Bijani et al., 2020; Stuart & Triola, 2015).

This chapter provides an overview of how to select, develop, implement, and evaluate instructional materials. The advantages and disadvantages of the various types of instructional materials are discussed. The choice of one or more of them often depends on availability and cost. Even though there is no clear distinction of where audiovisual materials end and technology advances begin, the focus of this chapter includes audiovisual materials incorporated into the content being taught without considering specific technology delivery systems, which are beyond the scope of this chapter. This chapter is intended to assist nurse educators to make informed decisions about choosing and using appropriate instructional materials that fit the learner, that affect the motivation of the learner, and that accomplish the expected learning outcomes. Whether nurses educate patients and their families, nursing staff, or nursing students, the same principles apply in making decisions about the type of materials selected for instruction and appropriate educational strategies (see the TPACK model in Chapter 13).

General Principles

Before selecting or developing instructional materials from the many available options, nurse educators should be aware of the following general principles regarding the effectiveness of these tools (Agency for Healthcare Research and Quality (AHRQ), 2020; Dugdale, 2019):

- The teacher must be familiar with the content and mechanics of a tool before using it.
- Printed, demonstration, and audiovisual materials can change learner behavior by influencing cognitive, affective, and psychomotor development.
- No one tool is better than another to enhance learning because the suitability of any particular instructional material depends on many variables.
- Instructional materials should complement, reinforce, and supplement—not substitute for—the nurse educator's teaching efforts.
- The choice of material should match the content and the tasks to be learned.
- The instructional material(s) selected should match available financial resources.
- Instructional aids must be appropriate for the physical conditions of the learning environment, such as the number of learners, the space, the lighting, the sound projection, and the hardware (delivery mechanisms) used to display information.
- Instructional materials should match the sensory abilities, developmental stages, and educational level of the learners.
- The messages conveyed by instructional materials must be accurate, up to date, appropriate, unbiased, and free of any unintended content.
- The tools used should contribute in a meaningful way to the learning situation by adding or clarifying information.

Choosing Instructional Materials

Nurse educators must consider many important variables when selecting instructional materials. The role of the nurse educator goes beyond the giving of information only; it also involves skill in designing and planning for instruction. Learning can be made more enjoyable for both the learner and the teacher if the nurse educator knows which instructional materials are available, as well as how to choose and use them to best enhance the teaching–learning experience (FindAnyAnswer, 2020; Woods & Rosenberg, 2016).

Knowledge of the different instructional materials available and their appropriate use helps nurses make education more interesting, challenging, and effective for all types of learners. With current trends in healthcare reform, educational strategies to teach patients need to include instructional materials for health promotion, illness prevention, health maintenance, and rehabilitation.

Making appropriate choices of instructional materials depends on a broad understanding of three major variables: (1) **characteristics of the learner**, (2) **characteristics of the medium**, and (3) **characteristics of the task** to be achieved (Frantz, 1980; Woods & Rosenberg, 2016). A useful mnemonic for remembering these variables is LMAT—standing for learner, medium, and task.

1. *Characteristics of the learner*. Many variables are known to influence learning. Nurse educators, therefore, must know their audience so that they can choose those tools best suited to the needs and abilities of various learners. They must consider sensory and motor abilities, reading skills, motivational levels (locus of control), developmental stages, learning styles, gender, socioeconomic characteristics, and cultural backgrounds.
2. *Characteristics of the medium.* A wide variety of media—printed, demonstration, and audiovisual—are available to enhance teaching methods. Print materials are the most common form

through which information is communicated, but demonstration tools and nonprint media, which include a large range of audio and visual possibilities, are popular and useful choices. Because no single medium is more effective than all other options, the educator should be flexible in considering a multimedia approach to complement methods of instruction.

3. *Characteristics of the task.* Identifying the type of learning domain (cognitive, affective, and/or psychomotor), as well as the complexity of behaviors to be achieved to meet identified objectives, defines the task(s) that must be accomplished.

The Three Major Components of Instructional Materials

Depending on the teaching methods chosen to communicate information, educators must decide which instructional materials are potentially best suited to assist with the process of teaching and learning. The delivery system (Weston & Cranston, 1986), content (Bruner, 1964), and presentation (Frantz, 1980) are the three major components that educators should keep in mind when selecting print and nonprint materials for instruction.

Delivery System

The **delivery system** includes both the software and the hardware used in presenting information. For instance, the educator giving a lecture might choose to enhance the information being presented by using PowerPoint slides (software) delivered via a computer (hardware). The content on DVDs (software), in conjunction with a DVD player (hardware), and CD-ROM programs (software), in conjunction with computers (hardware), are other examples of delivery systems.

The appropriateness of the medium to convey the chosen information needs to be considered. Pamphlets, posters, and podcasts, for example, can be very useful tools for sharing information to change behavior in the cognitive or affective domain but are not ideal for skill development in the psychomotor domain. Videos as well as real equipment or models with which to perform demonstrations and return demonstrations are much more effective tools for learning psychomotor behaviors.

The choice of the delivery system is influenced by the number of learners to be taught at one time, the pacing and flexibility needed for the effective delivery of information, and the sensory aspects

most suitable to an individual patient or group. More recently, the geographical distribution of the audience has emerged as a significant influence on choice of delivery systems, given the popularity of distance education and e-learning modalities.

Content

The content (intended message) is independent of the delivery system and is the actual information being communicated to the learner. When selecting instructional material(s), the nurse educator must consider several factors related to the content (Bruner, 1964; Ignatavicius, 2019; Schunk, 2020):

- **Relevance:** Key concepts require prioritization to avoid content saturation, which can cause cognitive overload that decreases learning.
- **Conceptualization:** Conceptual learning of essential material increases understanding and retention.
- **Accuracy and currency:** The content needs to be error-free and up-to-date.
- **Types of knowledge:** When determining content to share, three types of knowledge must be considered:
  - *Declarative knowledge* centers on facts, ideas, beliefs, and theories.
  - *Procedural knowledge* is knowing how and being able to do some skill.
  - *Conditional knowledge* offers context and rationale for when and why an idea or skill is appropriate.
- **Organization:** New content should be added to prior experiences or recently acquired learning by using schemas that organize and provide structure to link new information to prior content, which increases retention.
- **Symbolic illustrations:** Content illustrated with visual images (referred to as iconic knowledge) promotes recognition of objects and enhances retention.
- **Readability level of materials:** The literacy level of content must match the learner's reading and comprehension abilities.

> The more complex the task, the more important it is to write clear, simple, succinct instructions enhanced with illustrations so that the learner can understand what is being conveyed (AHRQ, 2019b).

Presentation

The form of the message is a very important component for selecting or developing instructional materials. However, a consideration of this aspect of any tool is frequently ignored. Weston and Cranston (1986) describe the form of the message as occurring along a continuum from concrete (real objects) to abstract (symbols).

Realia

Realia (the condition of being real) refers to the most concrete form of stimuli that can be used to deliver information. For instance, a woman demonstrating breast self-examination is the most concrete example of reality. Because this form of presentation might be less acceptable for a wide range of teaching situations, the next best choice would be a manikin. Such a model, which is similar in appearance to a human figure, has many characteristics that simulate reality, including size and three dimensionality (width, breadth, and depth), but without being the true figure that may very well cause embarrassment for the learner. The message is less concrete, yet using an imitation of a person as an instructional tool allows for an accurate presentation of information to stimulate the learners' perceptual abilities. Further along the continuum of realia is a video presentation of a woman performing breast self-examination. The learner could still visualize a breast self-examination done accurately, but the aspects of only two types of dimensionality are present (depth is absent) in a video format. Thus, the message becomes less concrete and more abstract.

Illusionary Representations

Illusionary representations is a term that applies to a less concrete, more abstract form of stimuli through which to deliver a message, such as moving or still photographs, audiotapes projecting true sounds, 3D animations, and real-life drawings. Although many realistic cues, such as dimensionality, are missing, this category of instructional materials has the advantage of offering learners a variety of real-life visual and auditory experiences to which they might otherwise not have access or exposure because of such factors as location, availability, or expense. For example, pictures that show how to stage decubitus ulcers and audiotapes that help learners discriminate between normal and abnormal lung sounds, although more abstract in form, do to some degree resemble or simulate realia.

For information to be cognitively processed, one or more of the sensory registers in the brain must be stimulated. The educational sensory stimulation methods used most often are vision or *iconic* memory and hearing or *echoic* memory (Schunk, 2020). Stimulating both sensory centers reinforces the information for understanding and retention.

Symbolic Representations

Symbolic representations is a term that refers to the most abstract types of messages, though they are the most common form of instructional materials to communicate information. These types of representations include numbers and letters of the alphabet, symbols that are written and spoken as words that convey ideas or represent objects. Graphs, written texts, handouts, posters, flip charts, and whiteboards on which to display words and images are vehicles to deliver messages in symbolic form. The chief disadvantage of symbolic representations is that they lack concreteness. The more abstract and sophisticated the message, the more difficult it is to comprehend. Consequently, symbolic representations may be inappropriate as instructional materials for learners who are very young, from different cultures, or who have significant literacy problems or cognitive and sensory impairments.

When making decisions about which tools to select to best accomplish teaching and learning objectives, the nurse educator should carefully consider these three media components. When choosing from a wide range of print, demonstration, and audiovisual options, key issues to be considered include the various delivery systems available, the content or message to be conveyed, and the form in which information will be presented. Educators must remember that no single medium is suitable for all learners to acquire and retain information. Most important, the function of instructional materials must be understood—that is, to supplement, complement, and support the educator's teaching efforts for the successful achievement of learner outcomes (Dugdale, 2019).

Types of Instructional Materials

Written Materials

Books and handouts, such as leaflets, pamphlets, brochures, and instruction sheets (all symbolic representations), are the most widely used and most readily available type of tools for teaching. Printed education materials (PEMs) have been described as “frozen language” (Redman, 2007, p. 34) and are the most common form of teaching aid because of the distinct advantages they provide to enhance teaching and learning.

The greatest strengths of written materials are as follows:

- Available as a reference to reinforce information for learners
- Widely used at all levels of society, so this medium is familiar to the public
- Easily obtained through commercial sources, usually at relatively low cost and on a wide variety of subjects
- Provided in convenient forms that are portable, reusable, and easily accessible
- Becoming more widely available in languages other than English
- Suitable for large numbers of learners who prefer reading as opposed to other formats
- Flexible in that the information is absorbed at a speed controlled by the reader

The disadvantages of printed materials are as follows:

- Written words are the most abstract form through which to convey information.
- Immediate feedback on the information presented may be limited.
- A large percentage of materials are written at too high levels for reading and comprehension by many patients (AHRQ, 2019b; Imoisili et al., 2017; Williams et al., 2016).
- Written materials are inappropriate for persons with visual or cognitive impairment.

Commercially Prepared Materials

A variety of brochures, posters, pamphlets, and client-focused instructional sheets are available from commercial vendors. Whether such materials

enhance the quality of learning is an important question for nurse educators to consider when evaluating these products for content, readability, and presentation. Commercial products may or may not be produced in collaboration with health professionals, which raises the question of how factual and understandable the information may be. For example, materials prepared by pharmaceutical companies or medical supply companies might not be free of bias and may contain complex language. Educators must ask several questions when reviewing PEMs that have been prepared commercially, including the following:

- Who produced the item? Evidence should make it clear whether input was provided by a nurse or other healthcare professional with expertise in the subject matter.
- Can the item be previewed? The educator should have an opportunity to examine the accuracy and appropriateness of content to ensure that the information needed by the target audience is provided.
- Is the price of the instructional tool consistent with its educational value?
- Can the tool be used with large numbers of learners? Simple printed instruction sheets may do the job just as well at less expense and can provide the educator with the ability to update the information on a more frequent basis.
- How quickly will the information become outdated?

The main advantage of using commercial materials is that they are readily available and can be obtained in bulk for free or at a relatively low cost (Dugdale, 2019: Fraze et al., 2010). A nurse educator might need to spend hours researching, writing, and copying materials to create informational resources of equal quality and value, so commercially produced materials can save valuable time. Also, some commercial materials are available online that can be customized to the needs of individual clients.

The disadvantages of using commercial materials include issues of cost, accuracy and adequacy of content, and readability of the materials. Some educational booklets are expensive to purchase and impractical to give away in large quantities. Fraze et al. (2010) developed a checklist of some questions to be asked by healthcare providers when determining the appropriateness of PEMs for use by their patients:

- Is the clinical issue being addressed relevant to my practice and my learners?
- Is the material consistent with current evidence-based findings?
- Is the source of this material credible?

- Does this material have the potential to improve patient learning outcomes in various settings?
- Does it fill an unmet need or does it meet learner needs better than the material(s) currently being used?
- Is it visually appealing?
- Does it appear culturally relevant, gender relevant, and age appropriate for learners?
- Does the cover and content engage the learner?
- Is the desired goal for behavior change emphasized?
- Does it contain four or fewer main points with a summary recapping them?
- Is it in conversational writing style, in active voice, with minimal technical jargon?
- Does it have ample white space, high contrast between the print and paper, and a font size of 12 points or larger with serif type?
- Are relevant graphics supporting the text?
- Is it at the appropriate reading level?
- Does it include specific types of healthcare providers, such as midwives or nurses, or use inclusive general terms, such as clinicians or providers?
- Is it available in multiple languages?

Self-Composed Materials

Nurse educators may choose to write their own instructional materials to save costs or to tailor content to specific audiences. Composing materials offers many advantages. For example, by writing their own PEMs, educators can tailor the information to accomplish the following points:

- Fit the institution's policies, procedures, and equipment
- Build in answers to those questions asked most frequently by learners
- Highlight points considered especially important and relevant to share
- Reinforce specific oral instructions that clarify difficult concepts and address specific needs

Betschart et al. (2019) generated an algorithm for the systematic development and validation of PEMs to improve the quality of patient education. Jenkins (2019) suggests leveraging technology to customize PEMs. Schapira et al. (2017) conducted a systematic review of PEMs that were tailored-based to individual patients and found that tailoring communication has the potential to be an effective strategy to improve knowledge for better health-related outcomes.

Doak et al. (1998) outlined specific suggestions for tailoring information to help learners read and remember the message and to act on it. These authors define **tailored instruction** as personalizing the message so that the content, structure, and image fit an individual's learning needs. To accomplish this goal, they suggest techniques such as writing the client's name on the cover of a pamphlet and opening a pamphlet with a client and highlighting the most important information as it is verbally reviewed. In another example, Feldman (2004) describes successful use of childcare checklists that had simple line drawings (no more than two to a page) along with brief written descriptions that led parents with cognitive disabilities through specific care tasks, such as bathing a baby, in a step-by-step fashion. Audiotapes also accompanied these pictures and simple instructions. Additional studies support the effectiveness of tailored instruction over nontailored messages in achieving reading, recall, and follow-through in health teaching (Ivnik & Jett, 2008; Noar & Harrington, 2016; Vosbergen et al., 2015). Bol et al. (2020) address using computers to tailor automated health communication messages to provide effective behavior change interventions for hard-to-reach patient populations.

Of course, composing materials also has disadvantages. Educators need to be extra careful to be sure that materials are well written, attractive, and well laid out, which can be a time-consuming task. Also, the feasibility of developing PEMs needs the support of important stakeholders given the commitment of time and resources necessary to produce a quality product.

Although nurse educators are expected to enhance their methods of teaching with instructional materials, few have ever had formal training in the development and application of written materials. Many tools produced by nurses are too long, too detailed, and written at too high a level for the target audience. See Chapter 7 and Appendix A for the 27 guidelines on how to simplify PEMs so that they are more readable.

Also, Aldridge (2004), Houts et al. (2006), MaineHealth (2010), Dugdale (2019), and Redman (2007) suggest the following important tips to be sure self-composed PEMs are clear and appropriate:

- Make certain the content is accurate and up to date.
- Organize the content in a logical, step-by-step, simple fashion. Avoid giving details because they may unnecessarily lengthen the written information and make it more complex. Prioritize the content to address only what learners need to know.
- Make sure the information clearly and concisely discusses the *what*, *how*, and *when*. Follow the KISS rule: Keep It Simple and Smart, such as using

a question-and-answer format or dividing content into subheadings to address key topics.
- Avoid medical jargon and define any technical terms using simple, everyday language.
- Find out the average grade in school completed by the targeted population and write the PEMs two to four grade levels below that average.
- Always state things in positive, not negative, terms. Never illustrate incorrect messages. **Figure 12-1** illustrates the correct way to use an inhaler and reinforces a positive message.

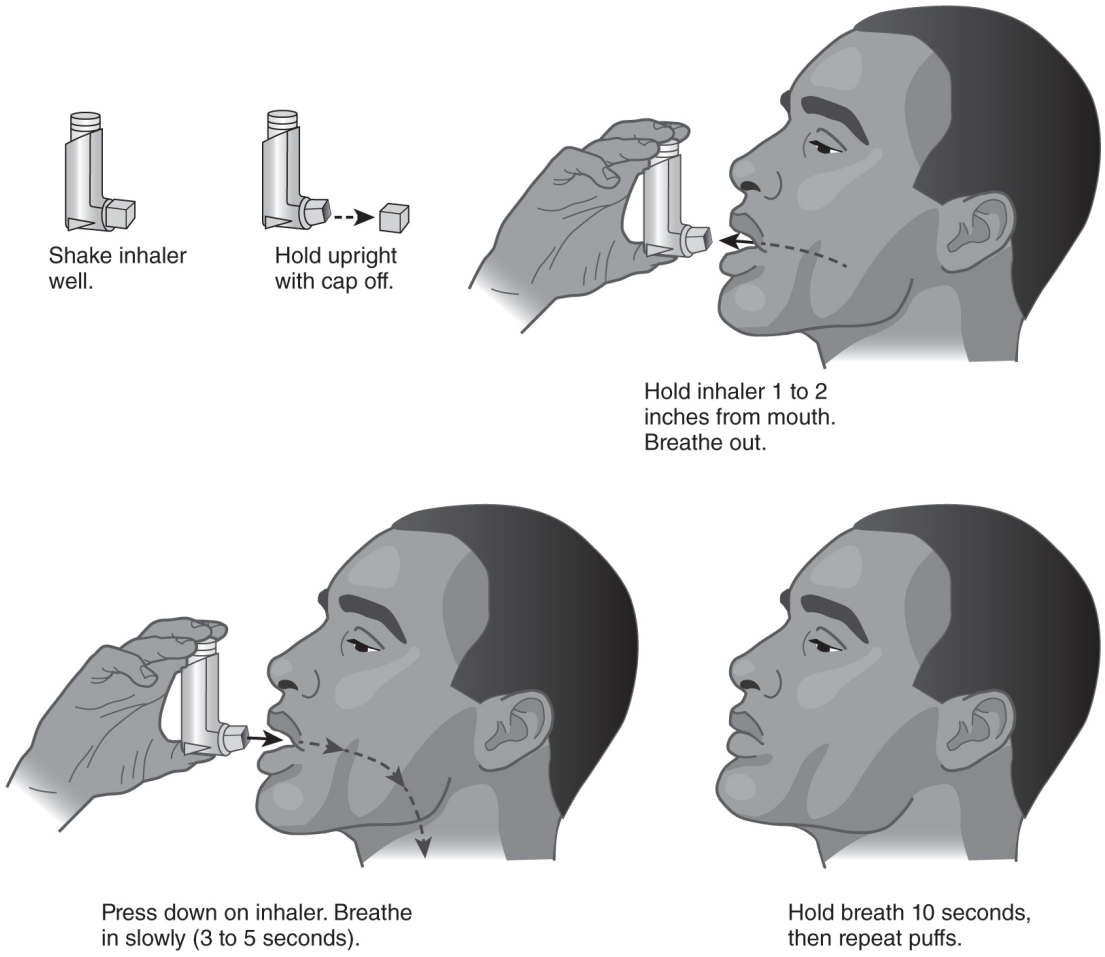

Figure 12-1 Diagram illustrating proper technique for inhaler use.

Description

- Keep the format and appearance looking crisp and uncluttered to motivate learners to read the printed word. **Figure 12-2** illustrates how a simple rather than lengthy format is much more appealing to any reader.

Figure 12-2 Inadequate versus adequate appearance and formatting.

- Include uncomplicated pictures and basic illustrations that show the written instructions step by step. **Figure 12-3** provides a good example of simple, clear graphics with few words to guide the learner through the procedure of how to determine when a metered-dose inhaler is empty with very little room for misunderstanding. Pictures help to increase recognition and recall.

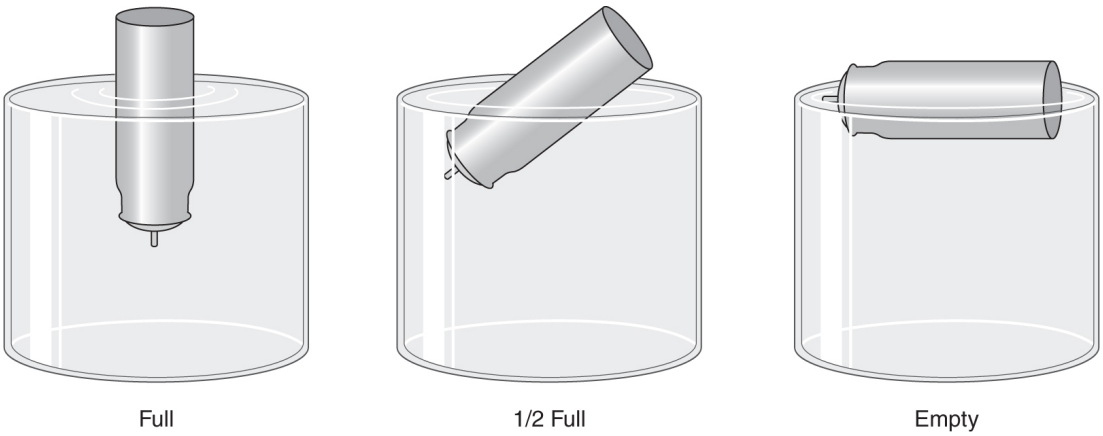

Figure 12-3 Example of a clear, easy-to-follow instructional tool for an asthma patient.

Description

- Use an active voice (one in which the person taking an action is obvious), which is more immediate, directive, and concrete (University of Minnesota, n.d.), rather than a passive voice (in which no actor is obvious or apparent). For example, “Shake the inhaler very well three times” is more effective than “The inhaler should be shaken thoroughly,” because the first version makes it clear that shaking the inhaler is an action the learner should perform, while the second offers no clues about who does the shaking. In addition, be specific about what the learner needs to do—that is, say “shake three times” instead of “shake thoroughly”—as it leaves less room for misinterpretation. See Exhibit 12-1.

  Exhibit 12-1 Example of Instructions Written in the Active Voice

  Steps for Correct Inhaler Technique

  1. Shake the inhaler very well three times.
  2. Remove cap and hold inhaler upright.
  3. Hold the inhaler 1 to 2 inches from your mouth.
  4. Tilt your head back slightly and breathe out fully.
  5. Press down on the inhaler and start to breathe in slowly.
  6. Breathe in slowly and deeply (3 to 5 seconds) to pull the medicine down into your lungs.
  7. Hold your breath for 10 seconds to keep the medicine in your lungs.
  8. Take a few normal breaths.
  9. Repeat puffs by following steps 1 to 8 again
- Provide a linkage of current information to new material by using advance organizers, which provide a structure or schema to guide learners, to illustrate the relationships between concepts (Kwon et al., 2018; Stull & Mayer, 2007), and to strengthen retention (memory storage), retrieval, and transfer of information (Mautone & Mayer, 2007; Radvansky & Ashcraft, 2014). Formats such as outlines, concept maps, and hierarchies are examples.

Evaluating Printed Materials

When evaluating PEMs, educators should keep in mind that the same guidelines for creating or selecting printed materials can be used in evaluating their effectiveness. The importance of using plain language instead of medical jargon cannot be stressed enough. Inadequate understanding of common terms is a significant factor that negatively affects learning. Numerous studies indicate that patients understand medical terms at a much lower rate than expected by health providers (Boodman, 2011; Friedman et al., 2011; Pitt &

Hendrickson, 2019). No matter the context, education is enhanced when following the principles of writing clear, simple, concise, and logically organized content (The Joint Commission, 2007).

In summary, educator-designed or commercially produced PEMs are widely used for a broad range of audiences. They vary in literacy demand levels and may be found written in several languages. Studies of the effectiveness of PEMs on patient health outcomes have reported varied results. If PEMs are used alone, the effect has been small (Giguere et al., 2012; Grudniewicz et al., 2015). If used in combination with verbal information, they improved learners' knowledge and satisfaction with care (Johnson & Sandford, 2005; Schunk, 2020). The literacy level of written communication materials is a major factor in the usefulness of print materials (AHRQ, 2019b; Samuels-Kalow et al., 2012; Pitt & Hendrickson, 2019; Stossel et al., 2012). **Table 12-1** summarizes their basic advantages and disadvantages.

Table 12-1 Basic Advantages and Disadvantages of Printed Materials

Advantages	Disadvantages
Materials are easily accessible and available on many topics.	They are impersonal.
The rate of reading is controlled by the reader.	There is limited feedback; the absence of an instructor lessens opportunity to clear up misinterpretation.
Complex concepts can be explained both fully and adequately.	Printed materials are passive tools.
Procedural steps can be outlined.	Highly complex materials may be overwhelming to the learner.
Verbal instruction can be reinforced.	Literacy skill of the learner may limit effectiveness.
The learner is always able to refer to instructions given in print	Materials may not be available in different languages.

Demonstration Materials

Demonstration materials include many types of visual, hands-on media. Models and real equipment are one type, and a combination of printed words and visual illustrations (diagrams, graphs, charts, photographs, and drawings) in the form of displays are another type. Displays include such instructional tools as posters, bulletin boards, flannel boards, flip charts, chalkboards, and whiteboards. These types of media represent unique ways of communicating messages to the learner. Demonstration materials primarily stimulate the visual senses but can combine the sense of sight with touch and sometimes even smell and taste.

From these various forms of demonstration materials, the educator can choose one or more to complement teaching efforts that will help learners achieve the objectives for learning. Just as with written materials, these tools must be accurate and appropriate for the intended audience. Ideally, they will bring the learner closer to reality and engage them in a visual and active manner (Dugdale, 2019). As such, demonstration tools are useful for cognitive, affective, and psychomotor skill development. The major forms of demonstration materials—models and displays—are discussed in detail here.

Models

Models are three-dimensional objects that allow the learner to immediately apply knowledge and psychomotor skills by observing, examining, manipulating, handling, assembling, and disassembling them while the teacher provides feedback (Burgess et al., 2020; Hatch & Shaw, 2019). In addition, these demonstration aids encourage learners to think critically and abstractly and to use many of their senses (Hatch & Shaw, 2019). Whenever possible, the use of real objects and actual equipment is preferred—but a model is the next best thing when the real object is not available, accessible, or feasible, or is too complex to use. Because approximately 30% to 40% of people are visual learners and 20% to 25% are kinesthetic (hands-on) learners, using models not only capitalizes on their learning styles (preference for learning) but also enhances their retention and understanding of new information (Aldridge, 2009).

Kyaw et al. (2019) conducted a systematic review of virtual reality (VR) models. They found that computer-generated real or artificial three-dimensional multimedia used for teaching allowed learners to explore and manipulate sensory environments, which led to an increase in knowledge and skill outcomes of health professionals as compared to traditional education.

Further investigation is needed to evaluate other outcomes, such as learner satisfaction, attitudes, and cost-effectiveness of VR for teaching and learning in nursing (Chen et al., 2020).

Three specific types of models are used for teaching and learning, as differentiated by Babcock and Miller (1994):

- Replicas, associated with the word *resemble*
- Analogues, associated with the words *act like*
- Symbols, associated with the words *stands for*

A **replica** is an exact copy constructed to scale that resembles the features or substance of the original object. The dimensions of the reproduction may be decreased or enlarged in size to make demonstration easier and more understandable. A replica of the DNA helix is an excellent example of a model used to teach the complex concept of genetics. Replicas can be examined and manipulated by the learner to get an idea of how something looks and works. They are excellent choices for teaching psychomotor skills because they give the learner an opportunity for active participation through hands-on experience. Not only can the learner assemble and disassemble parts to see how they fit and operate, but the learner can also control the pace of learning.

Replicas are used frequently by the nurse educator when teaching the anatomy and physiology of different parts of the body. Models of the brain, limbs, heart, kidney, ear, eye, joints, and pelvic organs, for example, allow the learner to visualize parts of the body not readily viewed or impossible to see without these teaching aids. Interactive virtual reality technology is a popular type of replica used to teach cognitive and psychomotor skills. Learners who regularly refresh their skills using demonstration models as instructional tools are more likely to acquire and maintain their knowledge of and ability to use techniques as compared with those learners who do not (Ekstrand et al., 2018; Sharma, 2017).

A **haptic device** is a specific type of replica using mechanical technology that allows learners to touch, feel, and manipulate three-dimensional objects in real and virtual environments. These devices are particularly effective for psychomotor skill development. While computerized haptic devices involve high-fidelity simulators such as manikins, haptic devices that are not computerized also are effective in providing the learner with cutaneous (skin) sensation and kinesthetic (motion and/or pressure) sensations. Learner interaction can be either active or passive depending on the type of device used as an instructional tool (Rodriguez et al., 2019).

An example of a cutaneous passive haptic device that does not involve motion or action by the learner is a TENS unit, which stimulates sensation on the skin with no activity required on the part of the learner. Active haptic devices involve interaction of the learner with the haptic device, such as when a person who is blind uses braille to read by sensing the raised dots in each cell to process words.

Kinesthetic haptic devices also are divided into passive and active interactions. For a passive kinesthetic experience, the haptic device guides the learner's hand in the correct motion and pressure, such as a training simulator to learn to perform a surgical technique. For an active kinesthetic device, the learner makes the motions and applies pressure to actually experience performing a skill. For example, using a haptic model of an organ, the learner palpates for masses using both motion and pressure. **Figure 12-4** illustrates examples of the categories of haptic devices (Rodriguez et al., 2019).

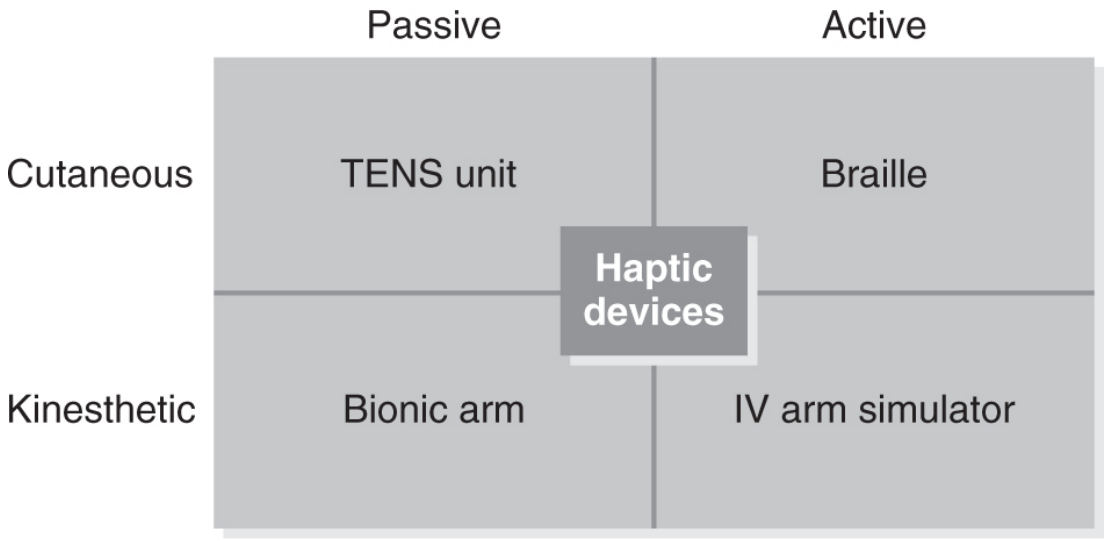

Figure 12-4 Examples of the four types of haptic devices.

Modified from Rodriguez, J. L., Velázques, R., Del-Valle-Soto, C., Gutiérrez, S., Varona, J., & Enríque-Zarate, J. (2019). Active and passive haptic perception of shape: Passive haptics can support navigation. *Electronics, 8*(3), 355. https://doi.org/10.3390/electronics8030355

Description

By first using a replica to teach a technique, educators can desensitize learners before they are taught to do an invasive procedure on themselves or on a loved one. Instructional models have been found to be effective in

reducing fear and enhancing acceptance of certain procedures (Cobussen-Boekhorst et al., 2000). For example, teaching a client with diabetes how to draw up and inject insulin can best be accomplished by using a combination of real equipment and replicas. Clients first draw up sterile saline in real syringes, practice injecting oranges, and then progress to a model of a person before injecting themselves. Sometimes showing a video before directly handling equipment may be helpful if learners are very anxious about performing various procedures. For lessons aimed at psychomotor learning, educators can use skills checklists to evaluate the accuracy of return demonstrations. Simulation laboratories, for example, often use this evaluation method (Alfes, 2010; Kiernan, 2018; Siwe et al., 2009; Wiggins et al., 2018).

The second type of model is known as an **analogue** because it has the same properties and performs like the real object. Unlike replicas, analogue models are effective in explaining and representing dynamic systems. Although costly, a sophisticated human patient simulator is an analogue. High-fidelity simulators are manikins that physiologically respond to treatment in a manner similar to the responses in live human beings.

Clinical simulators for patient and professional education remain an untapped resource for teaching and learning that shows promise in changing knowledge and attitudes (Akhu-Zaheya et al., 2013; Offiah et al., 2019; Siwe et al., 2009). Web-based patient simulation programs for teaching clinical reasoning to health professionals, such as nurse practitioners, is growing in popularity, and the feasibility of these computer analogues continues to be investigated (Coyne et al., 2021; Kleinert et al., 2015; Koivisto et al., 2018; Kononowicz et al., 2019; Luo & Petrini, 2018).

Through advanced technology, three-dimensional computer graphic (3DCG) models can be used as interactive teaching tools and have been found to be more effective and more motivating than static visual tools (Battulga et al., 2012; Ye et al., 2020). Some of these 3D models can be reconstructed from actual patient data (Pujol et al., 2016). 3D printing technology also can be used in teaching patients for the visualization of their conditions, which can lead to improved understanding and informed decision making (Kamani, n.d.).

The third type of model is a **symbol**, which is used frequently in teaching situations. Written words, mathematical signs and formulas, diagrams, cartoons, printed handouts, and traffic signs are all examples of symbolic models that convey a message to the receiver through a visual image or association. International signs, for example, communicate familiar messages that individuals with different language abilities or from multicultural backgrounds can understand. However, abbreviations common to healthcare

personnel, such as NPO, PRN, and QD, should be avoided when interacting with consumers because they are likely to be unfamiliar with these abbreviations.

The advantage of models is that they can adequately take the place of a real object, which may be too small, too large, too expensive, too complex, unavailable, or inappropriate for use in a teaching–learning situation. A variety of models can be purchased from commercial vendors at varying prices (some for free) or can be made by the teacher. Models do not need to be expensive or elaborate to get concepts and ideas across. Models enhance learning in the following ways (Aldridge, 2009; Hatch & Shaw, 2019):

- Allow learners to practice acquiring new skills without being concerned about hurting themselves or others.
- Stimulate active learner involvement
- Provide the opportunity for immediate testing of psychomotor and cognitive behaviors.
- Allow learners to receive instant feedback.
- Appeal to the kinesthetic (movement-oriented) learner who prefers the hands-on approach to learning.

In terms of their disadvantages, some models may not be suitable for learners with limited abstract thinking skills or visual impairments unless every individual is given the chance to learn about the object using other senses. Also, some models can be fragile, very expensive, bulky to store, and difficult to transport. Unless models are very large, they cannot be observed and manipulated by more than a few learners at any one time. However, this drawback can be overcome by using team teaching, by creating different stations at which to arrange replicas for demonstration purposes, or by using remote learning (Miller & Stoeckel, 2016).

Displays

Whiteboards, posters, storyboards, flip charts, and bulletin boards are examples of displays found in most educational settings. Displays are two-dimensional objects that serve as useful tools for a variety of teaching purposes. They can be used to convey simple or short messages and to clarify, reinforce, or summarize information on important topics and themes. Some displays can be transported, and some can be altered to change the message when necessary. Displays can effectively achieve behavioral objectives by vividly representing relationships between subjects or objects.

Storyboards, visual tools that use pictures and written text to explain a sequence of events, are effective in providing consistent messages to clients in a simple, easy-to-understand format (Lowenstein et al., 2009). More recently, LED digital display screens are used to provide information in a rotating format to reach students, staff, or clients. An advantage is the ease of keeping details updated or changed.

Whiteboards, SMART Boards, and flip charts are particularly versatile means of delivering information. SMART Boards are interactive electronic whiteboards connected to a computer and projector that allows the teacher to manipulate anything on the screen using touch rather than a mouse or keyboard. Digital or analog whiteboards also are sometimes referred to as learning boards (Institute for Healthcare Improvement, 2017). These types of board devices are most useful in formal classes, in group discussions, or during brainstorming sessions to spontaneously make drawings or diagrams with contrasting colors with markers or the touch of a finger or to jot down ideas generated from participants while the educator is in the process of teaching. Information can be added, corrected, or deleted quickly and easily while the learners are actively following what the teacher is doing or saying. Many classrooms and conference rooms have walls painted with whiteboard paint, providing spacious areas for working groups to learn and collaborate together.

Such tools are excellent means of encouraging active participation, keeping the learners' attention on the topic at hand, and reinforcing the contributions of others (Viewsonic, 2019). In addition, they are flexible and handy, providing opportunities for the teacher, in an immediate and direct fashion, to organize data, capture ideas, perform on-the-spot problem solving, and compare various points of view. Also, unlike some other types of visuals, these display tools can allow learners to see parts of a whole picture while assisting the teacher in filling in the gaps.

Template whiteboards, for example, enhance communication between healthcare providers and patients and their family members when used in the hospital setting at the patient's bedside; these have been found to increase consumer satisfaction and correspondence between caregivers (Johnston & Fenicle, 2014). As another example, digital screens can be used to educate patients and visitors at the moment they enter a healthcare setting or in patient waiting rooms; this promotes a safer, healthier, and less stressful experience. For example, digital signage can be placed in strategic areas to provide relevant information that can be directly targeted to customers, such as those were widely used during the COVID-19 pandemic to communicate the

symptoms, what to do if sick, and what guidelines must be followed to protect the public (Mariette, 2020).

The following are some specific advantages of all types of displays as teaching tools (Miller & Stoeckel, 2016):

- They are a quick way to attract attention and get an idea across.
- Most are flexible, easily modified, and reusable.
- Many are portable and easily assembled or disassembled.
- They stimulate interest or ideas in the observer.
- They are effective ways of influencing cognitive and affective behaviors.

In contrast, some of the disadvantages of the various displays include the following:

- They may take up a lot of space.
- Some displays (e.g., flip charts and bulletin boards) are not suitable for large audiences if information needs to be viewed at the same time.
- Only limited amounts of information can be included at one time.
- Displays are not as effective for teaching psychomotor skills.
- They may become too cluttered when a lot of information is placed on them.
- If permanently mounted, they cannot be transported.
- The symbolic nature of the message may not be well understood by some learners.

Posters

Although they are a type of display material, posters are addressed separately here because they have become an increasingly popular and important instructional tool (visit www.cdc.gov and www.publichealth.va.gov to search for posters for patient education). Essentially hybrids of print and visual media, posters use the written word along with graphic illustrations. Posters are an effective and reasonably economical option for conveying information (Centers for Disease Control and Prevention, 2016; Crawley & Frazer, 2015; Hasanica et al., 2020; Pulley et al., 2007). They serve as a visual supplement to oral instruction of patients and families in various healthcare settings, and they are a common format for communicating health information to patients. However, a relatively recent review of multiple studies on the effectiveness of posters in promoting knowledge revealed that further evidence is needed to determine how effective they are in comparison to other teaching and learning approaches (Ilic & Rowe, 2013).

Posters can serve as an independent source of information or can be used along with other instructional methods and materials. Some critics view the poster as a passive and static instructional medium, but if posters are designed and used properly, the message conveyed is brief, constant, and interactive for teaching and learning (Ilic & Rowe, 2013; Utecht & Tremayne, 2008). Because the primary purpose of a poster is visual stimulation, it is meant to attract attention (Flournoy et al., 2000).

Effective posters instill a mental image that may be remembered long after they are seen. This mental image serves as a cue to the viewer to remember the message being delivered. Much like a bumper sticker on a car, effective poster displays can potentially leave lasting impressions that are easily recalled at some future date. **Figure 12-5** is an excellent example.

Figure 12-5 Example of an effective poster for HIV/AIDS awareness.

Line drawing courtesy of Katherine Batruch-Meadows.

The advantages of posters are that they can be used to reinforce and condense information, and they can be used multiple times for different teaching–learning encounters. For example, when nurses in clinic and office settings are teaching a patient and significant other about osteoarthritis (degenerative arthritis), a poster with a series of pictures can show how joints can be affected over time, why pain occurs, and the actions certain treatments have on reducing inflammation. The value of posters is that the messages being conveyed are repeated every time they are viewed (Bach et al., 1994; Pulley et al., 2007) and can be used for a variety of purposes such as serving to remind the public of the importance of getting a flu shot.

Posters serve as an important teaching tool to help bring about a change of behavior by adding knowledge, reinforcing information, or appealing to attitudes. By using short, simple, and eye-catching imagery, posters ensure that a message can be circulated quickly and simultaneously to several potential learners in a variety of healthcare and community-based settings (Saldana, 2014). These demonstration materials also can be used with individuals and small groups to transmit or reinforce information with or without the teacher present. In addition, they are relatively inexpensive and easy to produce.

With practice, and with access to computer technology, an educator can become skilled at creating attractive, impressive posters in an efficient and timely manner. Software programs such as Print Shop Deluxe, PaintShop Pro, Adobe Photoshop, and Microsoft Publisher are excellent resources to produce professional-looking visuals. The major disadvantage of posters is that the content in the final product is static and, therefore, may become quickly outdated. Also, if the same poster is kept on display for too long, the potential audience may begin to disregard its message.

The key to a poster's effectiveness lies in its planning and design. Bushy (1991) states that "good ideas do not speak for themselves . . . a good poster display cannot rescue a bad idea, but a poor one can easily sink the best idea" (p. 11). In turn, this author highlights important aesthetic considerations when preparing and evaluating poster presentations specifically for research purposes. Duchin and Sherwood (1990) and Bach et al. (1994) provide evidence-based guidelines that remain relevant today for developing attractive, simple, yet effective posters that consider variations in learner needs and patient education settings. Bushy (1991) and Duchin and Sherwood (1990) emphasize the application of design elements, such as color, spacing, graphics, lettering, and borders, required to create posters that not only catch the eye but also ensure that the message persists in memory. Also, effective imagery can take the form of graphic designs or photographs, so great artistic

skill is not required to create the graphic elements of posters. Simple pictures, such as schematics, outlines, and stick figure drawings, work well and can be created using colored pencils, markers, construction paper, or computer printouts.

The ability of a poster to influence behavior or increase awareness can be greatly enhanced by careful consideration of these factors. Because aesthetic appeal is critical in capturing learners' attention, educators should adhere to the following tips when making and critiquing a poster for use as a teaching tool (Bach et al., 1994; Bushy, 1991; Duchin & Sherwood, 1990; Halligan, 2008; Mayberry, 2007; Shelledy, 2004):

- Complementary (opposite-spectrum) color combinations are visually appealing.
- One color should make up as much as 70% of the display. No two colors should be used in equal proportions, and a third color should be used only to accent or highlight printed components such as titles and subheadings. Too many colors make the design appear cluttered and complicated.
- Because a picture is worth a thousand words, graphics should be used to break up blocks of print.
- Use simple, high-quality (but not necessarily sophisticated or ornate) drawings or graphics that can be easily understood.
- Balance the written message with white space (or another background color) and graphics to add variety and contrast.
- Use simple, high-quality photographs with colored borders and different sizes and shapes.
- Deliver the written message in common, straightforward language, avoiding unfamiliar terms, abbreviations, or symbols.
- Adhere to the KISS principle (**k**eep **i**t **s**imple and **s**mart) when using words to decrease length, detail, and crowding. Simplicity and neatness attract attention.
- Be concise; do not repeat information. Include only essential information, but be sure the message is complete.
- Keep the learning objectives in mind to ensure the appropriate focus of information in this display tool.
- Be sure content is current and free of spelling, grammar, and mathematical errors.
- Make titles catchy and crisp, using 10 or fewer words (no longer than two lines) and keeping lettering large enough to be read from a distance of at least 20 feet.
- Letters should be straight and at least 1 inch in height to be read easily at 4 to 6 feet away. Avoid using all-capital letters except for very short titles

and labels. Use capitals for only the first letter of each word in titles with more than two to three words or as the first word of a sentence.
- Use a title or introductory statement that orients readers to the subject.
- Logically sequence the written and graphic components.
- Use arrows, circles, or directional lines to indicate relationships between the parts to achieve correct focus, flow, sequence, and unity.
- Achieve balance in visual weight on each side by positioning information around an imaginary central axis running vertically and horizontally.
- Handouts can be used to supplement, highlight, and reinforce the messages conveyed by the poster.
- If a poster is to be transported, use durable backboards and overlays (Styrofoam, heavy cardboard, lamination, or acrylic sprays).

Bushy (1991) devised a 30-item research poster appraisal tool called R-PAT—still relevant today—that further assists nurses in critiquing posters specifically designed for research. This tool can be modified for use in preparing and evaluating posters as tools for educational purposes.

The ability of a poster to influence behavior or expand awareness can be greatly enhanced by careful consideration of its content, intended audience, and design elements. The poster for HIV/AIDS awareness presented earlier in this chapter (Figure 12-5) is a stunning example. The interaction of the viewer with the message is the key to a poster's success. This HIV/AIDS awareness poster and the classic World War I poster "Uncle Sam Wants YOU!" are examples of the element of visceral connection between viewer and message that linger in memory.

Table 12-2 summarizes the basic advantages and disadvantages of demonstration materials.

Table 12-2 Basic Advantages and Disadvantages of Demonstration Materials

Advantages	Disadvantages
Brings the learner closer to reality through active engagement	Static types can result in easily outdated content
Useful for cognitive learning and psychomotor skill development	Can be time consuming to make if self-composed
	Potential for overuse

Stimulates learning in the affective domain	Some not suitable for simultaneous use with large audiences
Relatively inexpensive in many instances	High-fidelity materials such as human patient simulators may be costly
Opportunity for repetition of the message	Not suitable for visually impaired learners or for learners with limited abstract thinking abilities
Modeling skills and behaviors activate mirror neurons, promoting skill acquisition	
Many are flexible, modifiable, and reusable	

Audiovisual Materials

Technology has changed the traditional approach to teaching. Nowhere is this trend more evident than with the audiovisual media. **Audiovisual materials** support and enrich the education process by stimulating the senses of seeing and hearing, adding variety to the teaching–learning experience, and instilling visual memories, which have been found to be more permanent than auditory memories (Cohen et al., 2009; Elder, 2016). Audiovisual elements have been known to increase understanding and retention of information as well as satisfaction with care by combining what people hear with what they see (Gysels & Higginson, 2007; Jeste et al., 2008). Technology software and hardware are exceptional aids because many can influence all three domains of learning (cognitive, affective, and psychomotor) by promoting cognitive development, stimulating attitude change, and helping to build psychomotor skills.

The term **multimedia learning** refers to the use of two or more types of learning modes (e.g., audio, visual, or animation) that can be accessed via a computer to engage the learner in the content. Audiovisual technologies often offer learners more control over content as well as over the sequencing, pacing, and timing of information, which allows teaching and learning experiences to be tailored to meet behavioral objectives for every individual. Innovations in instructional media, particularly e-learning technologies, are revolutionizing education, permitting learning to be more individualized (Petty,

2013) and transforming the role of educators to become “facilitators of learning and assessors of competency” (Ruiz et al., 2006, p. 207).

In our increasingly technological age, educators must be aware of which audiovisual tools are available, how tools actually and potentially affect the ability to learn, and how they might apply the various tools at their disposal effectively and efficiently. When and to what extent educators should use such tools to enhance teaching depends on many variables, not the least of which is the educator’s comfort level and expertise in operating these technological devices. Also, it should not be forgotten that some adult learners may have difficulty becoming oriented to the newer modes of teaching and learning, and some learners may have physical or cognitive limitations that require the nurse to avoid certain types of audiovisual tools.

In a riveting article, Prensky (2001) declares that today’s young people are no longer the audiences the educational system was originally designed to teach. A growing number of younger learners have been raised wholly in the digital technology era, surrounded by and oriented to computers—for example, desktop computers, notebooks, and netbooks—as well as smartphones and many other electronic devices that are integral to their everyday lives. Such individuals are known as *digital natives*. Many educators and adult learners, in contrast, who were born before this age of technology may have been forced to acquire new ways of communicating—a process somewhat akin to learning a second language. Prensky (2001) refers to these individuals as *digital immigrants*.

The challenge for many educators who have for years spoken a different instructional “language,” then, is to adapt to as well as adopt the newest forms of instructional tools to teach natives of the digital age. Digital natives are comfortable with multitasking and receiving information rapidly. Use of hypertext and random access comes naturally to them. Likewise, use of streaming video media such as YouTube and interactive computer learning modules, as well as video gaming and streaming videos, is commonplace for this generation (Satterfield, 2015). Conversely, for educators not well versed in the use of digital technologies to assist and supplement instruction, the challenge to use such technologies effectively is ongoing (Grimwood & Snell, 2020).

As with any instructional materials, major concerns affecting which tools nurses choose include accuracy and appropriateness of content; resources available for the purchase or rental of software programs and hardware equipment; and the time, money, and expertise needed to either introduce new technologies or self-produce audiovisual materials.

Audiovisual materials can be categorized into five major types of media: projected, audio, video, telecommunications, and digital learning resource formats. Computer technology, particularly, is rapidly altering the ways in which educators share information and interact with students. Also, it is rapidly changing, so what is available today may be replaced by something with more advanced features in the future.

Projected Learning Resources

This category of media uses presentation software and computer outputs that are projected on a screen, such as PowerPoint, Google Slides, Prezi, and SMART Boards. Presentation software is nearly an essential complement to a narrative lecture. The outcomes resulting from a well-developed presentation software serve to provide structure for learners, illustrate key concepts through both words and images, engage learners, depict relationships between concepts, and increase information retention (Johnston et al., 2018). Each presentation software has both advantages and disadvantages as can be seen with the following examples.

The most familiar presentation medium among educators is Microsoft Office PowerPoint. While PowerPoint may be available on personal computers in offices as well as on mobile devices, this software comes from Microsoft Office Suite or Microsoft Office 365. It has some limitations with Apple products and collaboration features must be saved on One Drive (Spencer, 2019).

Among other presentation software programs available, educators most commonly choose Apple Keynote, Google Slides, and Prezi. Keynote, as a product of Apple, is free with a new Apple computer or can be purchased through the Apple App store. It works smoothly with MacBooks and iPads but is available for all devices. It is considered intuitive and features easy transitions, interactive charts, and cinematic characteristics and can be used collaboratively. Keynote is a desktop software, not online based; although a web-based version exists, it is not as smooth with non-Apple products. However, Keynote has the capability to import and edit PowerPoint slides, and presentations created in Keynote can be saved as PowerPoint slides (Spencer, 2019).

Google Slides is part of the Google Drive Office suite available through the Google email dashboard. It is free with a Google account and is known for its ease of use, real-time collaboration, and compatibility with PowerPoint slides. Google Slides is cloud-based, requiring an internet connection, making it available on any device with a browser. Projects are saved on Google Drive.

Some advanced features are limited including fewer customized effects and themes and inability to export video formats, although videos can be embedded. An innovative feature offers a question-answer interaction between learners and presenter for direct engagement (Spencer, 2019).

A novel, non-slide presentation software is Prezi, the Adobe Flash-based program. Rather than a linear design, Prezi employs zooming content navigation capability, which is very engaging to the learner. The efficient and flexible design incorporates action between concepts demonstrating relational as well as conceptual visualization (Settle et al., n.d.). Presenters need to manage the zoom actions carefully to avoid causing sensations of motion sickness, and it is more appropriate when the presentation is not too content heavy.

The SMART Board is a large whiteboard that uses touch technology for detecting user input; it is similar to devices that use personal computing input, such as a mouse or keyboard (SMART, 2009). SMART Boards are growing in popularity but are still costly.

No matter the software, guidelines for designing effective presentation content include careful selection of animations and graphics congruent with the major concepts written in phrases that are easy to understand to avoid cognitive overload and content saturation (D'Angelo, 2018; DuFrene & Lehman, 2004; Spencer, 2019). Crafting any presentation requires that the characteristics of learners be kept in mind. Educators should adhere to the following suggestions when preparing projected learning resources using any presentation software (DuFrene & Lehman, 2004):

- Illustrate one idea per slide.
- Keep images simple by using clear pictures, symbols, or diagrams. Put long lists of words or complex figures on handouts that supplement the slides.
- Avoid distorted images by keeping the images' proportion of height to width at 2:3.
- Use large, easily readable, and professional-looking lettering.

Brown (2001), Microsoft (2017), and Columbia College (2019) suggest additional important tips for employing these innovative tools productively:

- Use this medium to generate interaction between the teacher and the learner, rather than as a tool that provides an outline of content to be followed for presenting information only in a traditional lecture format.

- On various slides, leave out some points to be made or ideas that should be included so that the learner must figure out what may be missing. This omission encourages critical thinking by the audience.
- During the presentation, open a blank slide and type in the main points as they emerge from interactive discussion.
- Use text sparingly on each slide to keep details to a minimum, by including no more than six points about any one idea per slide and limiting the word count to approximately six words per point.
- Use contrasting but bold complementary colors so that the text of each slide is clearly visible. Be sure the background color is dark enough that the words in print are not washed out.
- Be sure the print size on each slide is large enough for the audience to read with ease at a distance. The *floor test* is one simple method to determine appropriate print size—that is, can you clearly read a printout of the slide placed on the floor in front of you when in a standing position?
- Minimize or avoid animated text, sounds, and fancy transitions, which can distract the reader from the message being conveyed.
- Keep unity of design from slide to slide by using a master slide as a template for the entire presentation.
- Provide audience members with handouts of the slides (three slides per page) for purposes of note taking.
- Limit the number of slides to be projected for teaching to no more than one to two slides per minute (not to exceed 60 slides for a 1-hour presentation) to avoid including too much content during an allotted time period. It is important to provide time for cognitive processing, which allows learners to internalize the concepts being presented, and to give learners a chance to discuss content and ask questions.

Remember—visuals should *enrich* the message, not *become* the message. Overuse of slides may discourage audience participation, potentially sacrificing rich interactive discussions (Brown, 2001; DuFrene & Lehman, 2004; Gordani & Khajavi, 2020). Dickerson (2005) reminds educators that audiovisual resources are simply tools that they should use to help achieve teaching objectives. She notes a common complaint that PowerPoint presentations encourage learners to think only in bullet points and suggests laying out presentations with enough space between bullets for learners to fill in critical information developed during a presentation. For further information helpful to the nurse educator, deWet (2006) addresses both the advantages and disadvantages of these types of presentations, as well as best applications for effective use of PowerPoint slides. Thus, the medium of presentation materials must be used judiciously to avoid overuse and abuse as a tool for effective teaching and learning.

Table 12-3 summarizes the basic advantages and disadvantages of projected resources.

Table 12-3 Basic Advantages and Disadvantages of Projected Learning Resources

Advantages	Disadvantages
Most effectively used with groups	May stifle active learner participation if overused
May be especially beneficial for hearing-impaired, low-literate patients	May encourage learners to think only in bullet points
Good for teaching skills in all domains	Easy to pack too much content into each slide, making the print too difficult to read and presenting more than one concept per slide
Flexible to add, delete, or revise slides easily and quickly	Animations, sounds, and fancy transitions may be distracting
Do not require darkened room for projection	Lack of time for cognitive processing if too many slides included for the scheduled teaching session
	Some forms may be expensive
	Requires special equipment for use

Audio Learning Resources

Audio technology, although it has existed for a long time, has not been used to any great extent for education purposes until recently. For years, audiotapes and radio have been useful tools to get information for people who are visually impaired or blind or for those with serious motor impairment who could not easily get to a location for an education session. However, with significant advances in audio software and hardware, as well as the adoption of audio technology for more than purely commercial use, CDs, digital sound players (e.g., MP3 players, iPods), radio, and podcasts have become more popular tools for teaching and learning (CDC, 2017; Dugdale, 2019; Limmer Education, 2020).

These resources can be used to deliver many different types of messages, can help learners who benefit from repetition and reinforcement, and are well suited for those individuals who enjoy or prefer auditory learning (Smaldino et al., 2019). They are also useful media resources for teaching individuals who are illiterate or have low literacy (Santo et al., 2005). During the COVID-19 pandemic, 90% of the world's children were out of school. Interactive audio instruction (IAI) programs in 24 countries with over 100 million learners have been used to "keep the health crisis from becoming an educational crisis" (Education Development Center, 2020, para 1).

Compact Discs and Digital Sound Players. Digital sound files and CDs, which have replaced traditional vinyl records and audiotapes, are very popular formats today. Use of these media for teaching has been growing because they have major advantages, such as being small in size, portable, inexpensive, simple to operate, easy to prepare or duplicate, and offering superior sound that does not deteriorate over time.

Digital sound files and CDs (software) in conjunction with digital sound players and computers (hardware) are powerful tools to enhance, reinforce, or supplement information previously presented in other formats or to expose learners to information not otherwise easily available or accessible (Barr et al., 2018; Preston, 2009; Wolderslund, 2017). For example, recorded lung sounds, which allow comparison between normal and abnormal breathing, are available in both CD and digital sound file form. Such audio media on a variety of health topics, from stress reduction to programs on how to quit smoking, can be prepared specifically to meet the needs of a learner by reinforcing facts, giving feedback and directions, or providing support. For example, Feldman (2004) described the development, implementation, and evaluation of self-directed learning using audiocassettes and pictures to teach basic childcare, health, and safety skills to parents with intellectual disabilities. This study indicated that a significant number of these parents improved their parenting skills with these low-cost, low-tech materials. Dommershuijsen & Dedding (2021) found that consultation audiotapes positively influenced affective, cognitive, and behavioral outcomes of patients over 50 years of age and older.

If digital sound files and CDs are instructor made, the learner will derive much comfort from hearing the nurse's familiar voice and reassuring words. Learners can listen to this information at their leisure and can review it as often as necessary. These media can be used almost anywhere, such as in the home, office, clinic, or hospital setting, and can be played while simultaneously driving a car or fixing a meal, thereby filling what normally would be considered wasted time.

The versatility of CDs and digital sound players for application to education is currently growing at a rapid rate in academia as well as for patient and staff education in a clinical setting. As with all technologies, over time the cost of digital sound players is becoming very reasonable, and the software availability of digital sound files and CDs for healthcare education has increased.

The disadvantages are few with using this type of medium. The biggest drawback is that they address only one sense—hearing—and, therefore, cannot be used by individuals with hearing impairment. Also, some learners may be easily distracted from the information being presented unless they have visuals to accompany the recorded information. There is also no opportunity for interactive feedback between the listener and the speaker. As with any instructional tool, digital sound files and CDs should be used only as supplements to the various methods of teaching.

Radio and Podcasts. The radio has tremendously affected the lives of many people for many years and is one of the oldest forms of audio technology. As early as the 1930s, the effectiveness of radio for health education was reported as influencing listeners' health behaviors (Turner et al., 1935). Because of its commercial nature and appeal to mass audiences, it has typically been used more for pleasure than for education.

In recent years, the medium of radio has been exploited by both public and private radio stations, which have begun airing community service and medical talk shows for public education on health issues (Hussain, 2008). Radio is serving as a medium for patient education campaigns because it can reach large numbers of listeners at great distances at relatively low unit cost, it functions in real time, and it is purely auditory, which stimulates the listeners' imagination and abstract thinking abilities. Also, it is effective as a vehicle for teaching health education to those who are illiterate or low literate and to culturally diverse populations (CDC, 1994; Duby, 1990; Romero-Gwynn & Marshall, 1990). These programs are helpful in delivering a message and, because of the convenience and popularity of radio as a communication tool, represent a useful vehicle for teaching and learning (United Nations Educational, Scientific, and Cultural Organization [UNESCO], 2007).

Podcasts are becoming an increasingly popular form of student, patient, and public education as well. With this technology, audiences of learners can download lectures and informational sessions about various health topics. They can then listen to these broadcasts on their computers or mobile devices (Frank, 2021; Kay, 2012; Moore & Smith, 2012; MPHonline, n.d.; Player FM, 2021). While podcasts were originally audio, there are now video podcasts that

include both audio and visual as detailed in the next section. Because podcasts are increasingly being used for education on medical issues, Cho et al. (2017) conducted an extensive review of the literature and found limited evidence that podcasts as teaching tools are effective in changing patient behavior or outcomes due to lack of studies measuring the impact on patients. However, these authors did find that the literature demonstrated accuracy of information as well as feasibility and acceptance by learners of this medium.

The disadvantage of radio and podcasts relates to the difficulty of consistently delivering information on major topics to general as well as specific populations. That is, the nurse as educator has little control over the variety and depth of topics discussed or how regularly learners listen to a program. In addition, the general nature of radio programs and podcasts is not tailored to meet individual needs. Unlike CDs, digital sound files, and podcasts, radio does not allow the opportunity for repetition of information. However, because of its widespread use and versatility, it has the potential for becoming a major source for important and useful healthcare information, especially if airtime is funded by private foundations or sponsored by special groups or agencies dedicated to health teaching.

Table 12-4 summarizes the basic advantages and disadvantages of audio learning resources.

Table 12-4 Basic Advantages and Disadvantages of Audio Learning Resources

Advantages	Disadvantages
Widely available	Relies only on sense of hearing
May be especially beneficial for visually impaired, low-literacy patients	Expensive in some forms
May be listened to repeatedly	Lack of opportunity for interaction between instructor and learner
Usually practical, cheap, small of size, and portable	

Video Learning Resources

Digital video files and DVDs (software), along with camcorders, DVD recorders, televisions, and computer monitors (hardware) as electronic devices with which to view them, have become commonplace in homes. Nurse educators are using these resources extensively for teaching in a variety of settings. For example, multimedia streaming video and webinars have satisfied the increasing demand for new ways to educate professional and paraprofessional staff in all types of healthcare and academic settings. The webinar format, which allows for interaction between speaker and participants even though sessions are virtual, and streaming technology, which plays audio and visual files from the internet, are cost effective, easy to use, time efficient, and available wherever the internet is accessible (Beranova & Sykes, 2007; Manny, 2006; Smaldino et al., 2019).

In a review of research studies, Jeste et al. (2008) found that multimedia DVDs for educating consumers about illness management and treatment decisions increased learners' understanding of medical information and enabled both patients and their caregivers to take a more active role in making healthcare choices. Clark and Lester (2000) conducted a research study on video interventions with an older adult population. They found this instructional tool to be as effective in changing behaviors in this group as it was with adolescents and younger adults. Dahodwala et al. (2018) found that interventions using video-based education for hospitalized patients is effective for improving short-term learning.

McNab and Skapetis (2019) found video to be an effective, accessible, and low-cost method to deliver messages on health education to patients in waiting rooms. Abed et al. (2014) discovered that video-assisted patient education using real people actively doing something is more effective for learning than information only being provided graphically or narratively. And as a result of the COVID-19 pandemic, the CDC (2021) has produced a series of videos for public education covering information about vaccine safety and side effects.

In other studies, videos for in-service and professional education have been found to be a potentially powerful medium for learning. Kalludi et al. (2015) found podcasting an important technology tool for teaching and learning of factual and conceptual information, and Parilo and Parsh (2014) reported student satisfaction with streaming video as a resource to support their learning. Podcasts with lecture-capture video features can be used to record a lecture that learners can listen to and watch at another time (Abed et al., 2014; Blum, 2018). An individual can pause the podcast to process information, take notes, or repeat content (Gachago et al., 2016). Examples of lecture-capture technology are VidGrid and Tegrity (Hargett, 2018; Williams et al., 2016).

Videos that educators record can conveniently be embedded into learning management systems [LMS] (see Chapter 13) to be used for learner assignments (Abate, 2013; Beard & Morote, 2010). Videos are particularly effective in delivering short, conceptual topics in conjunction with other assignment formats, such as reading an article on the same topic, for multimodal learning. These alternative formats for content presentation meet various learner preferences/needs and also stimulate different brain centers for stronger neurocognitive strengthening (Jimenez-Castillo et al., 2017; O'Connor et al., 2020). Faculty can video record individual and group work for later evaluation of learning and grading (Burke & Cody, 2014).

YouTube has proven to be a popular source of streamed videos for patient and professional education (Emory University School of Medicine, 2017; Stellefson et al., 2014). Video files and DVDs are among the major nonprint media tools for enhancing client/family, staff, and student education because they can be simultaneously entertaining and educational (Beranova & Sykes, 2007; Bussey-Smith & Rossen, 2007; Gysels & Higginson, 2007).

YouTube differs from the web platforms previously discussed in that it is a video-sharing platform where users upload, view, and share videos of varying lengths. Established in 2005, YouTube's popularity has grown at an astonishing rate. YouTube claims to reach more 18- to 49-year-olds than any cable network in the United States and is the second most visited website in the world (Donchev, 2021). Today, YouTube reports having more than 1 billion unique users per month who share more than 300 hours of video that are uploaded to the site every minute (Donchev, 2021).

Users who search on the YouTube site can find multiple video clips on virtually any illness, surgery, or procedure. Videos available on the site have been designed for both professional and lay audiences. Smith (2016) investigated undergraduate students' perceptions of social media technology and found that social media can both help and hinder learning in that it influences student-content interactions and student-student interactions more than faculty-student interactions.

While YouTube began as a personal sharing of videos, the use has grown exponentially as an effective medium for educators as well as learners in creating their own educational videos. As with any personally developed medium, making sure the content is current and relevant are essential considerations. YouTube video usage has been studied with clients, staff, and students with very positive results for enhancing understanding of complex content and engaging the brain for long-term retention of information (Boyd, 2016; Fleck et al., 2014; Johnston et al., 2018).

Digital video files and DVDs, which incorporate the sound quality of CDs and superior images of video by way of digital technology, have incredible storage qualities (similar in capacity to CDs) that allow for long-term use. The market for this technology has increased as the cost of the hardware has become more reasonable and software can be obtained at a low cost or for free, such as when using web-based applications and open-source products that can be found in the public domain (Johnson, 2012; Smaldino et al., 2019). Originally designed for entertainment purposes only, today these technologies are popular with a wide range of audiences in both higher education and healthcare education for patients, employees, and the public. Healthcare facilities often broadcast patient education segments via video files and DVDs over in-house televisions. The convenience and flexibility of these instructional tools allow educators to use video learning resources for individual teaching situations as well as for large-group instruction.

The usefulness of video derives from the combination of color, motion, different angles, and sound that enhances learning through visual as well as auditory senses. For example, Leiner et al. (2004) compared the effectiveness of printed information about polio vaccination from the CDC with the same message converted into a production of animated cartoons using marketing and advertising techniques. The findings showed that the animated cartoon was more effective in delivering the same message than the written instructional materials.

The disadvantage of purchased digital video files and DVDs is that they may be beyond the viewers' level of understanding, inappropriate for learner needs, or too long. This digital technology has become very inexpensive, and the ready portability of recorders allows educators to capture situations unavailable elsewhere for reinforcement of learning.

Brame (2016), Farah and Barnett (2019), and Vyond Team (2021) have outlined detailed steps for creating educational videos that result in a network-quality product:

- Know your target audience to determine their level of understanding and knowledge gaps.
- Set clear learning objectives to keep the informational message purposeful and on point to avoid cognitive processing demand.
- Pick a video format (animation, live-action, screencast) that is best suited to the topic and engages the learner.
- Write a script. Chunk information to succinctly address each learning objective and provide step-by-step instructions.

- Use a single camera with zoom capacity or a webcam on a computer or smartphone. Consider hiring a professional to edit the final product.
- Alternatively, hire a video technician on a per-hour or per-diem basis who is skilled in motion picture technology (e.g., close-ups, angle effects) to yield a quality production in a time-efficient and cost-effective manner.
- To highlight key information, build video-ready slides that are clear, simple, and visually compelling.
- Keep the teaching session short—5 to 10 minutes is ideal—to hold the learners' attention.
- For patient education, consider including answers to frequently asked questions.

Digital video cameras and smartphones are excellent means to capture real-life and practice experience situations. Role modeling of specific behaviors, attitudes, and values also may be demonstrated powerfully through this medium. Once scenes are captured digitally, a video can serve as an excellent teaching tool to promote discussion and for analyzing and critiquing behaviors that provide direct feedback to learners in the demonstration or rehearsal of complex interpersonal and psychomotor skills.

Studies by Hill et al. (2000), Winters et al. (2003), Salina et al. (2012), and Forbes et al. (2016) showed improved performance and learner satisfaction among nursing students and nursing staff using videos and video playback as a learning strategy for enhancing their clinical skills. **Table 12-5** summarizes the basic advantages and disadvantages of video learning resources.

Table 12-5 Basic Advantages and Disadvantages of Video Learning Resources

Advantages	Disadvantages
Effective for teaching psychomotor skills and also useful for cognitive and affective learning	Viewing formats limited depending on availability of hardware in healthcare settings, especially in patient homes
Widely used educational tool	Expense of some commercial products
Inexpensive and cost effective for the most part	Excessive length or inappropriateness for the audience of some purchased materials
Uses visual and auditory senses	

Flexible and appealing for use with different audiences

Powerful tool for role modeling

Telecommunications Learning Resources

Telecommunications is a means by which information can be transmitted via television, radio, telephone, related modes of audio and video teleconferencing, and closed-circuit, cable, and satellite broadcasting. Telecommunications devices have allowed messages to be sent to many people at the same time in a variety of places at great distances (AHRQ, 2019a; Wakefield et al., 2010). The mass media was a major source of information during COVID-19, but the media's role highlighted many social, cultural, political, and economic issues that must be addressed if mass media is to be an essential tool for public health communication to combat future infectious diseases (Anwar et al., 2020).

Television. The television, a very common device in homes worldwide, has been used for many years as an entertainment tool. Today, there are more televisions than telephones in private residences in the United States. Television is also well suited for educational purposes and has become a popular infotainment teaching–learning tool in homes, schools, businesses, and healthcare settings (MDM Commercial, 2015). Of adults 18 or older in the United States, 90% report viewing TV weekly with an estimated 120.6 million households owning a TV. However, pay TV has dropped from 80% in 2014 to 75% in 2019 (Watson, 2019). It is expected that this downward trend will continue due to younger consumers preferring online streaming on a variety of mobile devices.

TV has been found to be an effective medium as an education aid and has a definite role to play in increasing knowledge and skills and influencing behavior change (Burzyn´ ska et al., 2015; Siwicki, 2020; UNESCO, 2007; Williams et al., 2019). The power to influence cognitive, affective, and psychomotor behavior is well demonstrated by television commercials, whose messages are simple, direct, and repetitive to effectively influence the behavior of intended audiences. Elrod and Fortenberry (2020) contend that the mass media is a highly effective avenue to market information on health and medical services to audiences of current and prospective patients.

Cable TV is legally obligated to provide public access programming by offering channels for community members and organizations to air their own programs. Health education, if placed on the cable system, can be seen in any home with cable access. The advantage of this national and international option is that distribution of programs is relatively inexpensive (Palmer, n.d.). The disadvantage is that there is no control over who is watching, and this medium cannot serve as an interactive question-and-answer experience unless call-in phone lines are provided.

Closed-circuit TV (CCTV), in contrast, allows for education programs to be sent to specific locations, such as patient rooms or staff units. The learner can request a certain program at any given time, much like a guest in a hotel can choose on demand from a variety of movies day and night (Chan, 1992; Falvo, 2010; Lorenzi, 2014). CCTV also is used to provide relaxation and stress relief to patients and families, and interactive programming using closed circuit capabilities has been used to entertain, educate, and enhance pediatric patients' self-esteem (Children's Hospital, n.d.; Gelman, 2015). Such telecommunications technology allows programs to be played intermittently or continuously, with program availability clearly advertised. Because the learner controls program viewing, the nurse educator must follow up to answer questions and determine whether learning has, in fact, occurred.

Satellite broadcasting—a much more sophisticated form of telecommunications—can reach far more distant locations and carry a variety of programs at any given time. Because of its expense, not many institutions send health information via this mode, but many receive it. More types of satellite systems are being developed to make this form of communication for educational purposes available on a worldwide basis.

Video teleconferencing for continuing education and staff development (see Chapter 13) has the potential to maintain the quality and viability of continuing education programs in a cost-effective manner across large geographical areas (Rav et al., 2014; Scott & Shankar, 2015). In addition, several health networks, such as Lifetime, transmit programs to cable companies and hospitals.

Telephones. It is almost impossible to imagine being without the telephone as a daily tool. Americans have come to depend on their wireless cell phones and land-based phone lines as fundamental means of communication. It is not surprising, therefore, that the telephone can be used effectively for education.

In recognition of this fact, many healthcare associations have begun to provide telephone services with messages about disease treatment and prevention.

The American Cancer Society, for example, has established a toll-free number for the public to obtain short prerecorded messages about various types of cancer. The CDC (2021) established a phone advice line tool to answer the public's questions about COVID-19.

Hospitals, too, have set up call-in services about a variety of health-related topics and sources for referral. Telephone contacts for education prior to a colonoscopy, for example, have increased patients' adherence with bowel preparation (Liu et al., 2014), and telephone contact for support and education interventions have been used to help patients carry out self-care management of diabetes and other chronic diseases (Handley et al., 2008; Kivela et al., 2014; Mons et al., 2013). Telephone consultation also is becoming a popular strategy for patient follow-up after hospital, clinic, and office visits (Eisenburg et al., 2014; Ghezeljeh et al., 2018; Thompson-Coon et al., 2013).

Such services are relatively inexpensive and can be operated by someone with minimal medical knowledge because the taped message by experts contains the substance of the content. Moreover, this type of service is available in most cases around the clock. The disadvantage is that there is no opportunity for questions to be answered directly.

Telecommunications as an instructional tool is becoming increasingly popular and refined. Many hospitals and healthcare agencies have already established hotline consumer information centers, which are staffed by knowledgeable healthcare personnel so that information can be personalized and appropriate feedback can be given on the spot. The poison control hotline is a good example of the use of this medium.

Table 12-6 summarizes the basic advantages and disadvantages of telecommunication learning resources.

Table 12-6 Basic Advantages and Disadvantages of Telecommunications Learning Resources

Advantages	Disadvantages

Advantages	Disadvantages
Influences cognitive, affective, and psychomotor domains	
Relatively inexpensive hardware and software devices	Complicated to set up interactive capability
	Expensive to broadcast via satellite
Numerous programs on a variety of topics	Occasional inability of formats to provide for repetition of information
Widely accessible for distribution to many users at a distance	Cannot control how many and what type of viewer audiences are reached
Appealing to many learners because of convenience and flexibility	Leaving messages via phone needs to consider privacy and security

Digital Learning Resources

In our technological society, digital devices have changed lives dramatically and have found widespread application in industry, business, schools, and homes. The computer is highly flexible, can store large amounts of information, and is designed to display pictures, graphics, and text, which can be changed depending on user input. Only recently, however, has computer-assisted instruction (CAI), also called computer-based learning and computer-based training, been used for education in healthcare settings, and it remains an unrealized potential in medical office or clinic waiting rooms (Andersen et al., 2011; McNab & Skapetis, 2019).

Although computer technology is a relatively recent addition to the educational field, it is now very common, especially with the rapid increase of computer literacy among students, professionals, and the public (Duren-Winfield et al., 2015; Rice et al., 2004). Digital devices, as a multimedia approach to teaching and learning, actively engage learners, promote problem solving, and develop critical-thinking skills (Mansbach, 2015; Marczak, 2019.

CAI promotes learning in primarily the cognitive domain (Grunwald & Corsbie-Massay., 2006). Research has revealed that CAI increases both the efficiency of learning and the retention of information (Fox, 2009; Tomesko et al., 2017). When compared to lecture and self-study packets, e-learning is effective in both knowledge acquisition and learner satisfaction (Soper, 2015).

Multimedia learning via digital devices also can influence affective and psychomotor skill development, and retention of information potentially can be improved by the interactive exchange between learner and these technology tools, even though the instructor is not actually present. Illustrations (visual information), along with narration (verbal information) via computer or other digital devices, increase learners' recall and comprehension (Mayer, 2019).

CAI has many advantages. Instruction can be individualized to the learner, lessons can be varied readily, and the learner can control the pace of the learning experience (Smaldino et al., 2019). Without time constraints, the learner can move as quickly or as slowly as desired to master content without penalty for mistakes or performance speed. For instance, many educational computer games are designed to teach a subject at a variety of skill levels. Instructions that present to learners more problems with increasing complexity at a pace of the learners' own choosing can be selected. The ability of computers to internally change the rules or the format of games makes them endlessly challenging and novel to the user. One such example compared the effects of lecture to branched path simulation (BPS) in which scenarios offer decision-making options. Results indicated that improved critical thinking decision making were evident with the BPS interactive learning method (Rahaha, 2020).

Another advantage of CAI is that an instructor can easily track the level of understanding of the learner because the computer asks questions and analyzes responses to perform ongoing learner assessment. Computers can be programmed to provide feedback to the educator regarding the learner's grasp of concepts, the speed of learning, and those aspects of learning that need reinforcement. The interactive features of this medium also provide for immediate feedback to the learner.

Computers and other digital devices also represent valuable instructional tools for those persons with aphasia, motor difficulties, visual and hearing impairments, or learning disabilities. Assistive technologies, such as screen readers that convert electronic text to spoken language, are available to individuals with learning or visual disabilities (see Chapter 9). However, learners with various disabilities are likely to encounter ongoing challenges in trying to access computer files, software programs, and websites, largely

because webpages are created in the HTML file format. Other common file formats include Adobe Acrobat's Portable Document Format (PDF) and PowerPoint.

The major disadvantage of CAI is the expense of both the hardware and the software, which makes this option not feasible for implementation in some learning situations. In most cases, programs must be purchased because they are too time consuming and too complex for the educator to develop (Encyclopedia Britannica, 2016). **Box 12-1** provides examples of companies that supply client education materials.

Box 12-1 Some Examples of Internet Sites and Companies That Provide Technology-Based Patient Education Materials

Accessible Online Through the Internet (Available to the Public)

General Resources

- Health Library from EBSCO Publishing—Assists hospitals and other medical facilities to enhance their patient education websites and services (https://www.ebscohost.com/corporate-research/health-library)
- Mayoclinic.org (www.mayoclinic.org)
- WebMD.com (www.webmd.com)
- National Cancer Institute (www.cancer.gov)
- Family Doctor—Covers information on prevention, wellness, diseases, and conditions by name, symptom, and drug information (http://familydoctor.org)
- American Diabetes Association—Creates written and video information in English (www.diabetes.org/research-and-practice/we-support-your-doctor/patient-education-materials.html) and Spanish (www.diabetes.org/es/)
- Centers for Disease Control and Prevention—Provides materials in English, Spanish, and French on different types of diseases, illnesses, and prevention measures (http://www.cdc.gov/hepatitis/resources/patientedmaterials.htm)
- 5 Minute Consult—Over 1,000 patient education materials listed in alphabetical order for easy searching in simple language, and in English and Spanish versions (http://5minuteconsult.com)

Videos and Animations

- Pritchett & Hull—Uses extensive graphics with a lower reading level in many formats and subjects; online ordering available (www.p-h.com)

- Hazelden—Emphasis on addiction, recovery, sobriety, and similar health issues; Adobe Reader needed. To locate videos, go to www.hazelden.org/OA_HTML/ibeCCtpSctDspRte.jsp?section=10021 and use Search Bookstore, selecting Videos under All Products
- Milner-Fenwick Online—Free previews covering most health topics, many available in Spanish and with closed captioning (www.milner-fenwick.com)
- MedlinePlus in English and Spanish—Interactive tutorials on diseases and conditions, specific tests and diagnostic procedures, surgery and treatment options, and prevention and wellness (e.g., hypertension—slides with audio) (www.medlineplus.gov; www.medlineplus.gov/spanish)

Accessible Online Through the Internet (Expanded Applications May Be Available Through the Intranet of Individual Organizations)

Print Resources

- Krames on Demand—Electronic patient education solutions; self-care guides in Spanish and English; publisher of choice for American Heart Association, American Stroke Association, American Lung Association, and National Cancer Institute (www.kramesstore.com)
- Hopkins Medicine—Self-management patient education materials on many diseases that can be printed and given to patients (http://hopkinsmedicine.org/gim/core_resources/patient%20Handouts/)
- Micromedex (www.micromedex.com)—Medications, diseases, procedures, home care
- A.D.A.M. Consumer Health—For healthcare information and interactive tools for teaching and learning and improving health literacy (www.adam.com)
- ExitCare Patient Information System—Interactive videos, educational handouts, and medication management tools to help build meaningful communications with patients and engage patients through education (https://www.elsevier.com/solutions/patient-engagement)

Video Resources

- Emmi Solutions—Outcome-driven patient education communications (www.emmisolutions.com)

Videos—DVD Companies for Purchasing Individual Titles

- Context Media—Videos specifically designed for TV projection in office waiting rooms (http://www.contextmediahealth.com)

- Milner-Fenwick—Videos and digital media for health professionals providing patient education on most healthcare topics across the continuum of care—free previews; most in Spanish language and closed captioning (http://www.milner-fenwick.com)

Another barrier to education via a computer is the lack of computer literacy or comfort level with computers among some learners and even some health professionals (Prensky, 2001). Yilmaz et al. (2020) describe the importance of faculty development in the use of technology for the successful design and delivery of computer-based instructional methods and materials to engage students. In addition, many older adults as consumers of health care are computer shy, are computer illiterate, or lack easy access to computers even if they understand how to use this technology. This situation is beginning to change, however, as computers become more of a household item. Although multimedia resources may be important tools to enhance learning in the older adult, much more research also needs to be conducted on age-related cognitive changes that could have implications for the design and use of multimedia learning environments for this growing population of learners (Pass et al., 2014).

Also, people with reading problems unfortunately may experience some degree of difficulty in making sense of the information on the screen. A recent study on CAI with patients of varying health literacy levels found that those who had low health literacy also had limited computer experience. Nevertheless, most of these patients completed the computer-based educational program on screening for colorectal cancer without assistance and claimed they understood the information better than they would have if asked to read a brochure (Duren-Winfield et al., 2015). Also, learners with physical limitations, such as arthritis, neuromuscular disorders, pain, fatigue, paralysis, or vision impairment, may similarly find computers challenging to use.

Moreover, it should not be forgotten that the computer is a machine, so the learner is necessarily deprived of the personal, compassionate, one-to-one interaction that only a teacher can provide to facilitate learning. Because of the independent nature of the computer learning experience, the CAI format is not recommended for nondirected learners or those with low motivation.

Despite these caveats, the tremendous growth of the internet has opened new doors for many learners to gain access to libraries and to direct learning experiences, such as online discussions with educators at great distances. **Table 12-7** summarizes the basic advantages and disadvantages of digital learning resources.

Table 12-7 Basic Advantages and Disadvantages of Digital Learning Resources

Advantages	Disadvantages
	Lack of comfort level by some learners and some educators
Primarily enhances learning in cognitive domain, but can influence affective and psychomotor skill development	Can be ineffective for nondirected or less motivated learners
Promotes quick feedback, retention of learning	Expensive software and hardware; therefore, less accessible to a wide audience
Potential database enormous	Too complex and time consuming for most nurses to prepare independently
Can be individualized to suit different types of learners or different paces for learning	Limited use for some older adults, low-literate learners, and those with physical limitations
Time efficient	Can be isolating if teacher is not present to facilitate learning and provide personal attention to the learner

Evaluating Instructional Materials

Choosing the right instructional materials for client and professional education calls for judgment on the part of the nurse educator, who must take into consideration the variables of the learner, the medium, and the task. Decisions as to which instructional tools are or are not appropriate depend on the size and characteristics of the audience, the preset behavioral objectives to be achieved, and the effectiveness and availability of media resources. The values of these three variables in combination with one another result in the selection of different teaching tools by the educator, who is faced daily with multiple situations, different learners, and varying circumstances. The evaluation of materials for teaching involves appraising the content, the instructional design, the technical production, and the packaging of any given instructional materials. **Exhibit 12-2** provides a patient education materials assessment tool (PEMAT) for selecting and evaluating print and audiovisual instructional materials (Shoemaker et al., 2013).

Exhibit 12-2 The Patient Education Materials Assessment Tool (PEMAT) for Evaluating Instructional Materials

Domain: Understandability

Topic: Content

Item 1: The material makes its purpose completely evident (P and A/V).

Item 2: The material does not include information or content that distracts from its purpose (P).

Topic: Word Choice and Style

Item 3: The material uses common, everyday language (P and A/V).

Item 4: Medical terms are used only to familiarize the audience with the terms. When used, medical terms are defined (P and A/V).

Item 5: The material uses the active voice (P and A/V).

Topic: Use of Numbers

Item 6: Numbers appearing in the material are clear and easy to understand (P).

Item 7: The material does not expect the user to perform calculations (P).

Topic: Organization

Item 8: The material breaks or chunks information into short sections (P and A/V).

Item 9: The material's sections have informative headers (P and A/V).

Item 10: The material presents information in a logical sequence (P and A/V).

Item 11: The material provides a summary (P and A/V).

Topic: Layout and Design

Item 12: The material uses visual cues (e.g., arrows, boxes, bullets, bold, larger font, highlighting) to draw attention to key points (P and A/V).

Item 13: Text on the screen is easy to read (A/V).

Item 14: The material allows the user to hear the words clearly (e.g., not too fast, not garbled) (A/V).

Topic: Use of Visual Aids

Item 15: The material uses visual aids whenever they could make content more easily understood (e.g., illustration of healthy portion size) (P).

Item 16: The material's visual aids reinforce rather than distract from the content (P).

Item 17: The material's visual aids have clear titles or captions (P).

Item 18: The material uses illustrations and photographs that are clear and uncluttered (P and A/V).

Item 19: The material uses simple tables with short and clear row and column headings (P and A/V).

Domain: Actionability

Item 20: The material clearly identifies at least one action the user can take (P and A/V).

Item 21: The material addresses the user directly when describing actions (P and A/V).

Item 22: The material breaks down any action into manageable, explicit steps (P and A/V).

Item 23: The material provides a tangible tool (e.g., menu planners, checklists) whenever it could help the user take action (P).

Item 24: The material provides simple instructions or examples of how to perform calculations (P).

Item 25: The material explains how to use the charts, graphs, tables, or diagrams to take actions (P and A/V).

Item 26: The material uses visual aids whenever they could make it easier to act on the instructions (P).

P = Patient Education Materials Assessment Tool for Printed Materials (PEMAT-P)

A/V = Patient Education Materials Assessment Tool for Audiovisual Materials (PEMAT-A/V)

Reproduced from Shoemaker, S. J., Wolf, M. S., & Brach, C. (2013). *The Patient Education Materials Assessment Tool (PEMAT) and user's guide*. Agency for Healthcare Research and Quality. https://www.ahrq.gov/health-literacy/patient-education/pemat.html

Printed materials, as the most popular tool available for patient and public health education, require the nurse to determine the reading levels prior to distribution to learners. This is an essential factor when selecting brochures, pamphlets, information sheets, and the like to be sure they are

suitable for a given audience of learners. **Figure 12-6** illustrates the learning pyramid. It emphasizes an important learning principle: According to numerous research studies, people retain information at a higher rate if they are actively involved in the learning process (National Training Laboratories, n.d.). The effectiveness of teaching and learning is, therefore, greatly enhanced when instructional materials stimulate multiple senses and modes of learning.

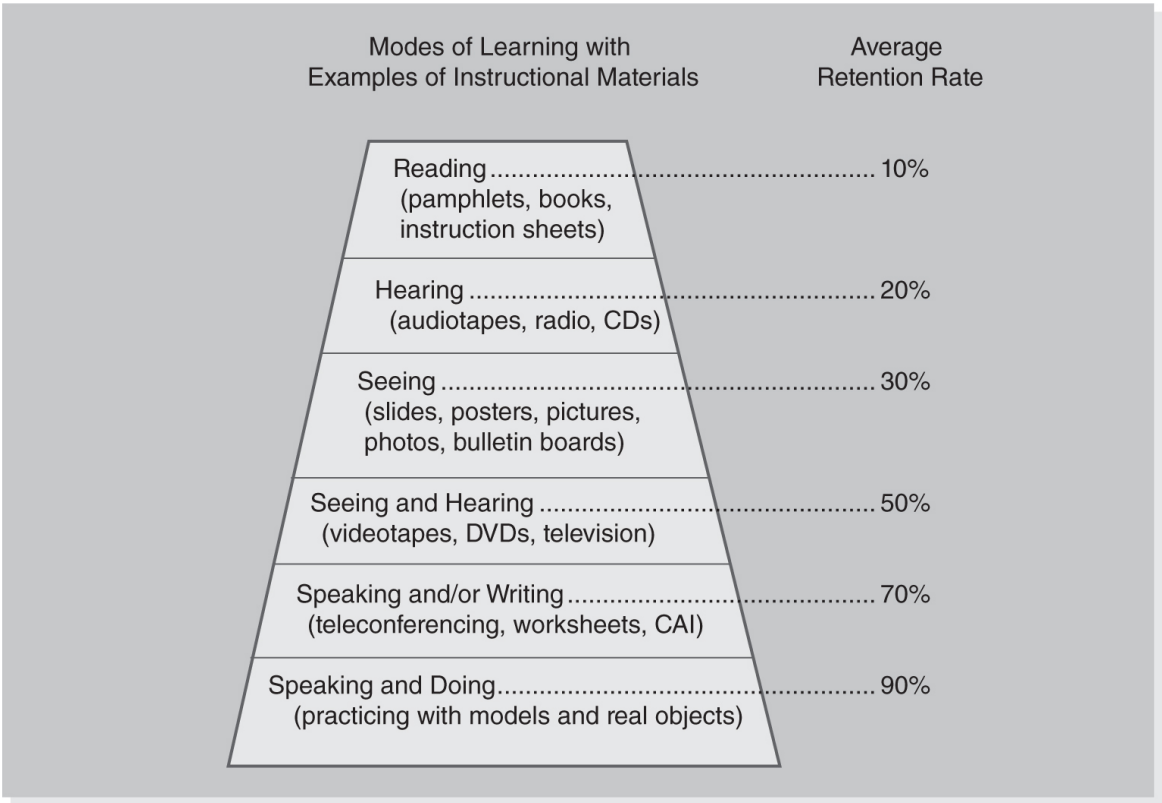

Figure 12-6 Learning pyramid: information retention based on level of active learner involvement.

Reproduced from National Training Laboratories. (n.d.). *Learning pyramid*. Institute for Applied Behavioral Science.

Description

In making their final media selections, educators must ask themselves which material(s) will best support teaching and learning to achieve the behavioral outcomes for their particular audience. They must remember that active learner involvement and using materials and objects that most closely resemble the real thing (realia) are the best choices for enhancing

retention of information. Above all else, nurse educators should remember that instructional materials should be used to support learning only by complementing and supplementing the teaching, not by substituting for it.

State of the Evidence

There is broad recognition of the need for healthcare practice, including client, staff, and student education, to be supported by evidence of its efficacy. Rather than simply perpetuating practices because they have always been done that way, today there is greater emphasis on demonstrating via evidence-based research that learning has occurred and that care has improved by the way in which information has been taught and received. In education, the focus is on both the processes and the outcomes of teaching and learning.

This chapter has focused on choosing, using, and evaluating instructional materials for client education, as well as for educating nursing staff and students. Some of the newest studies that validate the usefulness of the different media are cited within the chapter. It is relatively recent that research has been conducted to determine the impact of various types of tools on the acquisition, retention, and recall of information and on the satisfaction with learning (Dehghanzadeh & Jafaraghaee, 2018; Holman & Hanson, 2016). The following are examples of research studies exploring the effectiveness of written materials, demonstration tools, and audiovisual media that stimulate the senses, increase active participation, enhance critical thinking, assist with comprehension and memory of information, and provide opportunities for easier, more rewarding, and more enjoyable learning experiences (Bristol et al., 2019; Burch et al., 2019; Johnston et al., 2018; Roca et al., 2016; Yilmaz & Baydas, 2017).

Video recording and playback have become common strategies to help nursing students and staff improve clinical skills performance. Videos as an instructional tool have been demonstrated by many studies as effective for undergraduate nursing education to reinforce information taught in the classrooms and laboratories as well as to teach staff nurse refresher courses. Brame (2016) explored three

elements of educational videos (cognitive load, student engagement, and active learning) that make them effective as an important content-delivery tool in higher education. This author conducted a literature review of these elements to suggest principles and guidelines as relevant ways to maximize videos as an educational tool.

With respect to the application of video learning resources for teaching patients, many studies cited in this chapter found audiovisual resources to be effective, engaging, accessible, and low cost for patient education. As another example, Shah et al. (2016) explored the effectiveness of video as an instructional tool to teach prevention of oral diseases. These researchers found knowledge scores on pre- and postintervention questionnaires increased after exposure to an educational video in a hospital setting.

Learners with low literacy skills or intellectual disabilities are particularly challenging for nurse educators. Creativity by an educator can often help overcome barriers to teaching and learning in such cases. The challenging goal of providing effective patient education communication also can be attained by raising the awareness among healthcare providers of the importance of matching readability of written materials to the patient's level of health literacy. Furthermore, Orozco et al. (2014) emphasized the need to select written instructional tools that are effective in reaching target audiences for public health education in specific communities.

The advent of remote learning via the internet and various interactive media has begun to blur the lines between instructional methods and instructional materials. It is essential to remember that instructional materials should support learning, rather than constitute the entire learning experience. Remember, instructional tools are to be used to complement and supplement teaching, not replace the role of the educator. With fewer qualified nurse educators and growing numbers of learners, the challenge of meeting the needs of students is a constant pressure. The reader is referred to other resources, such as Smaldino et al. (2019) and Mayer (2014), that illustrate effective use

of interactive video, the internet, and other multimedia tools to support teaching and learning.

Rather than having educators base teaching strategies on assumptions that one vehicle for instruction is superior to another for learning, research has begun to verify the effectiveness of different tools with a variety of audiences under various circumstances. Much more evidence needs to be uncovered, but it is gratifying to see that educators and healthcare providers are taking steps to undertake such investigations into multimedia learning based on the latest research and theory in this field.

Summary

This chapter reviewed the major categories of instructional materials, identified how to select tools from a range of possible options based on their advantages and disadvantages, and addressed how to evaluate their effectiveness. Nurse educators are expected to be able to make choices for teaching methods and materials every day, whether it be to meet the needs of an individual learner or to design an educational program to satisfy a broader, more diverse group of learners. In this chapter, the importance of considering characteristics of the learner, the medium, and the task when choosing instructional materials was emphasized. The importance of using instructional materials to supplement teaching also was stressed, as was the need to keep the behavioral objectives in focus when selecting these materials as adjuncts to instruction.

Print media include both commercially prepared and instructor-composed materials. The problem of matching literacy and cognitive levels of learners to printed instructional tools is a real concern. The major advantages of printed tools are that they are widely available, clients can refer to these materials for review at any time and at their own pace, and the materials have potential to reinforce information. Disadvantages include the limited opportunity for feedback. For some learners, the readability level and complexity of information may be significant barriers to their ability to take full advantage of printed tools. Several guidelines useful to educators in selecting or developing printed materials appropriate to both the audience and the task were presented (see also Chapter 7).

Demonstration materials include many types of visual, hands-on tools, such as models and real equipment, as well as displays such as posters, bulletin boards, and whiteboards. These materials stimulate the senses of sight and touch. Different types of haptic devices allow learners to touch and manipulate objects in real and virtual environments. Demonstration tools are especially useful for

cognitive and psychomotor skill development and may even influence attitudes, feelings, and values in the affective domain. Other advantages include bringing the learner closer to reality through active involvement and the opportunity for repetition of information.

The major disadvantage of demonstration materials is the potential for content to become outdated or be overused because they are often costly and time consuming to prepare. Because of workload demands, nurses in the teaching role may be reluctant or unable to revise these materials frequently. In addition, most of these materials are not suitable for simultaneous viewing by large audiences, for learners with visual impairments, or for individuals with limited abstraction abilities.

Audiovisual materials make up the fastest growing category of instructional tools. Their ability to stimulate the senses of sight and hearing enhances their power to actively engage learners and to potentially increase retention of information. Many audiovisual tools can influence all three domains of learning by promoting cognitive development, influencing attitude change, and helping to build psychomotor skills.

The audiovisual materials section of the chapter examined the five major categories of audiovisual media—projected, audio, video, telecommunications, and digital learning resource formats. Consideration was given to how appropriate each of these tools is depending on learner characteristics, expense of the software and hardware, and convenience of use. General guidelines for selecting and developing audiovisual materials were presented, and the principal advantages and disadvantages of the five categories were described. Learners with low literacy skills may benefit from most categories of these media except computer formats. Audio materials are most appropriate for learners with visual impairments, whereas projected video with captions and computer resources most benefit learners with hearing impairments.

Review Questions

1. How do instructional materials differ from teaching methods?
2. What are the general principles to consider when determining the effectiveness of instructional tools?
3. What are the three major variables that must be considered when selecting, developing, and evaluating printed, demonstration, and audiovisual materials?
4. What are the three primary components of instructional materials to be kept in mind when evaluating their appropriateness as tools for teaching?
5. Which instructional materials are examples of illusionary representations?
6. Why are numbers as well as oral and written words known to be the most abstract forms of messages?
7. Which factors must be considered when reviewing commercially prepared print materials for use in teaching and learning?
8. What are the guidelines to be followed to make sure instructor-composed PEMs are clearly written and appropriate?
9. What are some examples of demonstration materials? Of audiovisual materials?
10. What are the major advantages and disadvantages of digital learning resources?
11. Why is it that instructional materials should not be selected before behavioral objectives are determined?

CASE STUDY

Liam Shin, a clinical nurse educator at a local hospital, is responsible for updating the institution's orientation program for professional nursing staff. Liam has decided to develop a video for new graduate nurse orientees demonstrating the proper procedural steps for central line care. These learners will be expected to view this video prior to having them practice this psychomotor skill technique in a simulation laboratory. Aware that nurses have various styles of

learning, Liam has chosen this type of audiovisual tool for its popular appeal and its effectiveness for teaching and learning.

1. What are the principles to consider when developing a demonstration video?
2. In what ways does modeling behaviors in a demonstration video enhance learning?
3. What are the advantages and disadvantages of videos as an audiovisual tool?

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CHAPTER 13

Technology in Education

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CHAPTER HIGHLIGHTS

- The World Wide Web
- The Internet
- Health Education in a Technology-Based World
- The Impact of Technology on the Teacher and the Learner
- Strategies for Using Technology in Healthcare Education
  - TPACK
  - Mobile Technologies and M-Learning
- Educational Strategies Using the World Wide Web
  - Social Media
  - Webcast and Web Conferencing
- Educational Strategies Using the Internet
  - Email and Texting
- Healthcare Consumer Education in a Technology-Based World
  - Telehealth and Remote Patient Monitoring
- Technology for Professional Development and Higher Education
  - E-Learning
  - Distance Education
  - Learning Management Systems
  - Hybrid (Blended) Learning
- Issues Related to the Use of Technology
  - Cybersecurity
  - Oversight and Control of Health information
  - Accessibility
- State of the Evidence

KEY TERMS

asynchronous

blogs

consumer informatics

cybersecurity

digital divide

digital health divide

digital literacy

distance learning

e-learning

Fourth Industrial Revolution

Hy-Flex

hybrid (blended) learning

Information Age

information literacy

internet

learning management system

m-learning (mobile learning)

mobile technology

remote patient monitoring

social media

social presence

synchronous

telehealth

TPACK

web conferencing

webcasts

wikis

World Wide Web

OBJECTIVES

After completing this chapter, the reader will be able to:

1. Describe the impact of new and emerging technologies on education.
2. Discuss appropriate educational strategies using technology to promote effective learning outcomes for patients with various learning needs.
3. Identify ways in which telehealth could be incorporated into healthcare education.
4. Describe the role of the nurse educator in using technology in patient, staff, and student education.
5. Recognize the issues related to the use of technology.
6. Discuss technological advances available for professional education and higher education to reach learners in distant locales.

Life, as we know it today, was greatly influenced by technological advances of the last half century, a period in time known as the Third Industrial Revolution or the Information Age. These Information Age advances include the birth of the internet and the World Wide Web, the development of information technology, the widescale production of computers, and the development of user-friendly software, all of which have had an impact on every aspect of people's lives. As the United States and other progressive countries move into the Fourth Industrial Revolution, new and disruptive technologies are emerging.

Building upon the advances of the Information Age, the **Fourth Industrial Revolution** "is characterized by a fusion of technologies that are blurring the lines between the physical, digital and biological spheres" (Schwab, 2016, para. 2). Rapid advances in disruptive technologies such as artificial intelligence (AI), biotechnology, 3-D printing, and nanotechnology are

serving to merge the real world with the technological world (Medical Futurist, 2017; Newman, 2017). In the 21st century, “new and innovative technology will continue to advance and become the norm in healthcare rather than the exception” (Daniels & Wedler, 2015, p. 28). Technology will influence the way nurses practice, with some of the most dramatic advances occurring in the field of education, where technology has transformed the way learners learn and the way teachers teach.

Today, learners and teachers alike have a world of information at their fingertips. Computers and the internet, along with mobile devices such as smartphones, smartwatches, and tablets have made it possible to get information from anyone, anywhere, anytime, with just a click of a mouse, a tap of the fingertip, or a simple voice command. In today’s world, virtually all children begin learning on computers when they are in nursery school and are as young as 3 years of age (National Center for Education Statistics, 2020). As a result, children of today are often referred to as “digital natives,” as their lifelong exposure to digital technology has shaped the way they think and process information (Prensky, 2001). This is a very different beginning from that experienced by most adults who grew up in the 20th century with no or limited computer technology and who are referred to as “digital immigrants” (Prensky, 2001).

Educational technologies, which were once viewed as rare and highly desirable resources, have become commonplace. Both on-site and distance learners now interact in a multidimensional learning environment. Like shiny new toys, educational technologies have captured the imagination of the world. At the same time, they have opened a new window for educators and learners alike.

This chapter explores the challenges and opportunities resulting from the use of technology as they pertain to health, health care, and professional nursing education. Technology in education has tremendous potential. Through wise use of technology, nurses can increase access, improve educational practices already in place, and create new strategies that empower the individual and transform teaching and learning experiences for both healthcare consumers and nursing professionals.

Of course, technology is not a magic solution that can be implemented without careful planning, monitoring, and evaluation. Even though technology has incredible power, users may find that it has given them

results that they neither anticipated nor desired. To use these resources effectively, the nurse who adopts technology to enhance teaching and learning must not only have a basic understanding of the technology itself but must also be able to integrate the technology into an educational plan that is based on sound educational principles and addresses issues such as access, cost, support, equipment, process, and outcomes.

This chapter is designed as an introduction to the current application of technology in education. Because nurses provide both healthcare and professional education, it addresses technology-based resources and strategies appropriate for use with patients and their significant others as well as with staff nurses, other healthcare professionals, and nursing students. Although it is not intended to give detailed instruction on the mechanics of computers and other types of hardware and software, the chapter presents a basic overview of the technology involved and its implications for the educator and the learner. Hence, this chapter focuses primarily on the internet, the World Wide Web, and computer-based hardware and software applications that can be used to enhance learning at on-site locations with patients, nursing staff, and nursing students as well as with learners at a distance.

Computer-based technologies, the internet, and the World Wide Web are developing at a rapid pace that is accelerating with each new generation of discoveries and applications (Gregersen, 2019; Naughton, 2016). Because of this phenomenon, consumers are often advised that the computers they buy today are not likely to reflect the state-of-the-art technology of tomorrow. The same caution must be given to readers of books on technology. Given the pace of technology and the development cycle of a textbook, it is impossible to capture all that is new and cutting edge in the world of educational technologies in a text such as this one. Rather, this chapter is meant to serve as a starting point from which readers can begin to investigate the wide array of educational technologies and resources available. Ideally, it will stimulate readers to continue to search for new and exciting ways to integrate technology into their teaching and learning activities.

The World Wide Web

The technology-based educational resource that is familiar to most people is the World Wide Web. In simple terms, the **World Wide Web** is a virtual space for information. It is almost impossible to track its size because there are billions of webpages in existence, with several million new pages being added every month. These webpages cover a wide range of topics and display a variety of formats, including text, audio, graphic, and video. Thousands of webpages focus on health information, products, and services. Healthcare consumers can find websites ranging from those that present videos of surgical procedures to those where they can ask questions as well as receive information.

Clearly, the World Wide Web is an exceptionally rich educational resource for both professional and consumer use. However, despite people's familiarity with the web, there is some confusion regarding terminology. Therefore, it may be helpful to clarify some commonly used terms.

The World Wide Web was first conceived in 1989 by Tim Berners-Lee and Robert Cailliau, two scientists working at a laboratory in Switzerland (Livinginternet.com, 2007). From a technical perspective, it is composed of a network of information servers around the world that are connected to the internet. The servers that make up the World Wide Web support a special type of document called a webpage (CERN, 2019). Web documents or webpages are written using HTML (Hypertext Markup Language).

Although originally created to display information, the World Wide Web is evolving from the simple static information delivery system of its early days to a more interactive platform. Information can be exchanged on the web, allowing the user varying degrees of control and interaction. This evolving version of the web is sometimes referred to as Web 2.0 (Hosch, 2017).

Links on a webpage allow the user to easily move from one webpage to another with the click of a mouse. A user moves around the World Wide Web by way of a web browser, a special software program that locates and displays webpages. Firefox, Safari, Google Chrome, and Microsoft Internet Explorer are examples of web browsers (Gregersen, 2019).

Search engines and search directories are computer programs that allow the user to search the web for specific subject areas. Search engines are robots that scour the web for new websites, read them, and put text from them into a database they can access with queries. Search directories are hierarchical directories compiled by humans with references to websites; these directories are then accessed with a user query. Google is an example of a search engine, and Yahoo! is an example of a search directory. The web is so large that any single search engine or directory can cover only a small percentage of the webpages available (Pandia.com, 2006).

The Internet

A common misconception is that the World Wide Web and the internet are two names that describe the same entity. In fact, the World Wide Web and the internet are related but different. The **internet** is a huge global network of computers established to allow the transfer of information from one computer to another. Unlike the World Wide Web, which was created to *display* information, the internet was created to *exchange* information.

The World Wide Web resides on a small section of the internet and would not exist without the internet's computer network. Conversely, the internet can actually exist without the World Wide Web and, in fact, flourished for many years before the World Wide Web was ever conceived. Despite the immense size of both the internet and the World Wide Web, the two are relative newcomers to the world of technology.

The internet was originally commissioned in 1969 as a program of the U.S. Department of Defense. The first experimental version of the World Wide Web was released in the late 1980s. Since their inception, both the internet and the World Wide Web have grown dramatically in size and functionality (Andrews, 2019).

The World Wide Web, though, is merely a small component of the much larger computer network of the internet. Although the internet does not provide the eye-catching webpages and the multimedia found on the World Wide Web, it does offer a wide range of services, many of which can be used to deliver health and healthcare education to clients. The internet services most likely to be of interest to nurse educators include those that allow computer-facilitated communication.

Whereas the World Wide Web provides opportunities to send healthcare messages to large groups of people in the form of

educational webpages, the internet can be used to enhance teaching by enabling individuals to communicate with one another and with groups of people via the computer. Email, real-time chat, and online discussion or Usenet newsgroups have all been used to communicate with people about health and health care, some in very creative ways.

Health Education in a Technology-Based World

The use of technology in education reflects what is happening on a much larger scale in our communities. Hence, it is useful to think of educational technology within the broader context of the environment in which we live and work. We have experienced a period of history often referred to as the Information Age. The **Information Age**, also known as the Computer Age or Digital Age, was characterized by a change in focus from industry to information. Beginning in the 1970s, improvements in information technology and the decreasing cost of computers suddenly made information more accessible, resulting in a dramatically different world (Finnis, 2003). Although this new access to information may seem insignificant, it had an enormous impact on the global economy, culture, and our way of life. New and powerful industries have sprung up, and the world has very quickly become a much smaller place as it is now possible to connect with people and access services from around the world in a blink of an eye and at very low cost.

Technology has had such an impact on education that it has given birth to a new industry and a new set of buzzwords that define a contemporary approach to learning. Patient education, professional development, and higher education have capitalized on the power of computer technology to provide learning solutions referred to as **e-learning**, an abbreviation for electronic learning. E-learning is a global term for learning virtually and can take on many formats. E-learning can be defined as “the various technological tools that are either web-based, web-distributed or web-capable” (Nichols, 2003, p. 2). In addition, learning is gained through various technological means without confinement to a specific location or a specified time in many instances (Wallace & Panteli, 2018). Although no consensus has been reached on a precise definition of e-learning, there is some agreement that it involves the use of technology-based tools and

processes to provide for customized learning anytime or anywhere. The term *e-learning* can be applied to any learning that is delivered via technology.

The emphasis on e-learning is on learning outcomes, with the goal of providing an individual with the information or practice opportunities required to perform a task or solve a problem at the point of need. In healthcare professions such as nursing, this statement means that education is available 24 hours a day, 7 days a week. Because the point of need in health care is often related to patient care, e-learning must be structured in a way that it can be delivered across geographical distances to nurses or clients on a clinical unit or for higher education.

The demand for information and for innovative technologies continues to grow. Adults and children have come to depend on the **mobile technology** of the 21st century, from pocket-sized smartphones to electronic readers, cloud-based digital assistants, and other computer-driven devices. If one thinks about the many ways in which technology has changed the world, computers and information technologies clearly have become more than tools to make life easier—they have become part of the culture of most societies.

Computers and computer-driven information technologies have also become part of the culture of education—as common in the educational environment today as chalk and blackboards were in years past. Perhaps the most significant effect of computers on our society and on education is related to their capacity to assist in the collection, management, transportation, and transformation of information at high speed. As a result of this newfound ability to handle information, the world has experienced an "information explosion" (Press, 2017). As a society, Americans as well as people in many other countries have increased both their use and their production of information of all kinds.

People living in this information-driven society benefit from the availability of information but also are challenged to keep up with the

vast amounts of information that are continually bombarding them from all directions. Information and knowledge have become valuable commodities, and the ability to gather and evaluate information efficiently and effectively has become a 21st-century life skill. According to a Pew Research Center report (Vogels, 2019), of those U.S. adults who use the internet:

- 93% of Millennials (those born between 1981 and 1996) own a smartphone, compared to 68% of Baby Boomers (those born between 1946 and 1964)
- 55% of Millennials own a tablet, which was only slightly higher than GenX (born 1965–1980) at 53% and Boomers at 52%, but considerably higher than the Silent Generation (born 1945 and earlier), only 33% of whom own a tablet
- 86% of Millennials use social media compared to 59% of Baby Boomers

Computers and other forms of technology also have altered the skill set required of educators. If technology has changed the way people learn, then it must also change the way we teach. Educators, including nurses and other health professionals responsible for teaching, must be prepared to meet the learning needs and learning styles of 21st-century children and adults (Henriksen et al., 2016).

How has technology affected health education? Consider the following points:

- The infrastructure now exists to link people around the world to one another, to nurses and other healthcare professionals, and to a vast array of web-based information.
- Internet World Stats (2020), an international website that provides comprehensive and current information on internet usage, reports that the North American continent is home to approximately 370 million people, of whom 333 million (90%) are internet users. In America alone, 93% of American adults use the internet (Pew Research Center, 2021).
- Once a slow and tedious process, connecting to the internet has become easier with the advent of high-speed data services.

Broadband service is used in approximately 75% of American homes (Pew Research Center, 2021a).

- Broadband and high-speed internet access varies across the United States by age, income, race, education, and rural versus urban communities. During the 2020 COVID-19 pandemic, 53% of parents reported that the internet had been essential, but their children had issues when many K–12 schools closed, their child had issues with access to computers, the internet, or broadband (Vogels et al., 2020).
- Tens of thousands of healthcare applications are available online, about half at no charge, to assist healthcare consumers to learn, monitor, and manage their health and illnesses as well as communicate with healthcare providers and other consumers (University of Illinois Chicago, 2020a).

The use of Information Age technology has had such a dramatic influence on health education that a unique and rapidly expanding field of study, **consumer informatics** (also referred to as consumer health informatics) has emerged. The American Medical Informatics Association (AMIA), one of the principal professional organizations for people working in the field of informatics, has established a pervasive consumer health informatics working group to advance the field through collaboration and dialogue (AMIA, 2017). This group has over 800 members and is focused on "information structures and processes that empower consumers to manage their own health" (AMIA, 2017, para. 2). Researchers and other professionals in the field of consumer informatics are striving to find ways to use technology to strengthen the relationship between patient and healthcare provider as well as to teach and empower patients dealing with issues related to health and wellness. Although much attention has been given to computer-based educational systems, consumer informatics is not restricted to computer-based programs. It includes the study of a wide range of media that can be employed to deliver health-related information (Cook & Goueth, 2020).

The entire field of consumer informatics is growing rapidly (Mancuso & Myneni, 2016; Sands, 2020; University of Illinois Chicago, 2020b).

Many colleges offer courses of study in which healthcare professionals can gain knowledge and skills related to technology to meet the information needs of healthcare consumers. Informaticians and healthcare professionals are conducting research on the use of technology in healthcare education to generate knowledge that will guide future educational endeavors. A review of the literature reveals a growing body of knowledge in the field. Nurses and other healthcare professionals are using this knowledge to guide practice and improve the quality of the education they provide to their clients.

Healthcare education and informatics professionals are working together to develop codes to guide practice and safeguard healthcare consumers who use educational information and services delivered via the World Wide Web and the internet. The not-for-profit group Internet Healthcare Coalition was founded in 1997 to identify and promote high-quality educational resources on the internet (Mack, 2000a, 2000b). One of this organization's most significant accomplishments was the establishment of the e-Health Code of Ethics, displayed in six languages on its website. The purpose of this code is to ensure confident and informed use of the health-related information found on the web. The e-Health Code of Ethics is based on the principles of candor, honesty, quality, informed consent, privacy, professionalism, responsible partnering, and accountability, as described in more detail in **Table 13-1**.

Table 13-1 Guiding Principles of the e-Health Code of Ethics

Candor	• Disclose information about the creators/purpose of the site that will help users make a judgment about the credibility and trustworthiness of the information or services provided.
Honesty	• Be truthful in describing products/services and present information in a way that is not likely to mislead the user.

Quality	• Take the necessary steps to ensure that the information provided is accurate and well supported and that the services provided are of the highest quality. • Present information in a manner that is easy for users to understand and use. • Provide background information about the sources of the information provided and the review process used to assist the user in making a decision about the quality of the information provided.
Informed Consent	• Inform users if personal information is collected and allow them to choose whether the information can be used or shared.
Privacy	• Take steps to ensure that the user's right to privacy is protected.
Professionalism in Online Health Care	• Abide by the ethical code of your profession (e.g., nursing, medicine). • Provide users with information about who you are, what your credentials are, what you can do online, and which limitations may apply to the online interaction.
Responsible Partnering	• Take steps to ensure that sponsors, partners, and others who work with you are trustworthy.
Accountability	• Implement a procedure for collecting,

reviewing, and responding to user feedback.
- Develop and share procedures for self-monitoring compliance with the e-Health Code of Ethics.

Modified from Carey, M. (2001), The internet healthcare coalition: E-health ethics initiative. *Journal of the American Dietetic Association, 101*(8). https://doi.org/10.1016/S0002-8223(01)00215-2

O'Mathúna (2018) raises two additional ethical issues not explicitly included in the Code. One important ethical consideration is that of conflict of interest. Authors of online health information should be expected to disclose any conflicts of interest that intentionally or unintentionally could introduce bias into the content of their contributions. Justice is the second additional ethical principle to consider, because if everyone does not have easy, affordable, and reliable access to online information, health information websites might unfairly address only the health concerns that are important to those who have frequent access to websites.

The Impact of Technology on the Teacher and the Learner

New and emerging technologies have had a significant influence on educators and learners in many ways. Most important, access to information bridges the gap between teacher and learner. When information is widely available, it is no longer necessary for the teacher to “find, filter and deliver” content (Warger, 2006, p. 3). Therefore, the teacher is no longer the person who holds all answers or who is solely responsible for imparting knowledge.

Today’s educators are becoming facilitators of learning rather than providers of information and are striving to create collaborative atmospheres in their teaching and learning environments. As information becomes more and more accessible, the need for memorization becomes less important than the ability to think critically. Hence, contemporary educators are helping individuals learn how to refine a problem, to find the information they need, and to critically evaluate the information they find.

Healthcare education can and should follow a similar path. Nurses must structure their approach to healthcare education to be consistent with the needs of today’s patients. The first step is to reconceptualize the role of the nurse educator as someone who does more than impart knowledge. The nurse must be prepared to be a facilitator of learning by helping individuals to access, evaluate, and use the wide range of information that is available. They also must be willing to encourage and support patients in their attempts to seek the knowledge they require.

The Information Age was witness to some dramatic changes in the behavior of healthcare consumers, making the role changes inevitable for patients and nurses as discussed earlier. Technology and the increased accessibility to information it offers have empowered and enlightened these consumers, encouraging them to

form new partnerships with their healthcare providers (Foisey, 2015; Tan & Goonawardene, 2017; U.S. Department of Health and Human Services [USDHHS], 2020; University of Illinois Chicago, 2020b).

Access to health information online has been shown to encourage consumers to engage in greater dialogue with their healthcare providers as they seek clarification and greater understanding of their health, illness, diagnosis, and treatment (Xiang & Stanley, 2017). Even those patients who are reluctant to assume more responsibility for managing their own health care are moving in that direction as changes in the health delivery system have forced them to assume more active roles. As a result, healthcare consumers are eager to learn about and make use of the many information resources available to them.

Recognizing that consumer access to their health records will allow them control over their health information and health decisions, the federal government in 2016 enacted the 21st Century Cures Act, which enables a secure exchange of electronic health information (Arnold, 2020). Under the HIPAA regulations, patients have a right to access and share information in their electronic health record (EHR) to take charge of their health (HealthIT.gov, 2020). Improving *interoperability*—that is, the exchange of information between the consumer, payers, and providers—will result in more efficient care coordination, will empower patients to be better consumers, and has the potential to improve the quality of healthcare delivery (Centers for Medicare & Medicaid Services [CMS], 2021).

Today's consumers often enter the healthcare arena with information in hand. They are prepared to engage in a dialogue with their healthcare providers about their diagnoses and treatments. Studies have shown that clients who have gone online to find health information resulted in them making decisions about treatment of a condition and making them more confident in asking questions of their care provider (Tan & Goonawardene, 2017). Lannon (2017) reported that in a nationwide survey about consumer online searches for health-related content, the majority of respondents

(57%) reported they go to the internet first about a specific health condition or health question before they approach their healthcare professional.

Given this trend, nurses can no longer assume that the patients they see in a hospital or clinic will have little information other than what educators have given them or that they will not have explored the treatment options available to them. Furthermore, nurses cannot assume that patients will unquestioningly accept what is told to them. Research studies have shown that twice as many online health information seekers go to the web after a doctor's visit than before such an encounter (Rainie, 2017).

Whereas healthcare consumers of the past were often isolated from others with similar diagnoses and were dependent upon healthcare providers for information, today's e-consumers and e-caregivers have the means to easily access networks of other patients and healthcare providers worldwide. Online support groups, blogs, and discussion groups where healthcare consumers can share experiences are readily available. Consumers who are being treated for health problems can quickly find detailed information about their diagnoses, treatments, and prognoses from myriad sources.

In this dynamic environment, it is not surprising that the teaching needs of today's healthcare consumers and the expectations they hold for those who will be teaching them are changing. The role of the nurse educator has not been diminished, but it has changed. Nurses must now be prepared not only to use technology in education but also to help patients access information, evaluate the information they find, and engage in discussions about the information that is available.

In addition to altering the educational needs and expectations of healthcare consumers, the Information Age has made a tremendous impact on professional and higher education. Technology has given rise to a dramatic increase in educational opportunities for nurses and other healthcare providers. Nurses seeking advanced degrees and credentials or continuing education credits can now study at

colleges and universities offering distance education programs in a wide range of subject areas.

Strategies for Using Technology in Healthcare Education

Computers have made it possible to provide anytime, anywhere access to patient education, professional development, and continuing education as well as education for students. Virtual reality and computer simulation can open opportunities to learn hands-on skills and develop competencies in areas such as diagnostic reasoning and problem solving. Like consumers, health professionals in the Information Age can use the internet and the World Wide Web as vehicles for sharing resources and for gaining access to the most current information in their fields of practice.

With the continuing advances in technology, educators are challenged to use educational models incorporating technology and evidence-based educational practices as well as developing competency in technology skills. One model for incorporation of technology into educational planning is the Technological, Pedagogical, and Content Knowledge (**TPACK**) model, discussed next. In addition, many of the web and internet programs provide opportunities for their use as educational tools. The options are varied and unlimited. The task is to know how to use them and use them intentionally!

TPACK: Technological, Pedagogical, and Content Knowledge Model

Since many technology avenues are available for use in the classroom and in distance and online learning, it is very helpful for educators to use a learning design model. Technology-enhanced learning design models may provide educators with guidance related to the education process, such as the formulation of objectives, planning for pedagogical methods, delivery of content, and evaluation of teaching and learning (Bower & Vlachopoulos, 2018). In analyzing 20 technology-enhanced frameworks on learning design, Bower and Vlachopoulos (2018) noted that various models focused on procedural or conceptual factors and others provided details on selection of technology.

The TPACK model is useful for nurse educators because it addresses responsibilities for pedagogical knowledge, content knowledge, and technological knowledge (Mishra & Koehler, 2006). TPACK was rated among the top models for consideration because it does not focus on simply the use of technology but rather on the dynamic interplay of technology, pedagogy, and content. An educator needs to have competence in balancing knowledge related to all three of these aspects. Historically, educators have been considered content experts. More recently, the art and science of how to share the content (pedagogy) has been emphasized. With the advent of numerous technological advances, how and when to incorporate technology is a must.

Figure 13-1 demonstrates an intersection where the three constructs overlap (Mishra & Koehler, 2006). For instance, the first overlap includes pedagogical and content knowledge (PCK), which involves an interplay of how best to teach certain content such as math skills for medication calculation based upon the pedagogy of growth mindset (Dweck, 2006). The second overlap includes technology and pedagogy knowledge (TPK), which involves the selection and application of appropriate technology to support a specific pedagogy, such as when considering how to promote learner-to-learner interaction for an online course and the appropriate technology might be an online discussion. The third overlap includes content knowledge in combination with technological knowledge (TCK), which involves knowing how to best use technology to support learners when learning specific content. For example, if the goal is to have learners understand the concept of taking a blood pressure, having a high-fidelity manikin that provides actual sounds enhances the learning of this psychomotor skill.

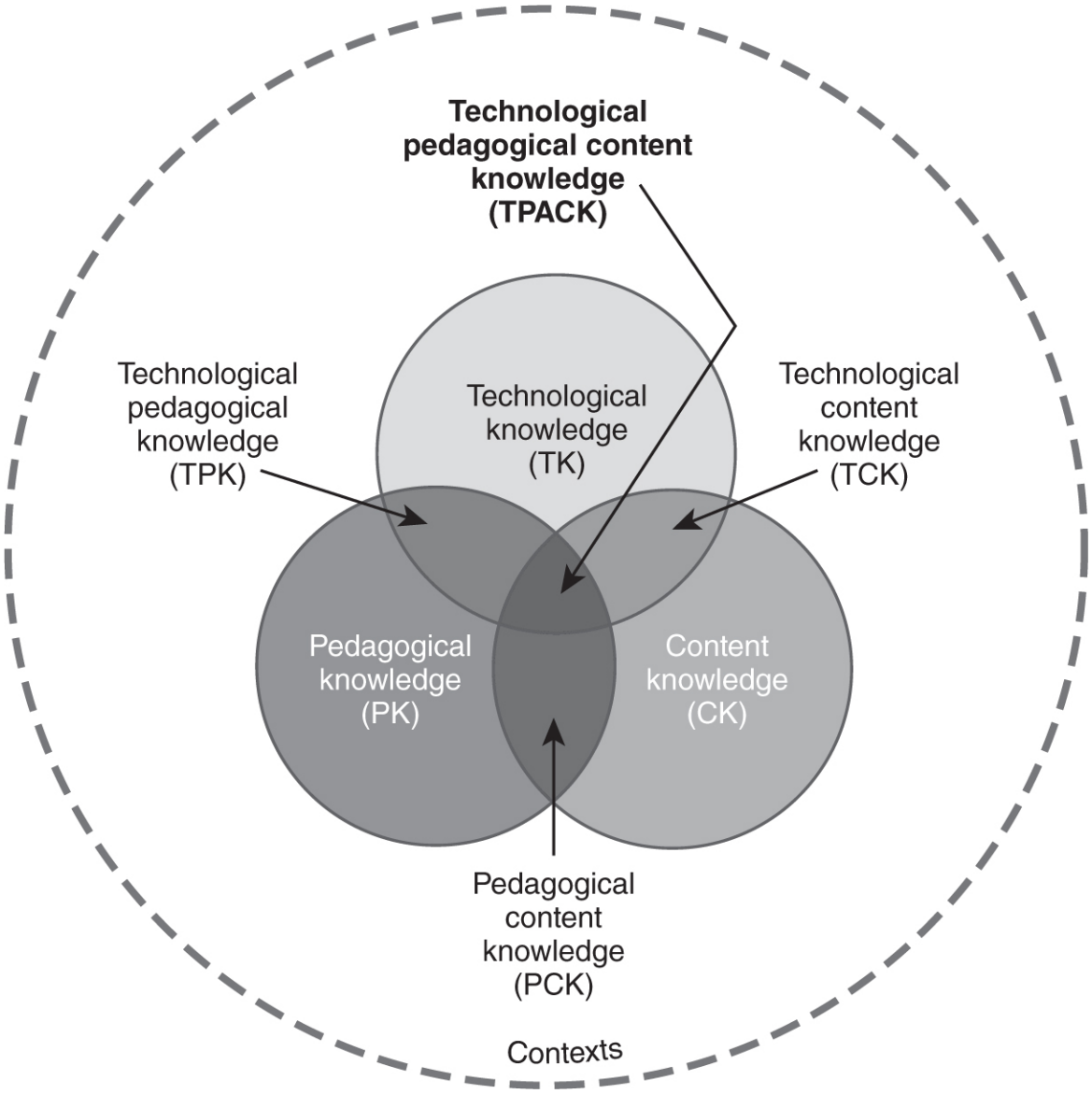

Figure 13-1 TPACK: Technological, Pedagogical, and Content Knowledge

Reproduced with permission from the publisher tpack.org ©. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record, 108*(6), 1017–1054.

Description

Lee and Kim (2017) discuss steps involved in using the TPACK model. The three steps are: understanding TPACK, experiencing TPACK, and

practicing TPACK. These authors also include examples of lessons using TPACK, such as using webcam sessions with experts and creating a family tree activity using digital storytelling. Healthcare examples could involve using Google Earth to assess a community when learning public health or using animated graphs during the COVID-19 pandemic to see the rise in case numbers in real time or over a certain period of time.

The nurse educator must be cognizant of the interaction between content, pedagogy, and available technology, so tools and strategies are strategically chosen to affect the best learning outcomes. The technology itself is not what promotes positive learning outcomes; rather, it is the instructional design and techniques within the educational environment that provide for an enriching learning experience. Skiba (2017) speaks to the importance of maintaining quality standards for online teaching and using evidence that is now available to support best practices for online teaching and learning.

Mobile Technologies and M-Learning

Most universities are using mobile technologies in the classroom. Uses for mobile technology can be administrative including grading or calendars, referential including dictionaries or drug names, interactive such as graphs or quizzes, location awareness such as museums or Google Earth, and collaboration such as games (Patten et al., 2006). It is not uncommon for young adults to have only mobile technologies and use them for all their learning. This is referred to as **m-learning** (mobile learning). Challenges can arise when using only mobile technologies to produce documents.

Mobile technologies are a familiar approach for students, and many activities on them provide immediate feedback (Dobbins & Denton, 2017). Current mobile applications include conferencing such as WebEx and Zoom (see Webcasts and Web Conferencing later in this chapter) and teaching sites such as Google classroom; audience-response systems (ARS) such as Socrative, Quizlet, Kahoot, and Quizizz; study aids/resources including Study Blue Flashcards; and ARS programs that engage the learner through asking for responses as well as by providing feedback on any areas that require further education or that need correction of misconceptions (Draper & Brown, 2004; O'Donoghue & O'Steen, 2007). Mobile technology also may be used in the clinical areas.

Nursing students reported using mobile apps in clinical as a flexible learning tool for diagrams, images, videos, procedures and to reference medications (O'Connor & Andrews, 2018).

Ethical concerns regarding use of mobile technology include preserving professional dignity, securing informed consent, respecting personal autonomy, using it properly and efficiently, and avoiding harm (Koohestani et al., 2019).

Educational Strategies Using the World Wide Web

Web 2.0, also known as social networking, has made available a wide array of communication formats for people with similar interests to come together to exchange ideas and share information. These forums are collectively referred to as **social media**, which is defined as “Internet sites and applications that allow users to create, share, edit and interact with online content” (Gagnon & Sabus, 2015, p. 407*)*.

Social Media

Owing to their quick communication and engaging formats, social media sites such as YouTube, Facebook, Instagram, Twitter, and LinkedIn have experienced dramatic growth in their use and popularity in recent years. In 2005, only about 7% of Americans participated in social media. In 2015, that number grew to 65% or two-thirds of adults living in the United States (Perrin, 2015). Over the past 5 years, though, the public’s negative feelings about certain aspects of social media have kept the rate of growth relatively stable, with approximately 70% of Americans using these types of sites (Auxier & Anderson, 2021). Media networks vary in popularity depending on different demographics, but in general more than half (53.6%) of the world’s population uses social media (Chaffey, 2021).

Social media has proven to be a powerful force to educate and empower people, to quickly send messages to a worldwide audience, to gather information about public perceptions of health issues, and, in some cases, to collaborate with other users in real time (Norton & Strauss, 2013; Smailhodzic et al., 2016; University of Arizona, 2020; Ventola, 2014). Social media in combination with the growth of mobile technology has changed the way people seek and find health-related information. Consider the following: Prior to social

media, a woman requiring a hysterectomy relied on her healthcare provider for health teaching and a referral to a surgeon. She most likely talked with a small group of friends about their experiences with the procedure. With social media, a woman can find online reviews of area surgeons and area hospitals, go to YouTube to watch the procedure being suggested, and go to a social media site like Hystersisters.com for information and support for everything from diagnosis and treatment to recovery. She can access this information anywhere, anytime using her phone, tablet, or laptop.

This example illustrates the growth and power of social media in health care. A recent study found that in the United States alone, over 1,600 hospitals were actively managing over 6,500 social media sites such as Facebook and YouTube (Mayo Clinic, 2017a). The Mayo Clinic has taken a leadership role in supporting the use of social media by healthcare professionals and organizations (Kotsenas et al., 2018). In 2010, the Mayo Clinic established the Center for Social Media to improve health care through the use of this medium. Since that time, the center's website has grown to include blogs, webinars, and discussions where healthcare professionals explore issues and best practices in the use of social media. Most recently, the center has created a certification course in the use of social media for health care (Mayo Clinic, 2017b).

Social media provides an effective set of tools that can be used by the nurse to educate healthcare consumers, nursing staff, and nursing students. Social media also provides a means for networking and professional development among nurses and other healthcare professionals (Grady, 2020; Hao & Gao, 2017; Moorley, 2015). In addition, students and faculty find social media helpful in the following ways (Price et al., 2018; Tower et al., 2014):

- Peer-to-peer support
- Engagement with experts and the public
- Ability to summarize understanding of information
- Skill development in critical reflection
- Sharing of ideas

Before using social media for education, an institution should develop social media policies at both the program and institutional levels. Policy guidelines have been developed by the American Nurses Association (ANA, 2015), the National Council of State Boards of Nursing (NCSBN, 2015), and by a nonprofit quality assurance organization known as Quality Matters (Qualitymatters.org). In addition, the Family Educational Rights and Privacy Act (FERPA) and the Health Insurance Portability and Accountability Act of 1996 (HIPAA) regulations must be kept in mind when developing these policies. Once developed, both graduate and undergraduate nursing students as well as nursing staff and nursing faculty need to be oriented to these policies. Examples of unprofessional cases should be provided, and consequences of these actions discussed (Peck, 2014) when developing educational sessions.

Several of the more common forms of social media are addressed as follows:

Blogs

First developed in the late 1990s, **blogs** (a shorthand for "web logs") are the oldest and most well-established form of social media and have been used by healthcare providers since 2004 (Ventola, 2014). Blogs are an increasingly popular mechanism for individuals to share information and experiences related to a given topic. Blogs have the potential for reaching wide audiences, especially if a blogger writes content of significant interest, which can "go viral" when shared and viewed again and again by readers (Ventola, 2014).

Although sometimes referred to as web diaries, blogs are much more than that; for example, they may include images, media objects, and links that allow for public responses (Garrity et al., 2014; Knapp, 2017; Maag, 2005; Robinson, 2017). Blog topics tend to follow mainstream news and blog entries are typically viewed in reverse chronological order (most recent first) and are easy to follow. Other common features include archives, a blogroll (list of

recommended blogs), and a reader comment section (Miller & Pole, 2010).

The number of blogs available on the web has increased dramatically in recent years. A number of years ago, the Pew Internet and American Life Project (Lenhart & Fox, 2006) reported that approximately 12 million Americans had created a blog and another 57 million read blogs on the World Wide Web. In 2015, the number of Americans who updated a blog at least once per month in the United States reached 28.2 million, which is projected to rise to 31.7 million by 2020 (Statista, 2017). As of 2021, 570 million blogs exist on the internet (Djuraskovic, 2021). Specific to health care, 80% of internet users in the United States have searched online for health advice and treatment information and more than one-third of Americans reported they read blogs to learn about other people's experiences on a health issue (Healthcare Global, 2020). Users can search for blogs with a focused command, for example, "breast cancer blogs," on a search engine such as Google. Blogs also can be found on blog-focused directories such as "spillbean.com" or "eatonweb.com."

The most popular healthcare blog posts focus on interviews with experts (Q&A), tutorial videos (how-tos), patient case studies about a particular health problem (personal stories), and the latest health issues (news commentaries) that provide unique and attractive content for patient audiences (PatientPop, 2019). A wide range of medical blogs are available, such as Well, WebMD, Kaiser Health News, Harvard Health Blog, and Everyday Health, to name just a few (St. George's University, 2018). Blogs offer physicians, nurses, and other health providers opportunities to share their stories, knowledge, and viewpoints. Also, blogs serve as a way to give a "public face" to the health professions (Lagu et al., 2008). Scheibling et al. (2018) explored the reasons why healthcare professionals create and use blogs.

Because of the ease of use and the popularity of this form of electronic communication, blogs remain an effective way to provide

consumers with health-related information. Consumers who are getting information from blogs must be taught the importance of evaluating the credentials of the author as well as the accuracy and currency of the content of the blog (Girgis, 2019; National Institute on Aging, 2018; University of Washington Libraries, 2021). As with other forms of communication, nurses who use blogs to teach must implement a plan for regular maintenance and updating of the site. Furthermore, given the time commitment required, nurses should regularly evaluate the use, readership, and impact of the blog (Adams, 2011; Knapp, 2017).

Wikis

Another form of online communication is a wiki. The term **wiki**, which means *quick* in Hawaiian, is a website that allows multiple users to come together to collaboratively write and edit the content and structure of a collection of webpages (LeBar, 2017). In comparison to blogs, wikis are more social in their construction. Such a collection is easily expanded, and all users can add to, edit, and remove content. Wikipedia (http://www.wikipedia.org) is one of the best-known wikis.

Wikis are **asynchronous**, meaning that they allow users to work in concert with one another but not necessarily simultaneously. Consequently, authors may contribute to the webpages at their individual convenience. Wikis also have the capacity to hold multimedia content such as text, videos, audio, and photographs (Wikipedia, 2020), making them a potentially exciting and engaging source of information. Participants also can link to other content or to media by way of hyperlinks (LeBar, 2017).

Health-related wikis are promising tools for consumer education. For example, WikiMD (http://www.wikimd.org) is a free medical encyclopedia moderated by health professionals. Health consumers can go to WikiMD to find interesting and up-to-date information on health, weight loss, and wellness from a variety of perspectives. Also, wikis have the potential to be effective tools for professional education (Brulet et al., 2015). In the practice and classroom

settings, clinicians and educators are using wikis to encourage group collaboration and sharing of ideas on a given topic (Trocky & Buckley, 2016; Villeneuve, 2019).

Wikis can be either open to the public or accessible to only a select group. In the open version of a wiki, anyone can access the information posted to the webpages. A closed wiki can be used for a specific community to develop a particular resource. For example, a nursing professor might set up a wiki for her online students to develop a resource manual related to building evidence-based practice in a nurse-run clinic.

Other Forms of Social Media

Facebook, Twitter, LinkedIn, and YouTube are other social media tools that can be employed by nurses for educational and professional networking purposes. With these media, users create their own profile pages where information, pictures, and other forms of media such as blogs for comments can be posted. The unlimited storage capacity on the site is a major advantage for users.

Facebook, originally designed in 2004 as a college network at Harvard University, has grown to be an international networking site with more than 2.7 billion active monthly members (over one-third of the world's population), including a growing number of healthcare professionals. Of all the social media tools available, Facebook remains the most popular (Maina, 2021; Mohsin, 2021). Approximately 70% of American adults using the internet report visiting one or more Facebook pages on a daily basis (Pew Research Center, 2021a). Facebook also hosts numbers of health and professional organizations, illness-based support groups, and nursing and other professional journals (Sias & Duncan, 2020; Ventola, 2014). It has been used by healthcare consumers to chronicle their experiences with illness and health care and by health professionals and health organizations to convey health-related information.

Twitter is a social media service that offers free microblogging to its members. Micro-blogging is defined as the sharing and receiving of "tweets"—that is, messages of 280 or fewer characters—with the members of one's personal network (Johnston, 2019). Twitter can be used by nurses and other health professionals and healthcare organizations in many ways, such as nurturing relationships with patients and professional networking (Reese, n.d.). Formal Twitter chats can be arranged to allow for exploration of specific topics or questions, or for more general discussion. "Hashtags"—that is, keywords preceded by the # symbol that are attached to each message—allow the tweets to be linked together to create a virtual conversation (Johnston, 2019; Mayo Clinic, 2017b; ReferralMD, 2016). Tweets also can be used to provide streamlined messages to patients or other health professionals, keeping them updated on important news or information (Pershad et al., 2018). For example, nurses attending a professional conference might tweet key points or reactions to presentations. Others might tweet commentary to news or current events.

The advantages of social media platforms for health education are numerous. Local or worldwide communities of learners can be created in a relatively simple and cost-effective manner. Learning experiences on these sites can be media rich and enticing, especially for the younger population. Although some patients may need instruction on how to find, register for, and use the site, the sites themselves are easy to use and can be accessed from computers or mobile devices (Morgan, 2015).

Despite the many advantages of using social media to disseminate health-related information, a number of concerns have been raised about their potential risks (de Martino et al., 2017; Norton & Strauss, 2013; Rozenblum & Bates, 2013; Ventola, 2014). As mentioned previously, the American Nurses Association (ANA) has published a set of principles for social networking as well as a tool kit to guide the nurse's use of these communication mechanisms to reduce the risks (ANA, 2015). Remember that everything posted on a social media site is public information, it may be widely distributed, and nurses

must be sure to maintain the privacy and confidentiality of their patients based on state and federal laws.

Webcasts and Web Conferencing

Two effective methods for providing education virtually are webcasts and web conferencing. These strategies can be used to provide more directed education to specific audiences or learners. While webcasts are similar to a taped lecture or presentation, web conferencing provides interaction possibilities. During the COVID-19 pandemic, a dramatic shift occurred in use of web conferencing for meetings, professional development sessions, and actual class interactions. It is anticipated that some of this shift will continue as the "new normal" for both organizations and educational institutions of the future. While a key aspect of web conferencing has been reaching participants at a distance, the value of having the capability of internet interaction across the street or across the globe never has been more evident.

Webcasts, or live broadcasts over the internet, permit audio and/or video to be transmitted to participants in multiple locations. They provide a unique mechanism for delivering presentations to users around the globe. Although webcasts allow only limited interaction, they are growing in popularity as a training device for sharing lectures and demonstrations. Podcasts are audio-only webcasts, and vodcasts are video-based webcasts that can be used for professional education as well as for patient education (see Chapter 12).

Web conferencing, or webinars, are similar to a webcast in that they are internet-based programs; however, web conferences do allow **synchronous** (live) interaction. Web conferences have two components: a computer-based display, such as a PowerPoint presentation or whiteboard, and a live discussion with video cameras projecting participants' faces. Participants typically can join a web-based conference via telephone or computer. Easy-to-use computer applications such as WebEx or Zoom (a product of 21st Century

Fox) are available to deliver online classes or webinars, conduct work meetings, hold one-on-one or group discussions with colleagues or patients, and participate as a presenter at conferences (Nitzky, 2019). While Zoom has a free version, organizations need to be mindful that privacy and security issues need to be considered and that purchasing licenses are important to improve the security concerns of the free version.

When well run, web conferences can be an effective strategy for teaching or meeting with groups of people at a distance. However, without proper planning and implementation, they can be frustrating for the individual conducting the session as well as for participants. The following guidelines are just some of the tips that can be used to ensure a smooth delivery of content and good audience participation (Costill, 2015; Goodwin, 2020; Griffiths & Peters, 2009; Rodriguez, 2021):

- Allow adequate time to publicize the event. Depending on the audience several weeks to several months may be required.
- Develop a lesson plan or meeting agenda in advance, mapping out both the topics to be covered and the time to be spent on each topic. Build in time for questions and discussion.
- If slides or media are to be used as part of the program, upload them prior to the webinar and do a test run, making sure they can be displayed and convey the appropriate message. Make sure the font is large and clear enough to be easily read. Avoid clutter on the slides by keeping them simple.
- Make sure adequate staffing is available for the webinar. A common model is to have one person who is responsible for presentation and an assistant who answers participant questions online and provides the presenter with assistance on technical issues. Someone must be familiar with the technological aspects of running the webinar to ensure a problem-free experience.
- Send instructions and any necessary materials to participants several days in advance. Send a reminder about 24 hours in advance.

- Start early. The individuals running the webinar should arrive no later than 30 minutes prior to the start of the session and log on to the system at least 15 minutes prior to beginning the presentation. If any presenters are off site, make sure they have a way to contact the individuals running the session through an offline medium.
- Reduce background noise, including muting all phone lines; using earphones helps for audio clarity.
- As with any meeting, keep the conversation moving and the agenda on track. Make sure everyone has a chance to speak or ask questions. With a small group, you might want to call on people by name. In a large group, do not allow anyone to monopolize the session.
- Follow up with participants after the session. Include a post-event survey and/or evaluation form.

Educational Strategies Using the Internet

In a discussion of health care in the 21st century, the National Institute of Medicine (2001) proclaimed that both patients and clinicians could benefit from improvements in timeliness by using internet-based communication. Although electronic communication was once thought to be reserved for the younger generation, it is now widely used and accepted across generations and within many countries and provides a simple and efficient way for nurses and other healthcare providers to connect with patients (Newhouse et al., 2015; Niemi et al., 2016). Today, internet communication can be a simple typed message or involve a host of learners interacting together through a conferencing program allowing for discussions virtually.

While the options seem almost endless, the caveat is still learners' access to the internet to engage them in this type of learning. Furthermore, with the proliferation of patient-provider electronic communication in recent years, Lee et al. (2018) critically appraised the current published guidelines. They found major weaknesses in recommendations on how to effectively use electronic tools, systematically identify helpful practices, evaluate the quality of communication, and assess the relationship between electronic communication and quality of care.

Email and Texting

Electronic messaging is a commonly used internet technology that holds great potential for improving care, communication, and health education. Two common forms of electronic messaging are electronic mail (email) and texting. An email is an electronic file that is sent to an email address using an email program that allows the user to create, send, and store messages. Email programs are

widely available and typically free of charge. Email messages can be any length and can include attachments such as pictures and video. Users read and send their email messages by accessing their email program account. Text messaging is a way to communicate via a mobile phone using a cell phone number. Although interest in texting in the healthcare environment is growing, email communication is more commonly used.

Studies suggest that many patients are interested in communicating with their healthcare providers via email or texting. According to a national survey, 93% of adults aged 21 years and older indicated they would likely choose a doctor if email communication was offered (Catalyst, 2014). Indeed, email is universally used among diverse age groups and is a very popular form of communication, employed by almost all internet users.

Patient expectations have evolved in that patients want texts and emails from their doctor proactively when sick or well (West, 2018; Miliard, 2012). However, researchers have found that although patients want to communicate via email or text with their providers, they do not have access to medical and health systems. “All functionality that we live our lives on isn’t available in health care. You use your phone every day to send a text message or e-mail; you can’t do that to over 90% of physicians . . . This is not cutting-edge technology we’re talking about. This is the standard way we live our lives” (Price, 2016, p. 2).

HIPAA guidelines do not restrict use of emails between healthcare providers and clients but recommend more secure systems with encryption standards such as DropBox or Google Drive (Alder, 2018). Other guidelines include not using patients’ names in subject lines and having clients sign consents for use of email or texting (Alder, 2018). While it is permissible to email other health workers within an organization with security and firewalls, communicating with outside organizations without client permission should be avoided.

Although email offers a quick, inexpensive way to communicate with patients, it is important that health providers encourage patient engagement with familiar as well as other emerging technologies, such as texting and patient portal systems, to enhance interaction with them, schedule appointments, and get test results (Crane, 2014; Hart, 2018). Texting, email, and patient portals have the advantage of being asynchronous—that is, a message can be sent at the convenience of the sender, and the same message can be read when the receiver is online and ready to read it. Messages can be sent and responded to any time, day or night.

As a form of enhanced communication with clients, electronic messaging is an approach worthy of further study by nurses. An electronic messaging system, such as email or texting, gives patients who identify questions after leaving a healthcare facility a chance to get answers from a reliable source familiar with their history. Patients who are not sure how to phrase a question or feel rushed when instructions are being given in a clinical setting have a chance to compose their thoughts at home and prepare an email or text message. Also, from the nurse's perspective, an email or text message system provides a simple way to check on patients—that is, to see whether they understood the instructions they were given and to respond to new questions that have arisen.

In some ways, emailing or texting is preferable to a voice messaging system. For patients who are anxious about asking questions, email or text allows them all the time they need to gather their thoughts. In addition, they do not have to remember the answers they are given by the nurse, as this type of electronic message provides a written recording of the nurse's response.

In contrast, many voicemail systems are time limited. Patients are sometimes cut off in the middle of a voice message if the message is long or if they are struggling to make themselves understood. Other patients may hesitate to leave a voicemail in the evening or night hours when they know no one is there to respond. However, by the

way email and texting are designed, patients can feel comfortable sending messages at any time.

Unless a mechanism is in place by which patients can contact the nurse or other health provider with questions, they may be at risk for making a mistake with their self-care that may have serious consequences for their health (Okwerekwu, 2017). Simply telling patients to call if they have questions is often inadequate. Attempting to reach a busy office or clinic usually results in a call back by the nurse and the patient having to wait by the phone for an answer. Even calling hours can be problematic because they imply that the patient is free to make contact only at the designated hour.

Healthcare consumers need to go no farther than their computers if they wish to learn how to use the internet or the World Wide Web. Getting into the internet or the World Wide Web requires a computer with a telecommunication link and software to connect to an internet service provider (ISP). Once a person is connected, it is simple to find a wide range of websites devoted to teaching internet or World Wide Web navigation skills. With a properly worded search term (e.g., “World Wide Web and tutorial”), a search engine will uncover numbers of self-paced tutorials designed to teach novice or intermediate users the desired skills. Most search engines even provide guidance in creating commands that will elicit the information needed.

Both computer and information literacy are essential skills addressed in nursing education programs. Knowledge of the World Wide Web is critical for nurses who work with and educate healthcare consumers. This is true for the following reasons:

- Nurses can expect to see patients enter the healthcare arena having already searched the web for information. In fact, almost half of adult patients report that they have gone online to search their symptoms to determine if it is necessary to see a healthcare provider (Lannon, 2017; Tan & Goonawardene, 2017). Therefore, familiarity with the type of information found on the web helps direct the assessment of patients prior to

teaching to identify the needs of the learner and to determine whether follow-up is necessary.

- The World Wide Web is a tremendous resource for both consumer and professional education. To use the web effectively, nurses must possess information as well as digital literacy skills and be prepared to teach these same skills to patients, staff, and students including how to access the information on the web and how to evaluate the information found.
- The World Wide Web provides a powerful mechanism for nurses to offer healthcare education to a global audience. An increasing number of health organizations are creating websites with pages dedicated to presenting healthcare information for consumers. Although nurses may not be responsible for creating the HTML document that will be placed on the web, they may work with the website designers to develop the information it contains, evaluate the accuracy of the information presented, and interact with healthcare consumers who access the site.

The World Wide Web and internet are vital tools for nurse educators. These tools are mechanisms for keeping up to date on professional and practice issues as well as a resource to be shared with clients. If they are to be used effectively, however, a plan to incorporate them into patient education as well as nursing staff and nursing student education must be set in place.

Healthcare Consumer Education in a Technology-Based World

Given the growth of personal computing and smart technology, a pre-teaching assessment of a patient must include questions about computer use. It is important for the nurse to determine whether the patient has accessed web-based information prior to a teaching session and whether the patient will be able to take advantage of online resources after the session has concluded. Despite the widespread use of computers in our society, it is important to remember that not everyone has access to, interest in, or the skill set for using a computer.

Historically, adults older than 65 years, ethnic and racial minorities, individuals with low incomes and who have less than a high school education, and individuals living in a home without children were less likely to be online than others (Fox & Madden, 2005; Horrigan, 2009). Today, both access, skill, and interest in using a computer and other digital devices have shown encouraging increases for many population groups (Remaley, 2020). As of 2021, no statistically significant differences in non-internet use by gender, race and ethnicity, or community type (rural, urban, suburban) have been found (Perrin & Atske, 2021).

Although 7% of U.S. adults still do not use the internet, older Americans make up 25% of these nonusers. That is, one-fourth of adults over the age of 65 years report never using the internet, and an additional one-third report not having broadband access. In recent years, though, older adults have made great strides in their overall use of technology. Smartphone ownership among older adults has quadrupled in recent years and internet usage has increased (Anderson et al., 2019). These data suggest that computer and web-based learning will become increasingly valuable in the education of older adults.

It is important to note, though, that among the older adult population, computer usage decreases with age and remains limited among adults over the age of 75 years (Anderson & Perrin, 2017). Hall et al. (2015) explored the digital health divide among older adult users and nonusers of online health information. The **digital health divide** is the gap between those who have access to online health information and those who do not. They expressed concerns about older adults' limited access and their belief differences in using health information technology (HIT). They also proposed strategies to reduce this divide and to promote HIT use among this population.

In addition to older adults, the digital divide remains a problem in the United States for immigrant populations, people with low literacy, families with low income, people living with disabilities, and consumers with chronic conditions (Anderson & Perrin, 2017; Bjarnadottir et al., 2016; Lee et al., 2015). Because computer access is not universal, it is important to determine whether a patient has a home computer, smartphone, or other mobile devices; has access to the internet; is knowledgeable about using a computer; has navigational needs in finding information on the internet; and has interest in using a computer to obtain information and resources regarding their health care.

If a patient does not have a computer or mobile device but has interest in using one to access resources on the web, places where they may gain access should be discussed. Libraries, senior centers, and community centers commonly have computers with internet access for public use and typically offer instruction and assistance for new users. Given the resources available, including librarians skilled at finding information, libraries are commonly used by adults seeking health information (Horrigan, 2015).

Because the web can be so influential to consumers in their decision making about health issues and concerns, such as whether to seek medical assistance, how to treat an illness, how to diagnose a problem, what questions they should ask about a problem, and what options or alternative treatments are available (Lannon, 2017; Tan & Goonawardene, 2017), it is imperative to determine that the information a patient has found is accurate, complete, and fully understood (Sun et al., 2019). Web users report that they do not always check the source and date of the information found, and many

report feelings of being overwhelmed, confused, or anxious due to the complexity and amount of information presented (Silver, 2015; USDHHS, 2017).

These findings are not surprising. The World Wide Web contains information designed for both professional and consumer audiences. Healthcare consumers may not have the background necessary to comprehend professional literature and other types of information designed for healthcare professionals. When healthcare consumers do a search on a topic, they will access websites designed for them as well as for health professionals. Consumers should not be discouraged from accessing these sites, but nurse educators must help patients find information written for them at their level of readability and comprehension. Even websites specifically designed for consumers may be difficult for the public to understand. For example, in a review of websites on breast lesions requiring surgery, Miles et al. (2019) found that the average reading level of online patient education materials exceeds the average reading level of the general public, and Hutchinson et al. (2016) found that online information about common medical diagnoses reveals reading levels significantly above the National Institutes of Health recommendation that health information be written at a grade 6 or 7 reading level.

The web also contains information that may be biased, inaccurate, or misleading (National Institute on Aging, 2018; Wilkes, 2015). Many of the health-related websites are sponsored by commercial enterprises trying to sell a product. Others contain information posted by nonprofessionals and may be opinion rather than fact based. Social media sites with reports of misdiagnoses, complications, and medical errors can be frightening. Because the web has the potential to change so quickly, it is difficult to regulate. Even webpages sponsored by physicians, nurses, and university medical centers may contain errors or information that is misleading or difficult to decipher.

According to NewsGuard, an apolitical journalism service that rates the reliability and validity of news and information websites, Americans “consume an unhealthy diet of health misinformation” (Gregory, 2019, para 8). More than 1 in 10 websites, such as VaccineHolocaust.org, Healthfreedom.news, and NaturalNews.com, promote health misinformation, such as the scientifically debunked theory that autism is caused by the measles, mumps, and rubella (MMR) vaccine (Gregory, 2019).

Furthermore, computer systems that are now using artificial intelligence (AI)—the so-called digital diagnosticians—to diagnose skin cancers, strokes, and colon cancers are making medicine more biased. That is, AI algorithms trained with data often perform worse for underrepresented groups, such as reading chest x-rays based on an underrepresented gender or skin-cancer detection based on data primarily applicable to light-skinned people, not darker-skinned individuals. With systemic bias found in many core social institutions, it is important that “technology reduce health disparities, not exacerbate them” (Kaushal et al., 2020, para 2).

In addition, patients may find that the web has provided too much information; information they are not ready to handle because it is too graphic, too frank, or too discouraging; or information they do not fully understand. For example, a patient newly diagnosed with a serious illness may be overwhelmed with the detailed information found on the web regarding the course of the disease, prognosis, and treatment. For nurses, then, it is important to ask patients if they are using the web to find health-related information and to explore the types of information they have found.

Patients may or may not initially feel comfortable talking about information they have gathered. They may fear nurses will interpret their research as a lack of trust in the care they receive. Some may be embarrassed to talk about information they do not fully understand. Others may be anxious about how to bring up information that conflicts with what they have been told or how they are being treated.

For these reasons, it is important for nurses to establish early in their relationships with patients that they are interested in talking with them about the information they have gathered from the web or other resources they have available to them. Patients need to feel that nurses are open to discussing whatever information they find. They need to understand that nurses are their partners in seeking the best information available.

For patients who are being treated for a condition over an extended period in time, it is also important to continue the conversation about their web searches throughout their treatment. Simply asking “What interesting information have you found on the web lately?” will keep the dialogue open and provide the nurse educator with the opportunity to respond to whatever questions or concerns patients may have.

It is advantageous to conduct a teaching session in a place where there is computer access. Having a computer available during a teaching session can accomplish several goals. First, it will provide the nurse educator with the opportunity to review web-based information with the patient. Not only can the nurse introduce websites that are relevant to the patient’s needs, but they can also review some of the sites the patient has been using. Nurse educators can then begin to determine the type and amount of information to which the individual has been exposed, assess the patient’s knowledge, and identify areas in need of further teaching. Nurse educators also may find information that requires further discussion. For example, a patient may have visited a website that provides distressing information about side effects of treatment, prognosis, or disease progression. Looking at the site together will enable the nurse and patient to talk about what has been discovered and do additional teaching if needed.

A second important advantage of reviewing websites with patients is that this activity provides a chance to teach them information literacy skills. There are many definitions of **information literacy**. Most agree that individuals who are health information literate have the following four competencies (Schardt, 2011):

1. The ability to identify the information they need
2. The skills to access the information they need
3. Knowledge of how to evaluate the information they find
4. The ability to use the information they deem valid

Essentially, if clients are to make effective use of the vast array of information on the web, they must be able to identify the questions they need answered, find the information they are looking for, judge whether the information they find is trustworthy, and decide how they will use the information to meet their needs.

Information literacy is *not* synonymous with computer literacy. An individual who is information literate knows how to find the information needed and can evaluate the information found for accuracy, currency, and bias. By comparison, a person who has **digital literacy** has the technical skills and knowledge necessary to use contemporary hardware and software and can adapt to new technologies that emerge (Renaissance, 2019; Shipman et al., 2009). Digital literacy skills identified by the Joint Information Systems Committee (2012) include media literacy, communication and collaboration skills, career and identity management, information and communication technologies (ICT), learning skills (within a technology-rich environment), digital scholarship, and information literacy. Digital literacy, therefore, is beyond knowing how to use a computer.

Although healthcare consumers may not have the background knowledge to evaluate information to the same extent as a healthcare professional, they can be taught some simple steps to develop their information literacy skills and to help them begin to identify which websites are useful and which are problematic. These steps include the following (Medical Library Association, 2017):

1. *Reduce a problem or topic to a searchable command that can be used with a search engine or search directory*. If clients do not know how to narrow their topics or problems to a few words, they will be unable to find the information they desire or to broaden a search to find comprehensive coverage. Once the appropriate search command is identified, using a search engine or search directory is easy, especially if the help function available at most sites is used to solve problems. Using an advanced searching feature that allows the user to enter two terms, for example, “asthma and children,” will return more precise findings.
2. *Categorize webpages according to their purpose*. A client should be taught to look for the person or organization responsible for the website and then place the website into a category reflective of its purpose. For example, the purpose of a site created by a drug manufacturer could be categorized

as marketing, sales, or promotion. Other categories could include, but are not limited to, advocacy, promotion, informational/news, personal, or instructional/tutorial.
3. *Identify sources of potential bias that may influence the content or the manner by which the content is presented*. For example, an advocacy website is likely to present information that favors one side of a debate. A marketing or sales site tends to include information that is supportive of a particular product or service.
4. *Make a judgment as to the likelihood that the information found on the webpage is accurate and reliable*. Clients can be taught to look for the credentials of authors of reports or articles found on the web. This information can help them determine whether supportive data are provided and look at more than one site to see if they can find similar claims or suggestions. Some of the more reliable health-related websites have links to other sites, such that the original site is not the sole source of information on a chosen topic.
5. *Make decisions as to the completeness or comprehensiveness of the information presented*. Because clients may not have the background knowledge needed to quickly recognize when information is missing, they should be encouraged to look at more than one site when researching an area of interest. If educators know that clients are using the web to investigate a specific topic, they can help them identify a list of things to look for in articles or webpages addressing the topic.
6. *Determine the currency of the information on a webpage*. Consumers need to know the importance of looking for a creation or modification date or other signs that the information on a website is up to date.
7. *Identify resources to answer questions or verify assumptions made about the content of a webpage*. If questions arise, healthcare consumers should be encouraged to check out information with their healthcare provider. If the provider does not have the answers or cannot verify assumptions made, they can refer the patient to other healthcare professionals.

Additionally, information literacy skills should include those behaviors one would expect of a responsible consumer. For example, consumers should know how and when to report information found on the web that is potentially harmful to others (Lau et al., 2012). Also, consumers must know what steps are necessary to protect themselves from others who might use the questions or information they post about their health care in an undesirable way. Consumers need to understand how to protect their privacy if it is desired and the implications of posting health-related information on social media sites (Akbar et al., 2020).

In years past, healthcare consumers were not encouraged to research health topics or to research options, but rather to rely on their healthcare providers for all their health-related information. Providers, including nurses, feared that patients would not understand the information they found or that they would find information they would not be able to handle. Today, nurses have more confidence in consumers' ability to manage their own health care.

More and more nurses are empowering healthcare consumers by teaching and encouraging them to take advantage of the resources at their disposal. To do so, nurses are using a variety of means to encourage their patients to use the web and to expose them to web-based resources. For example, computers set to appropriate websites are being placed in waiting rooms. Healthcare practices are creating websites designed to provide clients with relevant health information. Also, teaching materials on how to use the web are being distributed, including information on finding tools on general health topics, such as MyHealthfinder (https://health.gov/myhealthfinder) where health consumers can locate credible sources quickly (USDHHS, 2021). Given concerns about the quality of information available on the web, some professionals are working together to create trusted websites that provide information and resources for specific patient populations (eHealthMedia, 2015).

For many reasons it is good practice to teach people where to go on the web to find information. Web-based information can be obtained quickly, the cost of internet access in the home is reasonable for those who own computers or other digital devices, and web access is free in libraries and other community service organizations. Many healthcare consumers would benefit from having their questions answered quickly and inexpensively.

For example, families with young children are likely to have frequent questions related to childhood illnesses, growth and development, and behavior problems but they may not have the time or money to make a visit to the pediatrician to have such questions answered. Senior citizens may have questions about the healthcare problems encountered with aging but may have difficulty getting to a healthcare provider because of transportation and financial issues. People with chronic illness may gain some sense of control over their lives when they are able to access information on the web about their conditions. Healthy people may have many questions but few opportunities to talk with a health provider to get answers.

Even when healthcare consumers do have the opportunity to meet with a health provider, they often leave with unanswered questions. Sometimes they forget to ask, at times they are hesitant to ask, and in today's healthcare delivery system they may not be given sufficient time to ask the many questions that arise when people are dealing with health issues.

In the role of educator, the nurse can teach patients who access the web to use this resource more effectively and can be proactive in encouraging others to give it a try. It may be helpful to compile lists of websites appropriate to the needs of different patient populations. **Table 13-2** provides examples of the various types of websites that are available for consumer use. As illustrated in Table 13-2, a variety of types of websites exist, ranging from general sites covering a broad range of topics to sites with a specific focus or theme.

Table 13-2 Sample Websites for Healthcare Consumers

Title	URL	Sponsor/Author	Description
Medline Plus	https://medlineplus.gov/	National Library of Medicine	Example of a government site that provides access to extensiv information about specific diseases/conditior links to consumer health information from the National Institutes of Health dictionaries, lists o hospitals and physicians, health information in Spanish and other languages, and clinical trials. Ther is no advertising o this site.

Title	URL	Sponsor/Author	Description
Alzheimer's Association	https://www.alz.org/about	Alzheimer's Association	Example of a disease-specific website that provides a range c services, including free educational materials. The site provides a numbe of resources for caregivers includir a 24-hour hotline and a community resource finder.
Mayo Clinic	https://www.mayoclinic.org/	Mayo Clinic	Example of a comprehensive hospital site that provides informati as well as a variet of interactive tools to help healthcare consumers manag a healthy lifestyle, research disease conditions, and make healthcare decisions. Advertising helps support this site.
Cancer Net	https://www.cancer.gov/	National Cancer Institute	Example of a government site devoted to all aspects of cancer. Provides both professional and consumer-orientec information and resources.

Title	URL	Sponsor/Author	Description
Band-Aides and Blackboards	https://www.lehman.cuny.edu/faculty/jfleitas/bandaides/	Lehman University Faculty	Site provides personal rather tha factual information about growing up with health problems from the perspectives of children and teens Site also provides helpful information for adults working interacting with children with healt problems.
NetWellness	https://www.netwellness.org/	University of Cincinnati, Ohio State University, and Case Western Reserve University	Nonprofit consume health website tha provides high-quality information created and evaluated by medical and healt professional facult at several universities.
Patients Like Me	https://patientslikeme.com	Jamie Heywood, cofounder backed by Optum Ventures, a UnitedHealth Group affiliate	Multipurpose site where people livin with chronic diseases share the health data to help others with similar conditions and to provide the healthcare industr with data about rea patient experience Over 500,000 people with over 2,700 conditions a registered on this site.

Title	URL	Sponsor/Author	Description
MLA Top Health Websites	https://www.mlanet.org/page/top-health-websites	Medical Library Association	Example of a website that provides links to a variety of health-related sites that have been evaluated accordi to standard criteria

In selecting websites to share with consumers, it is important that the nurse review these sources carefully. In recent years, multiple rating scales have been developed to assist in the evaluation of such sites. Most scales include criteria that address the accuracy of the content, design, and aesthetics of the site; disclosure of the authors; sponsors of the site; currency of information; authority of the source; ease of use; and accessibility and availability of the site. **Table 13-3** summarizes the questions that should be asked in evaluating a health-related website. Resource lists made up of high-quality sites will not only serve as references for clients but also provide examples of the types of sites they should be accessing.

Table 13-3 Criteria for Evaluating Health-Related Websites

Accuracy	• Are supportive data provided? • Are the supportive data current and from reputable sources? • Can the same information be found on other websites? • Is the information provided comprehensive? • Is more than one point of view presented? • Does the site present fact or opinion?
Design	• Is the website easy to navigate? • Is there evidence that care was taken in creating the site? Do the links work? Are there typographical errors? • Is the information presented in a manner that is appropriate for the intended audience? • Do the graphics serve a purpose other than decoration?
Authors/Sponsors	• Are the sponsors/authors of the site clearly identified? • Do the authors provide their credentials? • Do the authors/sponsors provide a way to contact them or give feedback? • Do the authors/sponsors clearly identify the purpose of the site? • Is there reason for the sponsors/authors to be biased about the topic?
Currency	• Is there a recent creation or modification date identified? • Is there evidence of currency (e.g., updated bibliography and references to current events)?
Authority	• Are the sponsors/authors credible (e.g., is it a government, educational institution, or healthcare organization site versus a personal page)? • Are the author's credentials appropriate to the purpose of the site?

Finally, nurses can create their own websites to bring their healthcare messages to web users around the world. Table 13-2 lists two websites that exemplify the types of roles nurses can play to bring health information to various consumers via the World Wide Web.

Band-Aides and Blackboards is a creative site designed by a nurse to facilitate understanding of the problems faced by children growing up with health problems. This site is thought provoking rather than factual. The nurse who created it uses the words and drawings of children and parents to bring a real-life perspective to the thoughts, feelings, and experiences of growing up with illness. Band-Aides and Blackboards teaches important messages about not being alone, about ways to solve common problems, and about what really matters to this population.

NetWellness, another site in which nurses play a predominant role, is a very different site than Band-Aides and Blackboards. NetWellness is a noncommercial, "electronic consumer health information service" that has been in existence for more than 20 years. Information on the website is created and evaluated in collaboration by more than 500 multidisciplinary professionals from the University of Cincinnati, Ohio State University, and Case Western Reserve University. Information on this site is checked for accuracy, and each revision made is stamped with its date so that users can easily determine its currency. NetWellness continues to be a wonderful web resource for healthcare consumers. Individuals can submit health-related questions to the site's "panel of experts," with nurses and other healthcare professionals then responding to these queries. The panel of experts also provides information for the section of the site devoted to hot topics.

Development of a website is typically a team effort. In addition to content experts such as nurses who contribute the material to be included on the site, web designers with technical and layout expertise can provide valuable assistance with practical aspects of the site's development. Many resources are available to healthcare professionals interested in developing websites. For example, the USDHHS (2019) has created policies and standards to help web managers create more citizen-centered websites. Guidelines are provided based on evidence from research studies and ratings (0–5) are assigned to each guideline according to the strength of its effectiveness (USDHHS, n.d.b). In *Healthy People 2030*, there are now nine health IT–related objectives, mostly focused on health information access and usability [three for providers, six for the general public] (USDHHS, n.d.a).

Many issues must be considered before engaging in health education via a website. Websites have the potential to reach millions of users over an extended period of time. The healthcare consumers who use the web have varying levels of sophistication, and they may or may not know to check the dates on which the website was created and modified. Given the diversity of the audience, it is very important that the information on the site be accurate and updated as often as necessary. Depending on the topics covered, it may be necessary to include a disclaimer about the importance of checking with a healthcare provider.

If the site is interactive and health providers will be responding to questions submitted by users of the site, liability issues must be carefully considered. Nurses and other health professionals who respond to questions from web users are providing advice and guidance to people whom they do not see and cannot assess. Nurses and their colleagues need to determine whether their malpractice insurance covers this type of activity. They also need policies and procedures for responding to questions that might be considered "urgent" (Ventola, 2014). Depending on the nature of the site, it may be advisable to include an attorney on the website development and maintenance team to provide advice when needed. It is important to determine whether there are relevant legal issues related to practice inherent in the activities of the nurse and other health professionals on the website.

Although new technology has opened the door to many unique and exciting opportunities, it also has raised many questions about telepractice and licensure. Because technology makes it so easy to provide healthcare services to patients across state lines, the provision of nursing, medical, and other types of technology-facilitated healthcare services to patients at a distance has been thrust into the spotlight. Multistate licensure and other types of legislation have been and will continue to be proposed, and new practice guidelines are likely to be enacted.

Another issue to be considered is ease of use. For example, patient portals have been found to increase patient engagement in their care and improve long-term outcomes but only if designed in such a way that they can use them fully (Devkota et al., 2016; Reed et al., 2019). The client perspective must be accounted for in the design. Consumers of various levels of health and computer literacy are likely to use portals and, therefore, the design and navigation must be simple. For example, if test results are to be shared with patients via the portal, the data must be presented in a way that they will understand (Baldwin et al., 2016). Finally, the time commitment required to respond to questions from web users cannot be underestimated. If a website provides an opportunity for consumers to ask questions, responses must be researched and checked for accuracy before they are posted. Healthcare consumers are online 24 hours a day, 7 days a week. Therefore, consumers must be advised how long they will likely wait before a response to their questions is posted. Adequate coverage must be arranged so that questions are answered on a regular basis and service is not interrupted for long periods of time.

Telehealth and Remote Patient Monitoring

With both audio and video communication available over the past decade, healthcare delivery has moved into the virtual world. **Telehealth**, sometimes referred to as telemedicine, telecare, or e-care, can be described as healthcare delivery through audio or audio/video telecommunication over a distance (Finley & Shea, 2019). Telemedicine and telehealth are in some ways distinctly different. Telemedicine is providing healthcare services and education remotely, while telehealth is a broader category of virtual services beyond care or education such as electronic records, remote patient monitoring, and financial components (CMS, 2020).

Telehealth had gradually grown in use over the past years but pivoted to becoming an essential method for care delivery with the 2020 COVID-19 pandemic. Whether already providing telehealth services or starting them recently, fundamental concepts must be kept in mind when providing virtual patient education. As with any healthcare service, privacy, security, and confidentiality are a must.

While the general public has become more comfortable with virtual communication, providers need to keep in mind that many technologies have limited cybersecurity such as fire walls. The convenience of web conferencing that has suddenly become familiar to many may not have the security required for health education. Numerous companies are providing comprehensive provider programs from patient scheduling to care delivery documentation to telecommunications for virtual visits (Meyer et al., 2020).

The security and informed consent issues must be determined prior to providing telehealth care including education (Nittari et al., 2020). Additionally, state-to-state laws need to be explored (Nittari et al., 2020) and assumptions cannot be made that all patients have access to the required technology or are able to use it competently

(Meyer et al., 2020). When providing patient education via telehealth programs, the same type of planning and considerations as outlined with webcasts earlier in this chapter can be used. It is essential to assess the learner's needs and understanding of health information and then follow up to monitor for health changes or adherence to education are important.

When teaching telehealth to medical students, a comprehensive educational plan for preparing them for telehealth must be developed. Walker et al. (2019) explained that three educational modules, a video, and a simulation experience were necessary, according to the participant survey, to build the students' knowledge and confidence in using telehealth. Nurses also need to develop telehealth competencies to remotely monitor the status of individuals (Chike-Harris et al., 2020), particularly those with chronic diseases living at home or in residential facilities. Technology for the delivery of telehealth, sometimes referred to as telenursing vs. telemedicine to indicate who is the professional provider, enables nurses to carry out long-distance assessment, coordinate care, provide consultation, make clinical decisions, and communicate with patients and other healthcare personnel (Rowan et al., 2017). These authors describe the curriculum and high-fidelity simulation required to teach baccalaureate nursing students the technique of telehealth and Detwiler (2020) describes the skill sets needed for a promising career opportunity in telehealth nursing.

In addition to virtual healthcare services delivery, another emerging distance technology is **remote patient monitoring (RPM)**. The COVID-19 pandemic accelerated the move toward consumers taking charge of their health by learning about their health risks, communicating virtually with their healthcare providers, and changing their attitudes about data-sharing (Betts et al., 2020). Chronic diseases that are monitored by the patient while at home are burgeoning into the next aspect of care management. Rather than requiring patients to make a visit to a health office for routine checkups, patients conveniently monitor their own health and report their findings to their health provider. The importance of patient

teaching is essential to ensure that the monitoring of health is done accurately, which involves education that integrates knowledge of analytics, learning the equipment, and how the technology interfaces with healthcare providers (Paschall, 2020). Nurses educating patients for RPM will need to diligently practice educational strategies to promote patient competence.

Technology for Professional Development and Higher Education

The World Wide Web provides unlimited resources for nurses to use in practice and in professional education and development. Websites provide access to bibliographic databases, continuing education, online journals, and resources for patient teaching and professional practice. Sites established by nursing organizations and publishing companies serve as resource centers where nurses can find a wide range of information and services addressing any number of educational needs.

Many of the informational sites on the World Wide Web provide both consumer and professional education. Some websites include links on the home page directing users to either consumer or healthcare professional resources. Other sites do not attempt to discriminate and allow users to decide whether consumer material or professional literature is more appropriate to their needs.

It is impossible to list all the educational opportunities for professionals found on the World Wide Web. The web is constantly changing, with new sites being added and others being removed daily. **Table 13-4** provides examples of the various types of websites that can be used by professional nurses and other healthcare professionals.

Table 13-4 Sample Websites for Healthcare Professionals

Title	URL	Sponsor/Author	D
Medline	https://www.nlmnih.gov/bsd/pmresources.html	National Library of Medicine	E a g si pr a bi d c m 1 re to a th s
SchoolNurse.com	http://wwwschoolnurse.com	School Nurse Alert	E a d s a n p

Title	URL	Sponsor/Author	D
National Institutes of Health	http://www.nih.gov	U.S. Department of Health and Human Services	E a g sp si in as lir br of ar pr is
Accredited Nursing Programs	http://www.acenursing.us/accreditedprograms/programSearch.htm or https://www.aacnnursing.org/CCNE	The Accreditation Commission for Education in Nursing (ACEN) The American Association of Colleges of Nursing (AACN)	A ac nu pr th St

From staff development to higher education, technology is making professional education more accessible and more meaningful for nurses. As a result, it is no longer necessary for nurses to quit working or to relocate to earn a higher degree. Technology has contributed to the growth of distance education programs at all levels in nursing. Likewise, technology is making it possible for nurses in the workplace to engage in a variety of continuing education activities designed to keep their practice current, to provide career mobility, and to enhance professional development.

E-Learning

The technological revolution has drastically changed professional development and higher education. No longer is learning bounded by time or place. For nurse educators, the learner may be located anywhere in the world. Teaching with this in mind involves a shift from peer-to-peer and instructor-to-learner physical interactions to the need to develop social presence through the technology available. While the learning outcomes may be the same, the learner‘s interaction with the content, the instructor, and with other learners may be synchronous (at the same time) or it may be asynchronous (at any place or time).

As social beings, interaction with others has been demonstrated to have a positive impact on learning. **Social presence** in online learning is defined as the ability of participants to project themselves socially and emotionally as real people in an e-learning environment (Garrison & Anderson, 2003). This connectedness among students and instructors, which determines how motivated participants are to take an active role in their learning and that of their peers (Whiteside et al., 2014), becomes even more important in asynchronous learning contexts. The facilitator of learning needs to be intentional in providing additional methods for interactions with the learner as well as learner-to-learner interactions.

Although no consensus has been reached on a precise definition of e-learning, there is some agreement that it involves the use of technology-based tools and processes to provide for customized learning anytime or anywhere. As an umbrella term, e-learning can be applied to any learning that is delivered via technology (Rouleau et al., 2019). It is most commonly used to describe professional development and training programs. Higher education typically uses the term *distance learning* to describe academic programs delivered via computers.

The emphasis on e-learning in industry is on outcomes, with the goal of providing an individual with the information or practice opportunities required to perform a task or solve a problem at the point of need. E-learning in nursing has the potential to deliver training programs that are efficient and cost effective, promote positive patient outcomes, and lead to nursing staff satisfaction (Erin, 2015; Rouleau et al., 2019). The nature of the work of health care makes nursing workforce training a critical issue, and e-learning appears to have provided a solution to the problem of keeping staff current in a world where new treatments and new techniques are always on the horizon. However, a study done by Vaona et al. (2018) found that the effects of e-learning on patient outcomes or on health professionals' behaviors has shown only small positive effects when compared to traditional learning and, thus, making general claims that e-learning is inherently more effective may be misleading.

What is the e-learning approach to workforce training in nursing? First and foremost, it provides learning opportunities at the point of need. In healthcare professions such as nursing, this statement means that training is available 24 hours a day, 7 days a week. Because the point of need in health care is often related to patient care, e-learning must be structured in a way that it can be delivered to nurses on a clinical unit. Point-of-need training also must be efficient. In this era of nursing shortages and increasing complexity of care, such training must be provided in a way that fits into the busy schedules of nurses.

Finally, e-learning in health care must be distributed so that it can be made available to nursing staff across any number of environments and situations. Many healthcare organizations employ staff in a wide range of settings and locations. A centralized approach to training will not work well if it means that nurses must travel to the staff education office for all training programs. Beckett (2020) explored the perceptions of nurses as to the value of e-learning and found that many agreed it was helpful to their continuing professional development, particularly when it was specific to their practice area.

Nurses have many potential roles in the development and implementation of an e-learning program within an institution. As content experts, they may be hired by e-learning companies to create products designed to meet the needs of practicing nurses. Nurses within a healthcare organization may be able to work with the e-learning company by customizing the training package purchased and developing a plan for its implementation. Those who use the e-learning system can contribute to the program by completing the modules offered and submitting thoughtful evaluations of the products used.

Staff training programs are important to the individual staff members, to the organization, and to the patients served. Every staff member has a responsibility to do what they can to ensure the success of the program.

Distance Education

Because of technological advances, distance education for nurses has flourished in the 21st century. Online learning became a popular medium for nurses to advance their education, particularly in light of the 2010 Future of Nursing report calling for 80% of nurses to be prepared with a bachelor's degree and double the number who pursue a doctoral degree (Institute of Medicine, 2010). Recently distance education has taken on even more importance during the COVID-19 pandemic (Williams-Tracy, 2020).

This success was not always the case, however. When distance education programs were first introduced, they were quite controversial. For example, when the Regents External Degree Program was first created in 1974, many people believed that a distance model was inappropriate for nursing education. Today, the Regents External Degree Program, now known as Excelsior College, is one of the largest nursing programs in the world, with almost 5,500 nursing students enrolled in its associate,

baccalaureate, and master's degree programs (Excelsior College, 2020). In 1994, another milestone was reached in nursing education when Duquesne University in Pennsylvania opened the first online distance education program leading to a PhD in nursing.

Today, the Excelsior College and Duquesne University programs represent a small sample of the many distance education programs in nursing currently available in the United States. Distance education programs in nursing are at the associate, baccalaureate, master's, and doctoral levels from a wide range of for-profit and not-for-profit institutions of higher education. These distance education programs are offered by online institutions as well as traditional brick and mortar colleges and universities.

The term **distance learning** means different things to different people. Online courses, correspondence courses, independent study, and videoconferencing are just a few of the techniques that can be used to deliver educational programs to students studying at a distance. The diversity of distance learning programs in the United States reflects the myriad approaches that can be used to meet the needs of students who are separated from the traditional classroom setting. In all cases, distance learning means that the teacher and the learner are separated from each other by physical space and time and that education is delivered via technology (Papadopoulou, 2020).

Several education and professional organizations have developed guidelines and standards for distance education to assist faculty and to ensure program quality, including the American Council on Education, the National Education Association, the Commission on Higher Education of the Middle States Association of Colleges and Schools, the American Association of Colleges of Nursing, the National Council of State Boards of Nursing, and the Western Interstate Commission on Higher Education (AACN, n.d.; Delva et al., 2019; NCSBN, 2015).

According to Jowsey et al. (2020), student learning is equal, if not better, when taking online classes compared to face-to-face courses. To provide nursing students with quality online education, an assessment framework, such as the one provided by Billings (2000), can be used to determine the adequacy of technologies, assess education method fit, and evaluate learning outcomes in online classes. Billings (2000) addresses active teaching, time on task, course expectations, feedback, interactions, and respect for diversity. Time on task refers to the time students spend working with course materials and studying independently.

The U.S. Department of Education has developed guidelines to calculate credit hours to clock hours for courses (Frith, 2020). Expectations for students should be outlined in the syllabus. Rubrics are used by many faculty for assessment and evaluation based on course objectives. According to Gopal et al. (2021) prompt feedback for students increases student satisfaction in online courses.

Diversity of learners can be a challenge for faculty. Wallace and Panteli (2018) found that e-learning at their particular university consisted of 79% women and 20% men. Men were attracted to more hands-on and interactive activities. Flexible teaching strategies and podcasts can address the various types of learners. American University (2020) and Milheim (2017) address the fact that cultural diversity means not just celebrating different races and ethnicities, but also recognizing such variations as socioeconomic status, religious affiliations, and sexual orientation. They note that inclusion is highly important in an online classroom. Creating a sense of community and acknowledging that students from different backgrounds have experiences that influence how they learn and see the world can add complexity to communications and interactions but can also yield valuable learning benefits to all students.

Learning Management Systems

Learning management systems (LMS) are web-based technologies that provide data management, assessment, reporting, and a platform for instructional materials to assist online learner**s** and faculty to engage in teaching/learning activities (Sanga, 2016; Watson & Watson, 2007). When faculty are transitioning to an LMS, the following issues should be addressed (Judge & Murray, 2017; Sanga, 2016; Zheng et al., 2018):

- Resources for workshops to orient faculty to the new LMS
- Availability of one-on-one meetings with instructional technology coordinator
- Role of instructional technology coordinator versus faculty when resolving LMS issues
- Support for integration of third-party programs such as Turnitin
- Workshops as faculty master technology skills at different speeds
- Orientation of adjunct faculty to LMS
- Orientation of students to LMS
- Templates for faculty to use
- Time release to decrease faculty frustration when developing courses in LMS and to increase quality

Noval and Johnson (2018) found the following factors to influence LMS use: adopted andragogy framework for designing face-to-face courses and perceived usefulness and ease of use. Examples of perceived usefulness include convenience in transferring courses over to another semester as well as transferring specific modules of content. Embedded course discussion boards and email capability were also found to be advantages to using LMS systems. Barriers to use included time to learn all the capabilities, such as administering quizzes, putting in grades, operating discussion boards, posting announcements, and using embedded third-party programs such as Turnitin (Machajewski et al., 2019; Venter et al., 2012).

To address student and faculty satisfaction and meaningful learning, thoughtful LMS purchases, faculty development, faculty academic freedom, use of instructional design, and quality assessment tools must be considered (AAUP Policy, 2006; Billings, 2000; Frith, 2020; Poritz & Rees, 2021; Sowan & Jenkins, 2013).

Once an LSM is ready to be implemented by an educator, one of the key aspects to consider is developing the concept of social presence, as discussed previously. *Social presence* is essential in LMSs because it fosters the ability of participants "to identify with the community (e.g., course of study), communicate purposefully in a trusting environment, and develop inter-personal relationships by way of projecting their individual personalities" (Garrison, 2009, p. 352). Research has shown that learners perceive more satisfaction and greater learning with inclusion of social presence for online or hybrid classes (Dikkers et al., 2017; Dorsey, 2020; Nasir, 2020).

Strategies for promoting social presence involve including an interactive assignment early in the course, incorporating synchronous sessions, requiring a collaborative learning activity to solve a problem, promoting collaborative ownership of an assignment by offering choices, and clarifying interaction expectations in assessment criteria (Richardson & Swan, 2003; Whiteside, 2015). Additionally, modeling social behaviors when interacting with learners includes introductions, asking questions, and sharing personal examples of the content (Dikkers et al., 2017).

During the COVID-19 pandemic, the need for social presence in virtual environments was even more essential. Learners need a safe and connected environment where the focus can be on learning, but educators also need keen awareness to identify stressors that may be impacting lives outside of the learning environment. Offering information regarding resources may support learners through a crisis but also help them feel supported and safe (Florida Center for Reading Research, 2021).

Online educators and students share responsibility for successful learning. Faculty members work to generate innovation in ideas, introspection by students, integration of concepts, building of information, and social interaction among students and instructors to promote a high-quality learning experience (Bull, 2013; Donovan, 2020). Students who are satisfied and successful with their online learning engage in discussion with classmates and instructors, believe their education matches their expectations, are satisfied with student services and supports, feel adequately oriented to their online learning program, and strive for learning outcomes that are useful for their career and professional and academic development (Froneman et al., 2016; Lorenzo, 2012; Smith & Crowe, 2016).

Given the growth and development of online courses, it is likely that this teaching methodology will be incorporated into health and healthcare education for the consumer as well. Nurses who are responsible

for providing education for patients need to begin thinking about how online courses may fit into their programs. Online courses not only provide learning activities and resources but also facilitate teacher–learner and learner–learner interactions. Internet-based courses might work very well in areas such as parenting and diabetes education where there is an extended program of instruction and the need for group support (Win et al., 2015).

Hybrid (Blended) Learning

One type of educational format that has been found to meet learner needs for flexibility yet include face-to-face interaction is hybrid or blended delivery. This format includes both in-class learning for part of a course and online learning for another part of the course. **Hybrid (blended) learning** is defined as combining face-to-face experiences with online learning experiences to maximize the strengths of each for optimal learning (Picciano, 2014). Garrison and Vaughan (2008) describe it as "the organic integration of thoughtfully selected and complementary face-to-face and online approaches" (p. 148). When planning for a hybrid course, the educator needs to consider a number of course design elements. Some of the primary elements are clear organization of the course and course calendar, specific directions for assignments in alignment with the learning environment, and using the LMS for the majority of communication that is not actually in the face-to-face interaction (Columbia University, n.d.; Linder, 2016; Weglowska, 2019).

Research studies indicate that learning outcomes are as positive in a hybrid environment as in a traditional classroom. Also, learner satisfaction has been found to increase with the opportunity for developing interpersonal relationships in the classroom. Furthermore, flexible time management for online assignments provides the best of both worlds (Garrison & Vaughn, 2008; Lederman, 2017).

With the advent of the COVID-19 pandemic, a sudden shift into online learning was imperative. The rapid response of learning virtually happened literally within a matter of days. A few weeks into the pandemic, institutions struggled with ways to keep learners at a distance as well as keep learning meaningful for learners who were not familiar with virtual learning. The high risk for some learners being with others in a physical space was also a consideration. In response, the Hy/Flex model became a method for meeting the needs of individual learners. **Hy/Flex** stands for hybrid combined with flexibility. While this concept was not new, it was not frequently seen across the United States. The flexible part results from learners having the flexibility to meet either online or in a physical class, meaning that some learners are with the instructor in a classroom while other students may meet at the same time while online through web conferencing (Beatty, 2019).

The benefit of Hy/Flex allows the learner to determine what learning mode they wish to participate in to best meet personal needs. The challenge for the educator is to skillfully manage in-person classes while also integrating online learners into the classes. Having technology, such as microphones throughout a classroom for discussions, are vital to incorporate all learners in a meaningful way. While this may be seen postpandemic, thoughtful administrative planning to provide resources to support this learning modality is necessary. This is also an area that will need further instructional design and pedagogical development.

Issues Related to the Use of Technology

Despite the power of computer and internet technology to enhance learning, the use of these technologies in healthcare education presents some unique challenges. Think for a moment about the many ways in which healthcare education differs from more traditional classroom education. The characteristics of the learners, the setting, and the access to hardware, software, and technological support are all likely to be different. In addition, issues related to the information technology itself can create challenges. These factors include considerations about the accuracy of online content, the accessibility of electronic resources, and the security of health information in cyberspace. Sophisticated technology will continue to make health and healthcare information more accessible and more meaningful to both healthcare consumers and health professionals. However, a number of issues remain to be resolved.

Cybersecurity

An emerging concern is that of **cybersecurity** or the effectiveness of the "technologies, processes and practices designed to protect computer systems from unauthorized use or harm" (Cybersecurity Forum, 2017, para. 1). The Pew Research Center reports that 35% of Americans have been notified that their personal information at one or more times has been compromised (Rainie, 2017). Given the increased frequency of cyberattacks and data breaches that have occurred in government agencies and businesses in recent years, many Americans do not trust public and private institutions to protect their personal data (Olmstead & Smith, 2017).

Furthermore, a study of healthcare organizations found that 94% of them have been victims of cyberattacks costing the U.S. healthcare system $6 billion a year (Coquerel, 2016). Cyberattacks on the

healthcare industry more than doubled in 2020, costing the healthcare industry $21 billion (Horowitz, 2021); 28% of all attacks were ransomware, resulting in hacking groups making hundreds of millions of dollars in profits in just that one year alone (Davis, 2021). The healthcare industry is particularly vulnerable to cybercrime "… due to its reliance on electronic health information, as well as their outdated security systems" (Branch, 2018, p. 1).

Although security breaches are often related to financial information, health information also must be protected. As the amount of health information that is stored and exchanged increases, so too does the risk of compromise. For example, many Americans use their smartphones for electronic communication, yet a recent study found that many smartphone users failed to take the steps necessary to secure these devices (Anderson & Olmstead, 2017). A study conducted by the Pew Research Center found that nearly 40% of adults have difficulty managing online passwords necessary to secure their online data (Anderson, 2017). Therefore, nurses who engage with healthcare consumers in an online environment must be aware of the risks and teach clients how to safeguard their health information.

In recent years, many healthcare organizations have established patient portals or secure websites that allow consumers to access personal health information, exchange secure emails with members of the healthcare team, view educational materials, and perform tasks such as making appointments or requesting prescription refills (Vorvick, 2020; Zychla, 2017). A common security measure for patient portals requires the use of a complex password that includes a combination of letters, numbers, and symbols.

Oversight and Control of Health Information

Another significant area of concern is the limited oversight and control over the content that is posted on the internet and World Wide Web, two of the major vehicles for delivering information to a global audience. The increased interactivity and user control inherent

in the emerging World Wide Web suggests that issues such as authorship disclosure, quality of information, privacy, and confidentiality are likely to be of concern for some time. Internet censorship, which is the control of information that can be viewed by the public, can be carried out by governments, institutions, and private organizations. In the United States, internet censorship is the least controlled in the world, while China has one of the strictest internet surveillance systems in the world (Poetker, 2019).

When the World Wide Web was first introduced, users were primarily consumers of content developed by organizations and commercial enterprises. Current technology has changed this dynamic, and users have become authors of content, participating in blogs, wikis, and social network sites—many of which are devoted to health and health-related topics (Gagnon & Sabus, 2015; Miller & Pole, 2010). As a result, the amount of health information created by individuals without healthcare education or expertise also has increased. Nurses and other healthcare professionals are concerned that consumers are making serious healthcare decisions based on information on the web that has not been reviewed for accuracy, currency, or bias. These concerns are valid as increasing numbers of people are using the web as a source of health information. Studies have shown, though, that the information they find may be inaccurate or misleading (Battineni et al., 2020; Seymour et al., 2015).

Accessibility

With advances in technological access, healthcare education takes place in a wide range of settings, many of which are unstructured. Students who are part of an educational system are likely to have some access to the hardware, software, and technological support necessary for facilitating technology-based learning. By comparison, access to resources and support varies considerably among healthcare consumers and in healthcare organizations. Students in a classroom also often share many common characteristics related to age and ability, whereas patients in healthcare education programs

may cover a wide range of ages, abilities, and limitations. As educators, nurses must be aware of the special issues involved in the use of computer and internet technology in healthcare education and be prepared to make accommodations as needed.

As previously discussed, one of the most widely publicized issues related to the use of computers and internet technology is the **digital divide**, referring to the gap between those individuals who have access to information technology resources and those who do not. Some healthcare consumers do not have the resources necessary to gain entry to computer- and internet-based health education programs. Thus, although technology can increase access to healthcare education for some people, nurse educators must be aware that some segments of the population will be denied access if attempts are not made to promote digital inclusion. The first step in promoting digital inclusion is recognizing those groups who are at risk for limited access and attempting to understand why the gap exists.

People over the age of 65 are one of the risk groups that must be addressed. Older adults are more likely to be retired without employer-based access to a computer, are less likely to have children in the home who typically bring an enthusiasm and knowledge of computers with them, may have less disposable income with which to purchase computer hardware and software, and did not grow up using this technology. Furthermore, some older adults have physiologic and neurologic problems that make computer use difficult.

Health and healthcare education are both important to older adults, and computer- and internet-based technology holds much promise for this segment of the population. Therefore, it is important that the nurse be prepared to support computer-based learning among older clients. The following interventions may be helpful in encouraging older adults to engage in computer-based learning activities (Heaggans, 2012; Vaportzis et al., 2017):

- Reinforce principles of ergonomics by making suggestions about equipment and posture that will minimize physical problems related to computer use.
- Identify resources that will provide computer access and support for older adults, such as local public libraries and community centers; AARP has a wide range of services (http://www.aarp.org).
- Motivate older adults to use a computer by helping them to identify how the computer can meet their needs, such as matching computer programs or websites to the individual's unique circumstances and interests.
- Create a supportive and nonthreatening environment to teach older adults about using a computer for health education., such as avoiding technical jargon and defining new terms.

Computers can open a whole new avenue of support and information to older adults who are struggling with their own health problems and those of their partners. Older adults who enjoy good health can find resources to help them maintain their health and to become educated healthcare consumers. It is important that older adults be given the same opportunities to take advantage of the Information Age resources that are available to younger clients. The nurse can play a key role in promoting digital inclusion among this segment of the population.

People with disabilities make up another special population who may require additional planning before using technologies in health and healthcare education. Not only are people with disabilities less likely to have computer and internet access than are members of the general population, but they also may have difficulty using hardware and software (Burgstahler, 2012b; Interagency Committee on Disability Research, 2015). The ability to use a computer without adaptive devices requires the fine motor coordination and mobility necessary to use a mouse and keyboard, the strength to sit and hold the head in an upright position, and the ability to comprehend information presented on the computer screen. Furthermore, individuals who use a wheelchair may find that they require special

equipment for mobility, as some wheelchairs do not fit under a standard computer table (Burgstahler, 2012b).

Individuals with visual impairments may have difficulty seeing text or graphics on a computer screen or performing tasks on the computer that require hand–eye coordination. When identifying obstacles related to visual impairments, it is important to think broadly and address the wide range of conditions that affect the way we see. Color blindness, which affects approximately 8% of males and 0.5% of females, can cause significant problems for computer users if the website or software used does not display the correct color combinations, if the contrast between background and foreground is inadequate, and if color rather than text is used to convey directions (Bulat, 2018; Liu, 2010).

Although hearing impairments cause fewer problems for computer users than visual impairments, some accessibility issues nevertheless need to be addressed for users with such challenges (AbilityNet, 2021; Burgstahler, 2012a). An individual with a hearing problem may not be able to hear the sounds that are often used as prompts when a wrong key is struck or when an email message is delivered. Accessibility for individuals with hearing impairments is becoming a bigger issue now that it is easier to send audio signals across the web and audio messages are becoming more commonplace.

Despite the protections offered by the Americans with Disabilities Act (ADA) and other federal legislation, accessibility issues on the web and constraints with hardware and software still exist. Federal legislation outlined in Section 508 of the Workforce Investment Act requires government agencies and institutions receiving government funding to make their websites accessible to people with disabilities. However, many websites and programs do not fall under this umbrella of protection (Burgstahler, 2012b).

Nurses who use the internet and the World Wide Web to teach also need to consider website design when creating or selecting websites that might be used by disabled learners. The World Wide Web

contains multiple resources that can be used by web designers or web users to learn design principles for accessibility. For example, submitting the search command “color blindness” to a search engine will turn up websites that explain color blindness, illustrate how various types of color blindness affect what might be seen on a website, describe good web design principles for promoting accessibility, and provide tools that can be used to select color combinations that will not create barriers for individuals with color blindness.

Several resources are available to assist web developers in creating websites that meet the needs of people with disabilities. The Web Accessibility Initiative website (http://www.w3.org/wai) provides guidelines that are recognized by many as the international standard for accessibility. Another website is the Center for Applied Special Technology (CAST; http://www.cast.org), which has earned an international reputation for developing educational opportunities for all individuals. CAST created the program called “Bobby” to assist webpage authors to identify and correct problems that could make their sites inaccessible to individuals with disabilities (Coggan, 2017; Thatcher, 2018). Disabled World (2020) defines computer accessibility (also known as accessible computing) and gives many examples of assistive computer technology for individuals with all types of sensory, speech, and physical disabilities.

Age, disabilities, income, and other factors that place an individual on the “wrong side” of the digital divide can isolate and diminish access to healthcare resources. Therefore, every effort should be made to help these individuals connect to the wealth of resources that are and can be made available through technology (Disabled World, 2020). The nurse can play a vital role in providing the support, education, and advocacy needed to reduce the barriers that still exist for these special groups of people.

State of the Evidence

Teaching with technology is not a new concept. Indeed, nurses and other educators have been using technology to teach patients and students for many years. However, in today's world, technology is advancing so quickly that researchers are struggling to keep up with the new products and technology-based strategies that are emerging every day. We live in a world where cars can drive themselves and handheld devices have the capacity to perform computer functions that were only dreamed of in the last century. As we enter the Fourth Industrial Revolution, "the boundaries between the internet, the physical world and people are becoming more blurred by each passing day and the need for education to be place-based is diminishing" (Mezied, 2016, para. 4).

A growing body of research is focusing on the use of technology in patient and professional education. Data suggest that computer and internet technology has become an integral part of daily life in the United States and other parts of the world. A review of the literature reveals studies covering a broad range of topics, including the use of online support groups, the effectiveness of online education, and the use of computer-based programs for patient and professional education in clinical, academic, and home settings (Dikkers et al., 2017; Henriksen et al., 2016; Wright, 2016). The focus to date has largely been on ways in which technology is being used, the obstacles presented, and learning outcomes. Most of these studies are small in scope.

Despite a comprehensive body of research on the use of technology in higher education and a growing body of research on patient education, there is much yet to learn, particularly in patient education. Technology is exciting and offers many advantages for both consumers and nurses. However, technology devoid of teaching and learning principles cannot stand alone in consumer or professional education. The challenge for nurse educators is to keep

abreast of the best technology and the educational principles that together enable and support a high-quality, enriching consumer learning experience.

Summary

This chapter focused on Information Age and Fourth Industrial Revolution technology and its use in healthcare education. Specifically, this chapter discussed ways in which the World Wide Web and the internet could be used by nurse educators to enhance health and healthcare education for consumers and professional education for nursing staff and students. The impact of technology on teachers and learners was addressed, and special considerations for older adults and other client groups were identified. Trends in distance education for nurses were explored.

Information Age technology has the potential to transform health and healthcare education. This powerful tool must be used thoughtfully and carefully, however. Education is about learning, not technology. Technology is merely a vehicle to deliver educational programs and to promote learning. The benefits of technology-based education are numerous, as are the challenges for educators and learners. Nurses have a responsibility to learn to use new tools to promote health and wellness in their patients and professional growth and development in themselves, their colleagues, and their students. The future for these teaching–learning approaches looks very bright, and nurse educators can help to shape it by continuing to think creatively about how to use technology in education and by participating in research about its effectiveness.

Review Questions

1. How have the Information Age and the Fourth Industrial Revolution influenced education in general and consumer and professional healthcare education specifically? How will these important periods in history continue to do so?
2. Which skills are required by nursing professionals and healthcare consumers in today's technology-based world?
3. What are the various standards that have been established to ensure quality on the World Wide Web and access to the web by people with disabilities?
4. How can resources on the World Wide Web be used as a source of health information for both healthcare consumers and nursing professionals?
5. What are the advantages and disadvantages of using the internet to facilitate electronic communication between and among nurse educators and healthcare consumers?
6. When using computer resources with healthcare consumers, which segments of the population require special considerations because of limited access or special needs? What are those considerations, and how can they be addressed?
7. What is e-learning, and what advantages does it offer in providing staff education in healthcare settings?
8. How has technology influenced professional and continuing education options for nurses?

CASE STUDY

Dr. Sandy Loffler is a full-time nursing faculty member at a local baccalaureate nursing program. She is developing a new online course for undergraduate nursing students. The institution has an established learning management system (LMS), which Sandy has previously used to supplement her face-to-face class. The institution has just provided Sandy with in-service education to learn about the

TPACK model. She would like to incorporate some of the concepts of this model into her new online course.

The age of the students ranges from 18 to 45 years. Many of the younger students are enrolled in full-time study, but most of the adult learners are taking courses part-time. Some of the students are very comfortable with technology while other students are not. The students have been in the program for one semester and have some familiarity with the LMS; however, others have not taken many online courses.

1. Considering the TPACK model, what digital tools would you incorporate into the course and why?
2. Based on the recommendations for using the LMS effectively, what are three aspects that you would view as appropriate for this course?
3. What social presence strategies would be appropriate for fostering learner interaction?

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CHAPTER 14

Evaluation in Healthcare Education

Priscilla Sandford Worral

CHAPTER HIGHLIGHTS

- Evidence-Based Practice, Practice-Based Evidence, and Implementation Science
- Evaluation Versus Assessment
  - Determining the Focus of Evaluation
- Evaluation Models
  - Process (Formative) Evaluation
  - Content Evaluation
  - Outcome (Summative) Evaluation
  - Impact Evaluation
  - Total Program Evaluation
- Designing the Evaluation
  - Design Structure
  - Evaluation Methods
  - Evaluation Instruments
  - Barriers to Evaluation
- Conducting the Evaluation
- Analyzing and Interpreting Data Collected
- Reporting Evaluation Results
  - Focus on the Audience
  - Stick to the Evaluation Purpose
  - Use Data as Intended
- State of the Evidence

KEY TERMS

assessment

content evaluation

evaluation

evaluation research

evidence-based practice (EBP)

external evidence

impact evaluation

implementation science

internal evidence

outcome evaluation (summative evaluation)

practice-based evidence

process evaluation (formative evaluation)

total program evaluation

OBJECTIVES

After completing this chapter, the reader will be able to:

1. Define the term *evaluation*.
2. Discuss the relationships among evaluation, evidence-based practice, practice-based evidence, and implementation science.
3. Describe the differences between the terms *evaluation* and *assessment.*
4. Identify the purposes of evaluation.
5. Distinguish between five basic types of evaluation: process, content, outcome, impact, and program.
6. Discuss characteristics of various models of evaluation.
7. Explain the similarities and differences between evaluation and research.
8. List the major barriers to evaluation.
9. Examine methods for conducting an evaluation.
10. Explain the variables that must be considered in selecting appropriate evaluation instruments for the collection of different types of data.
11. Identify guidelines for reporting the results of evaluation.

12. Describe the strength of the current evidence base for evaluation of patient and nursing staff education.

Evaluation is defined as a systematic process that judges the worth or value of something—in this case, teaching and learning. Evaluation can provide evidence that what nurses do as educators makes a value-added difference in the care they provide.

Early consideration of evaluation has never been more critical than in today's healthcare environment, which demands that "best" practice be based on evidence. Crucial decisions about delivering quality care to clients rest on the outcomes of learning. Can the patient go home or remain independent in self-care management at home? Does patient education result in better health outcomes or fewer hospital readmissions? Is the nurse providing competent, holistic care? If education is to be justified as a value-added activity, the process of education must be measurably efficient and must be measurably linked to achievement of education outcomes. The outcomes of education, both for the learner and for the organization, must be measurably effective.

Evaluating education for efficiency and effectiveness is essential. Patients and their families as well as the public in general must be educated about their health needs and how to manage their own care so that outcomes are improved, healthcare costs are decreased, and well-being is promoted (Azzi et al., 2020; De Cocker et al., 2020; S, enyuva et al., 2020; Shaw et al., 2019). Preparing patients for safe discharge from the hospital must extend beyond content of teaching to include validation of learning both before discharge and once the patient is home (Johnson et al., 2020). Similarly, evaluating the outcomes of a community program to promote health also must include evaluation of longer-term community impact on sustained well-being (Shaw et al., 2019).

As educators, nurses are involved in both patient and professional education. Therefore, equally important is the evaluation of continuing staff development and student nurse education to improve professional practice. Given the increasingly complex healthcare needs of communities and the demands for measurable high-quality outcomes despite limited resources, nurses must attain and maintain the knowledge, attitudes, and skills that demonstrate essential competencies for the delivery of safe,

excellent, evidence-based patient care (American Nurses Association Enterprise, 2020).

Evaluation is a process within other processes—a critical component of the nursing practice decision-making process, the education process, and the nursing process. Evaluation is the final component of these three processes. Because these processes are cyclical, evaluation serves as the critical bridge at the end of one cycle that provides evidence to guide direction of the next cycle.

The sections of this chapter follow the steps in conducting an evaluation. These steps include (1) determining the focus of the evaluation, including use of evaluation models; (2) designing the evaluation; (3) conducting the evaluation; (4) determining methods to analyze and interpret the data collected; (5) reporting results and a summary of the findings from the data collected; and (6) using evaluation results. Each of these aspects of the evaluation process is important, but all of them are meaningless if the results of evaluation are not used to guide future action in planning and carrying out educational interventions. In other words, the results of evaluation provide practice-based evidence to either support continuing an educational intervention as it has been designed or support revising that intervention to enhance learning.

Evidence-Based Practice, Practice-Based Evidence, and Implementation Science

Evidence-based practice (EBP) is defined as "the conscientious use of current best evidence in making decisions about patient care" (Melnyk & Fineout-Overholt, 2019, p. 8). More broadly, EBP may be described as "a lifelong problem-solving approach to clinical practice that integrates… the most relevant and best research . . . one's own clinical expertise . . . and patient preferences and values" (Melnyk & Fineout-Overholt, 2019, p. 8). The definition of a related term, known as evidence-based medicine, includes these same three primary components but also adds "patient circumstances" to account for both the patient's clinical state and the clinical setting in which the care has been delivered (Straus et al., 2018, p. 1).

With the advent of evidence-based medicine in 1992 and the founding of the Cochrane Collaboration a year later, evidence generated from systematic reviews of clinically relevant randomized controlled trials (RCTs) has been acknowledged as the strongest evidence upon which to base practice decisions. The Cochrane Collaboration was created to support sharing of this type of evidence to improve patient care through its Cochrane Library, where 7,500 clinically focused systematic reviews by over 37,000 contributors from 130 countries are housed (Cochrane, 2018, 2021; National Health and Medical Research Council, 2017). Systematic reviews of RCTs remain important, especially for decisions about treatment.

Not every clinical question can be answered by conducting an RCT, however. More recent literature describes evidence generated from rigorously conducted qualitative and mixed-methods studies as providing strong evidence for informing nurses in the care of patients through a more thorough understanding of the patients' experience, the processes of care delivery, and the context within which care is

delivered (Antalis et al., 2019; Holtrop et al., 2018). Evidence from research is also called **external evidence**, reflecting the fact that it is intended to be generalizable or transferable beyond the specific study setting or sample.

When evidence generated from research is not available, the conscientious use of internal evidence is appropriate. **Internal evidence** might be defined as data generated from a diligently conducted quality improvement project or EBP implementation project within a specific practice setting or with a specific population (Melnyk & Fineout-Overholt, 2019). Internal evidence is not intended to be generalizable beyond the original practice setting or population that yielded the data collected. Melnyk and Fineout-Overholt (2019) describe results of a systematically conducted evaluation as one example of internal evidence. Evaluations are not intended to be generalizable but rather are carried out to determine the effectiveness of a specific intervention in a specific setting with an identified individual or group. Although not considered external evidence, results of a systematically conducted evaluation are still important from an EBP perspective.

Nurses' understanding and use of EBP have evolved and expanded over almost three decades. With the advent of electronic health records and availability of real-time clinical data, healthcare professionals have been able to engage in timely evaluation of whether the care they have provided has resulted in improved outcomes for their patients. The Institute of Medicine's Roundtable of Evidence-Based Medicine published a report titled *The Learning Healthcare System* (Olsen et al., 2007) in which use of practice-based evidence along with EBP was recommended to narrow the gap between research and practice.

Practice-based evidence (PBE), a topic of active discussion in health care from 2006 to the present (Green & Allegrante, 2020), can be described as "[health care] evidence that is collected with particular attention to its relevance under the constraints of real-world practice" (Vaidya et al., 2017, p. 414). PBE comprises internal

evidence that can be used both to identify whether a problem exists and to determine whether an intervention based on external evidence effectively resolved that problem. Put another way, PBE can be equally useful for assessment and for evaluation. PBE also can be used to generate research questions.

Another effort to close the research–practice gap that was formally recognized at about the same time as PBE is implementation science (Bauer et al., 2015; Bauer & Kirchner, 2020). In their inaugural editorial for the journal *Implementation Science*, Eccles and Mittman (2006) defined implementation research, also known as **implementation science**, as "the scientific study of methods to promote the systematic uptake of research findings and other evidence-based practices into routine practice, and, hence, to improve the quality and effectiveness of health services" (abstract). Although implementation science, EBP, and PBE are focused on effectiveness in the practice setting, the primary difference between implementation science and the other two research approaches is that implementation science uses systematic, rigorous research methods that provide generalizable results. Put another way, once PBE identifies the problem and EBP identifies a change to address that problem, evidence from implementation science focuses on how, when, with whom, and in what context will EBP change have the best chance for success (Nhim et al., 2019; Schliep et al., 2020; Strand et al., 2020).

Although implementation science provides external evidence, the results of evaluations, the outcomes of expert-delivered patient-centered care, and the results of quality improvement projects all represent equally and vitally important internal evidence. This information should be gathered by nurses and other healthcare providers on an ongoing basis as an integral and relevant component of professional practice. Recognizing these findings about current practice as a source of evidence to guide future practice and to identify needs for future research requires that nurses think critically before acting and carry out ongoing critical appraisal during and after each nurse–patient interaction.

Evaluation Versus Assessment

Although assessment and evaluation are highly interrelated and the terms are often used interchangeably, they are not synonymous. The process of **assessment** focuses on initially gathering, summarizing, interpreting, and using data to decide a direction for action. In contrast, the process of evaluation involves gathering, summarizing, interpreting, and using data after an activity has been completed to determine the extent to which an action was successful.

Thus, the primary differences between these two terms are in the timing and purpose of each process. For example, an education program begins with an assessment of learners' needs. From the perspective of systems theory, assessment data might be called the "input." While the program is being conducted, periodic evaluation lets the educator know whether the program and learners' progress are proceeding as planned. After program completion, evaluation identifies whether and to what extent identified needs were met and learning outcomes were achieved. Again, from a systems theory perspective, these evaluative data might be called "intermediate output" and "output," respectively.

An important note of caution: Although an evaluation is conducted at the end of a program, that is not the time to plan it. Evaluation as an afterthought is, at best, a poor idea, and, at worst, a dangerous one. At this point in the educational program, data may be impossible to collect, incomplete, or even misleading. Ideally, assessment and evaluation planning should be concurrent activities. When feasible, the same data collection methods and instruments should be used. This approach is especially appropriate for outcome and impact evaluations, as is discussed later in this chapter. "If only. . ." is an all too frequently heard lament that can be avoided or minimized by planning ahead.

Determining the Focus of Evaluation

In planning any evaluation, the first and most crucial step is to determine the focus of the evaluation. This focus then guides evaluation design, conduct, data analysis, and reporting of results. The importance of a clear, specific, and realistic evaluation focus cannot be overemphasized. Usefulness and accuracy of the results of an evaluation depend heavily on how well the evaluation is initially focused.

Evaluation focus includes five basic components: (1) audience, (2) purpose, (3) questions, (4) scope, and (5) resources (Ruzicki, 1987). To identify these components, ask the following questions:

1. For which *audience* is the evaluation being conducted?
2. For what *purpose* is the evaluation being conducted?
3. Which *questions* will be asked in the evaluation?
4. What is the *scope* of the evaluation?
5. Which *resources* are available to conduct the evaluation?

Audience

The audience includes the persons or groups for whom the evaluation is being conducted (Butcher et al., 2019; Ruzicki, 1987). The primary audience is the individuals or groups who requested the evaluation or who will use the evaluation results and the general audience is those who might benefit from the findings of the evaluation. Thus, the audience for an evaluation might include patients and their families, peers, other professional colleagues, the manager of a unit or ambulatory care area, a supervisor, the chief nursing officer, the staff development director, the chief executive officer of the institution or agency, or a group of community leaders.

When an evaluator reports results of the evaluation, all members of the audience must receive feedback. In focusing the evaluation, however, the nurse educator carrying out the evaluation must first consider the primary audience. Giving priority to the individual or group that requested the evaluation makes it easier to focus the

evaluation, especially if several groups representing diverse interests will use the results of an evaluation.

Purpose

The purpose answers the question, “Why is the evaluation being conducted?” For example, the purpose might be to decide whether to continue a specific education program or to determine the effectiveness of the teaching process. If an individual or group has a primary interest in the results of an evaluation, input from that group can clarify the purpose.

An important note of caution: Why an evaluation is being conducted is not synonymous with who or what is being evaluated. For example, nursing literature on patient education commonly distinguishes among three types of evaluations: (1) learner, (2) teacher, and (3) educational activity. This distinction answers the question of who or what will be evaluated and is extremely useful in designing and conducting an evaluation. The question of why undertake an evaluation of a learner, for example, is answered by the need to know how well the learner performed. If the purpose for evaluating learner performance is to determine whether the learner gained sufficient skill to perform a self-care activity (e.g., foot care), the educator might design a content evaluation that includes one or more return demonstrations by an individual learner prior to hospital discharge. If the purpose for evaluating learner performance is to determine whether the learner can conduct the same self-care activity at home on a regular basis, the educator might design an evaluation determining outcomes that includes both observing the learner perform the activity in their home environment and measuring other related clinical parameters (e.g., skin integrity), which would improve and be maintained with regular and ongoing self-care. Content evaluation and outcome evaluation are terms that are defined and discussed in more detail later in this chapter.

In stating the purpose of an evaluation, an excellent rule of thumb is to keep it singular. In other words, the evaluator should state, “The

purpose is . . .", not "The purposes are . . .". Keeping the purpose singular and focused on the audience helps avoid the frequent tendency to attempt to do too much in one evaluation. An exception to this rule is when undertaking a total program evaluation. As discussed later in this chapter, program evaluations are naturally broad in scope, focusing simultaneously on learners, teachers, and educational offerings.

Questions

Questions to be asked must be directly related to the purpose for conducting the evaluation, must be specific, and must be measurable. Examples of such questions include "To what extent are patients satisfied with the cardiac discharge teaching program?" and "How frequently do staff nurses use the diabetes teaching reference materials?" Asking the right questions is crucial if the evaluation is to fulfill the intended purpose. As discussed later in this chapter, formulating clear, concise, and appropriate questions is both the first step in selecting the evaluation design and the basis for analyzing the data that are collected from evaluation.

Scope

Scope considers the extent of what is being examined, such as, "How many aspects of education will be evaluated?" "How many individuals or representative groups will be evaluated?" "What time frame is to be evaluated?" For example, will the evaluation focus on one class or on an entire program? Will it focus on the learning experience for one patient or for all patients being taught a certain skill? Evaluation could be limited to the teaching process during a patient education class, or it could be expanded to encompass both the teaching process and related patient outcomes of learning.

The scope of an evaluation is determined in part by the purpose for conducting the evaluation and in part by available resources. For example, an evaluation addressing learner satisfaction with educators for all programs conducted by a staff development

department within a given year is necessarily broad and long term in scope; such a vast undertaking requires expertise in data collection and analysis. By comparison, an evaluation to determine whether a patient understands each step in a learning session on how to self-administer insulin injections is narrow in scope, is focused on a specific point in time, and requires expertise in clinical practice and observation.

Resources

Resources include time, expertise, personnel, materials, equipment, and facilities. A realistic appraisal of which resources are accessible and available relative to the resources that are required is crucial in focusing any evaluation. Anyone who is conducting an evaluation should remember that time and expertise are required to collate, analyze, and interpret data as well as to prepare a report of the evaluation results.

Evaluation Models

Evaluation can be classified into different types, or categories, based on one or more of the five components just described. The most common types of evaluation identified include some combination of process (also known as formative) evaluation and outcome (also known as summative) evaluation. Other types of evaluation include context, content, impact, and total program evaluations. Evaluation models defining these types and their relationship to one another have been developed (Abruzzese, 1992; Frye & Hemmer, 2012; Kim et al., 2020; Lee et al., 2019; Shinners & DeSilets, 2018). Because not all models define types of evaluation in the same manner, the nurse educator should choose the model that is most appropriate for the given purpose and most realistic given the available resources.

Abruzzese (1992) constructed the Roberta Straessle Abruzzese (RSA) evaluation model for conceptualizing, or classifying, educational evaluation into different categories or levels. Although developed in 1978 and originally designed to evaluate staff development education, the RSA model remains useful for conceptualizing types of evaluation from both staff development and patient education perspectives. Examples of use of the RSA model are given by Sumner and colleagues (2012) in their study to evaluate process, content, and outcome evaluation of a basic arrhythmia course taught to registered nurses and, more recently, by Winstead and Moore (2020) in their study to evaluate the outcomes and impact over time of a structured regulatory workshop for nurse leaders in North Carolina.

The RSA model provides a visual of five basic types of evaluation in relation to one another based on focus, purpose, related questions, scope, and resources available (**Figure 14-1**). The five types of evaluation are process, content, outcome, impact, and total program. Abruzzese describes the first four types as levels of evaluation leading from the simple (process evaluation) to the complex (impact evaluation). Total program evaluation encompasses and summarizes all four levels.

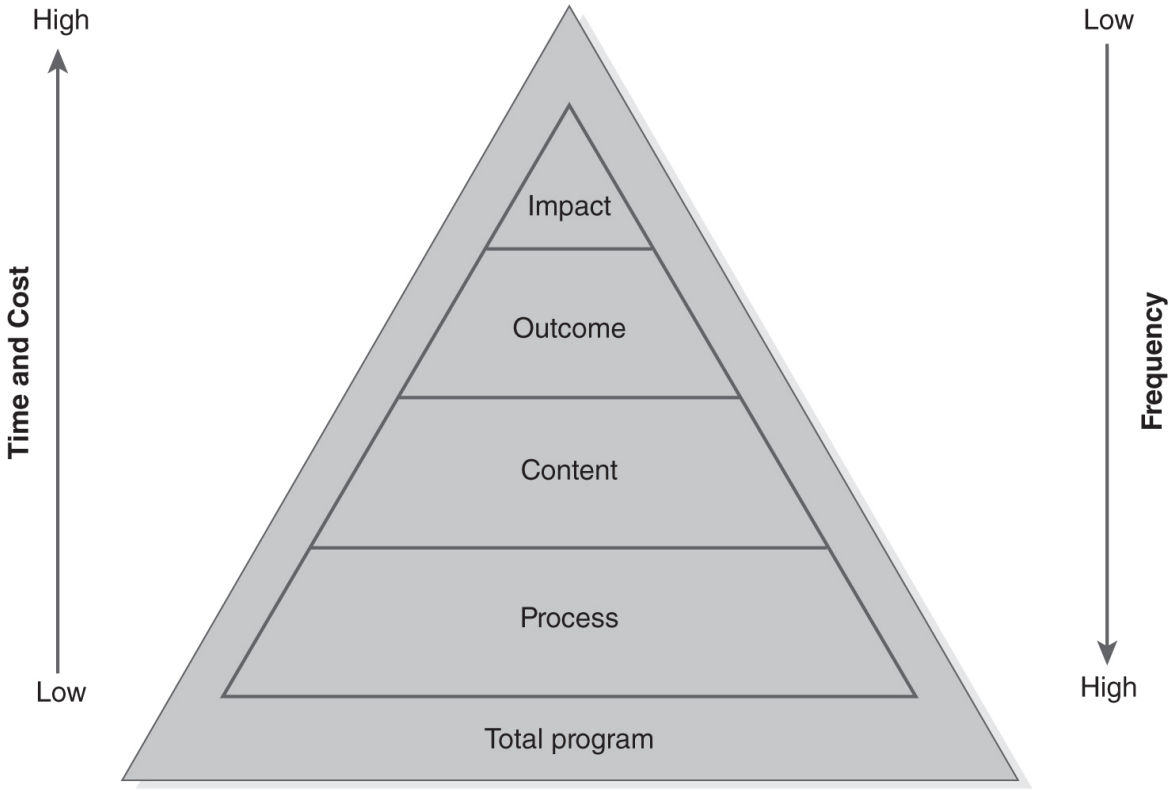

Figure 14-1 RSA evaluation model.

Reproduced from Abruzzese, R. S. (1992). Evaluation in nursing staff development. In R. S. Abruzzese (Ed.), *Nursing staff development: Strategies for success* (pp. 235–248). Mosby–Year Book.

Description

Process (Formative) Evaluation

The purpose of **process evaluation (formative evaluation)** is to make necessary adjustments to an educational activity as soon as they are identified, such as changes in personnel, materials, facilities, teaching methods, learning objectives, or even the educator's own attitude. One or more adjustments may need to be made after a class or teaching session and before the next is taught or even in the middle of a single learning experience. Consider, for example, evaluating the process of teaching an adolescent with newly diagnosed type 1 diabetes and their family how to administer insulin. The nurse might facilitate learning by first self-injecting

with normal saline so that the learners can see someone maintain a calm expression during an injection. If the nurse educator had planned to have the parent give the first injection but the child seems less fearful, the nurse might consider revising the teaching plan to let the child first perform self-injection.

Process (formative) evaluation is a component of the ongoing education cycle of assessment, planning, and implementation. Process evaluation helps the nurse anticipate and prevent problems before they occur or identify problems as they arise. Consistent with the purpose of process evaluation, the primary question here is, “How can teaching be improved to facilitate learning?” The nurse’s teaching effectiveness, the elements of the education process, and the learner’s responses are monitored on an ongoing basis. Abruzzese (1992) describes process evaluation as a “happiness index.” While teaching and learning are ongoing, learners are asked their opinions about the educator(s), learning objectives, content, teaching methods, instructional materials, physical facilities, and overall learning experience. For the nurse educator, specific questions could include the following:

- Am I giving the learners time to ask questions?
- Is the information I am giving orally consistent with information included in instructional materials being provided?
- Are the learners actively participating?
- Is the environment, such as room temperature, privacy, and level of distraction, conducive to learning?
- Should I include more opportunities for return demonstration or teach-back?

The scope of process evaluation generally is limited in breadth of content and time frame allotted to a specific learning experience, such as a class or workshop, yet is sufficiently detailed to include as many aspects of the specific learning experience as possible while they occur. Thus, learner behavior, teacher behavior, learner–teacher interaction, learner response to teaching methods and materials, and characteristics of the environment are all aspects of the learning experience within the scope of process evaluation. Whether they engage in the educational program online or on-site, all learners and all teachers participating in a learning experience should be included in process evaluation. If resources are limited and participants include different groups, a representative sample of

individuals from each group—rather than everyone in the groups—may be included in the evaluation.

Resources usually are less costly and more readily available for process evaluation than for the other types of evaluation, such as impact or total program evaluation. Although process evaluation occurs more frequently—during and throughout every learning experience—than any other type of evaluation, it occurs concurrently with teaching. Therefore, the need for additional time, facilities, and dollars to conduct process evaluation is minimal and limited.

From the perspective of EBP, process evaluation is important in providing patient-centered care based on clinical practice guidelines (CPGs). CPGs also are sometimes referred to as clinical pathways (CPWs) or critical pathways (Hoesing, 2016; Rotter et al., 2013), although they are at different levels of precision and exactness. A well-constructed CPG includes not only the specific intervention, such as teaching patients how to take their discharge medications, but also how to evaluate the effectiveness of those interventions.

A CPG is intended as a guide in caring for all patients who have similar characteristics and learning needs. Its development requires a high level of rigor. As discussed later in this chapter, CPG development is conducted as evaluation research. Evaluation of the process of using a CPG, however, focuses on the fit of a CPG for a specific learner or learners. To the extent that a patient is the same as those patients who were studied in development of the CPG, the patient's nurse will follow the guideline as written. To the extent that the patient has unique learning needs or responses to teaching, the nurse should use informal process evaluation to vary from the guideline to ensure that the patient is able to learn and is receiving individualized patient-centered care. CPGs also are useful for orientation of new healthcare employees, for quality improvement, and for evaluating clinical learning in student-precepted situations. These pathways are used by members of the healthcare team as cost-effective and time-efficient measures to note learner progress and the achievement of goal-based outcomes.

EBP is not a "cookbook" approach to providing health care. Similarly, CPGs are not intended to disregard the individual learner's needs. Variance from a CPG, though, should not occur in a haphazard manner.

As attention to practice-based evidence evolves, the importance of using internal evidence gathered from process evaluation is becoming an increasingly critical component of every teaching–learning experience.

For instance, Griner et al. (2018) describe a process evaluation conducted in a therapy group of adults struggling with depression, anxiety, and relationship issues. Group members were asked to complete a questionnaire each week to rate the group processes on such factors as alliance, cohesion, and empathy. After the tool was described to them, they agreed to complete the questionnaire, but also asked for weekly feedback with respect to group interaction and therapeutic interventions so the results could be used to guide the next sessions. As another example, Jones et al. (2016) used the context, input, process, product (CIPP) model to include stakeholders in determining what problems might be anticipated in teaching self-management skills to people with Parkinson's disease. During each education session, patients, caregivers, and healthcare professionals were surveyed for input as to what might be revised to improve the next session.

The importance of practice-based evidence to process evaluation encompasses staff education as well as patient education. Van Buschbach and colleagues (2020) conducted an online survey of nurses, physicians, residents, and staff to evaluate user acceptance of a web-based program on the theory and use of peer support during and after critical incidents in the hospital setting. Results of the survey were used to develop a hybrid learning program that included both online and on-site training of peer supporters.

The CIPP model used by Jones and colleagues (2016) focuses on initial planning, including the context in which the education process should take place. Grant et al. (2017) also focus on initial planning as well as feedback during a multicomponent intervention to learn from clinicians what aspects of a quality improvement program were most likely to influence them to reduce prescribing high-risk medications to patients seeking primary care.

Content Evaluation

The purpose of **content evaluation** is to determine whether learners have acquired the knowledge or skills taught during the learning experience. Abruzzese (1992) described content evaluation as taking place

immediately after the learning experience to answer the guiding question, “To what degree did the learners learn what they were taught?” or “To what degree did learners achieve preset behavioral objectives?” Asking a patient to give a return demonstration of a teaching session on psychomotor skill development or asking participants to complete a cognitive test at the completion of a 1-day seminar are common examples of content evaluation.

The RSA model shows content evaluation as the level in between process and outcome evaluation. In other words, the purpose of content evaluation is to focus on how the teaching–learning process affected immediate, short-term outcomes. A question to be asked is: “Were specified objectives met based on the teaching that was done?” The evaluation design to answer this question is different from an evaluation that answers the question “Did learners achieve specified objectives?” An important point to be made here is that questions must be carefully considered and clearly stated because they dictate the basic framework for design and conduct of the evaluation. Evaluation designs are discussed in some detail later in this chapter.

The scope of content evaluation is limited to a specific learning experience and to specifically stated objectives for that experience. Content evaluation occurs immediately after completion of teaching but accounts for all teaching–learning activities included in that specific learning experience. Data are obtained from all learners involved in a specific class or group teaching session. For example, if the adolescent patient with rheumatoid arthritis and both parents are taught proper joint range-of-motion exercises, all three are asked to complete a return demonstration. Similarly, all nurses attending a workshop are asked to complete the cognitive posttest at the end of the workshop.

Also, resources used to teach content can be evaluated as to how well that content was learned. For example, the exact equipment included in teaching a patient how to change a dressing or to select foods low in cholesterol also can be used by the patient to perform a return demonstration or teach-back. In the same manner, a pretest used at the beginning of a continuing education seminar can be readministered as a posttest at seminar completion to measure change resulting from program delivery.

Content evaluation, like process evaluation, focuses on collecting internal evidence to determine whether objectives for a specific group of learners were met. Gathering data about the learner prior to a teaching session and then collecting data again immediately after the teaching session can be used to compare if any change in learner behavior occurred. For instance, Clarke et al. (2020) describe development of picture boards to improve patients' understanding and knowledge about their venous leg ulcer condition and use of compression therapy for treatment. Content evaluation included a pretest prior to education using the picture boards along with verbal explanations and a posttest conducted after completion of the education. Patient understanding and knowledge of their condition improved from 50% on the pretest to 90% on the posttest. When asked about knowledge of how compression therapy worked, patients' responses improved from 45% with some knowledge before the education to 90% with some knowledge after the education.

As another example, Jobst et al. (2020) used the Kirkpatrick model in pilot evaluation of evidence-based education to enhance healthcare providers' ability to provide culturally sensitive care of migrants and refugees with posttraumatic stress disorder. Knowledge acquisition was tested using a self-developed written multiple-choice test administered before and immediately after the education was provided. Twenty-five participants (64.1%) answered more questions correctly on the posttest compared with their answers on the pretest.

Outcome (Summative) Evaluation

The purpose of **outcome evaluation (summative evaluation)** is to determine the effects of teaching efforts. Outcome (summative) evaluation measures the changes that result from teaching and learning. This type of evaluation summarizes what happened based on the education intervention. Guiding questions in outcome evaluation include the following:

- Was teaching appropriate?
- Did the individual(s) learn?
- Were behavioral objectives met?
- Did the patient who learned a skill before discharge use that skill correctly once home? Did the student nurse who acquired a new skill in a laboratory setting or the staff nurse who learned a new skill in a

continuing education session demonstrate the ability to independently perform that skill accurately in practice?

Unlike process evaluation that occurs concurrently with the teaching–learning experience, outcome evaluation occurs after teaching has been completed or after an educational program has been carried out. Outcome evaluation measures the changes that result from teaching and learning.

Abruzzese (1992) clearly explains the difference in scope between outcome evaluation and content evaluation. She notes that outcome evaluation measures more long-term change that "persists after the learning experience" (p. 243). Changes can include institution of a new process, habitual use of a new technique or behavior, or integration of a new value or attitude. The changes that the nurse educator measures usually are dictated by the objectives established based on the initial needs assessment.

Thus, the scope of outcome evaluation focuses on a longer time period than does content evaluation. Whereas evaluating the accuracy of a patient's return demonstration of a skill prior to discharge may be appropriate for content evaluation, outcome evaluation should include measuring a patient's competency and confidence with a skill in the home setting after discharge. Similarly, nurses' responses on a workshop posttest may be sufficient for content evaluation, but if the workshop objective states that nurses will be able to incorporate their knowledge into practice on the unit, in an agency, or in a community setting, outcome evaluation should include measuring nurses' knowledge or behavior at some time after they have returned to their practice setting. Abruzzese (1992) suggests that outcome data be collected 6 months after the original baseline data to determine whether a change has really taken place.

Resources required for outcome evaluation are costly and complex compared to those needed for process or content evaluation. Compared to the resources required for the first two types of evaluation in the RSA model, outcome evaluation requires knowledge of how to establish baseline data, greater expertise to develop measurement and data collection strategies, more time to conduct the evaluation, and the ability to collect reliable and valid data for comparative purposes after the learning experience has occurred. Postage to mail surveys or the time

and personnel to email surveys as well as to carry out observation of nurses in their clinical practice setting or to complete patient/family telephone interviews are specific examples of resources that may be necessary to conduct an outcome evaluation.

From an EBP perspective, outcome evaluation might arguably be considered as “where the rubber meets the road.” Once a need for change has been identified, the search for evidence on which to base subsequent changes commonly begins with a structured clinical question that will guide an efficient search of the literature. This question is also known as a PICO question, where the letters *P*, *I*, *C*, and *O* stand for *population* (patient, family member, staff, or student), *intervention, comparison*, and *outcome*, respectively.

For example, nurses caring for an outpatient population of adults with heart failure might discover that many patients are not following their prescribed treatment regimen. Upon questioning these patients, the nurses learn that most patients do not recognize symptoms resulting from failure to take their medications or adjust their diet on a consistent basis. To search the literature efficiently for ways in which they might better educate their patients, the nurses would pose the following PICO question: Does nurse-directed patient education on symptoms and related treatment for heart failure provided to adult outpatients with heart failure result in improved compliance with treatment regimens? In this example, the *P* is the population of adult outpatients with heart failure, the *I* is the nurse-directed patient education intervention on symptoms and related treatment for heart failure, the *C* is the comparison of the education currently being provided (or lack of education, if that is the case), and the *O* is the outcome that, it is hoped, will result in improved compliance with treatment regimens.

Prior to making a change in practice, especially if that change will require additional resources or might increase patient risk if unsuccessful, a review of several well-conducted studies providing external evidence directly relevant to a PICO question should be conducted.

Thompson et al. (2020) used evidence-based guidelines and strategies to develop a group education curriculum for an underserved, urban, adult African American population with uncontrolled hypertension. Outcome goals included increased knowledge of hypertension, improvement in

modifiable lifestyle behaviors such as diet, and improved weight and blood pressure. Data were collected at baseline and 1, 3, and 6 months after the first of five weekly group sessions. Patients' knowledge of hypertension and decreases in systolic blood pressure were statistically significantly improved at 3 and 6 months. Other outcomes also were improved; however, they did not reach statistical significance due in part to the small number of patients who participated in at least three of the five sessions.

Ferrara et al. (2016) conducted an outcome evaluation 2 months after an educational intervention intended to increase physicians' and nurses' knowledge, compliance, and attitudes about family presence during resuscitation in the emergency department. Follow-up observations demonstrated that families were present during resuscitation 87.5% of the time when staff had received the educational intervention versus only 23% of the time when staff had not received the education.

In response to an evidence-based policy endorsed by 23 medical societies recommending that healthcare providers encourage cardiac inpatients to participate in cardiac rehabilitation, de Araújo Pio et al. (2020) developed an online course to facilitate provider policy implementation. Authors first observed providers to assess education needs, revised the course based on early pilot testing, then conducted both content evaluations of the course to determine knowledge acquisition by providers immediately after course completion and outcome evaluation 1 month later to measure knowledge retention. Recommendations for future study included the need to observe change in practice. Although not specified in the article, the fact that outcome evaluation was conducted from January through March 2020 raises the question of whether the arrival and spread of COVID-19 might have been a reason why practice change was not conducted at the time.

Impact Evaluation

The purpose of **impact evaluation** is to determine the relative effects of education on the institution or the community. Put another way, the purpose of impact evaluation is to obtain information that will help decide whether continuing an educational activity is worth its cost (Bäuerie et al., 2017; Shaw et al., 2019). Price and Reichert (2017) make an important point about the cost of not supporting continuing education by noting that nursing turnover can cost about $25,000 per nurse and turnover for new

nurses can range from 30% to 60% in the first 2 years. Examples of questions appropriate for impact evaluation include “What is the effect of an orientation program on subsequent nursing staff turnover?” and “What is the effect of a cardiac discharge teaching program on long-term frequency of rehospitalization among patients who have completed the program?”

The scope of impact evaluation is broader, more complex, and usually more long term than that of process, content, or outcome evaluation. For example, whereas outcome evaluation focuses on whether specific teaching results in achievement of specific outcomes, impact evaluation goes beyond that point to measure the effect or worth of those outcomes. In other words, outcome evaluation focuses on a learning objective, whereas impact evaluation focuses on a goal for learning. Consider, for instance, a class on the use of body mechanics. The objective is that staff members will demonstrate proper use of body mechanics in providing patient care. The goal is to decrease back injuries among the hospital’s direct-care providers. As another example, consider a teaching session on healthy food choices for patients who have had bariatric surgery. The objective is that patients will choose healthy foods regardless of whether they are in a restaurant or in the grocery store. The goal is for these patients to increase and sustain their weight loss. This distinction between outcome and impact evaluation may seem subtle, but it is important to the appropriate design and conduct of an impact evaluation.

Good impact evaluation is like good science: rarely inexpensive, and never quick. The resources needed to design and conduct an impact evaluation generally include reliable and valid instruments, trained data collectors, personnel with research and statistical expertise, equipment and materials necessary for data collection and analysis, and access to populations who may be culturally or geographically diverse. Gorsuch et al. (2020) describe an impact evaluation of a 5-day EBP skill-building immersion program intended to build EBP competence leading to sustainable culture change. Using the Advancing Research and Clinical Practice Through Close Collaboration Model, a project team comprised of United States Air Force Medical Service (AFMS) nursing leaders and EBP experts from The Ohio State University conducted a search, critical appraisal, and synthesis of the literature to plan the program. Ten nursing teams from multiple AFMS locations participated in the 5-day program to learn about EBP and develop a project that they would implement upon

return to their home facilities. Data were collected at baseline, immediately after the immersion, as well as at 3, 6, and 12 months after teams returned to their facilities. EBP knowledge and competence were found significantly improved, and eight of the 10 teams completed the projects that they had developed during the immersion program. This example describes the scope commonly found in an impact evaluation.

Because impact evaluation requires many resources, including time, money, and research expertise, this type of evaluation is usually beyond the scope of the individual nurse educator. Conducting an impact evaluation may seem to be a monumental task, but this reality should not dissuade the determined educator from the effort. Rather, one should plan well in advance, proceed carefully, and obtain the support and assistance of stakeholders and colleagues. Keeping in mind the purpose for conducting an impact evaluation should be helpful in maintaining the level of commitment needed throughout the process. The current managed care environment requires justification for every health dollar spent. The importance of patient and staff education may be intuitively beneficial in improving the quality of care, but evidence of the positive impact of education must be demonstrated if it is to be recognized, valued, and funded.

A literature search conducted to determine the state of the evidence on impact evaluation in patient and healthcare provider education found that the term *impact* is used generically to describe both evaluations of outcomes resulting from education and evaluations of long-term effects from education. What is important to remember when reviewing this literature is not which term the authors use, but what their purpose for evaluation is. As noted earlier, the purpose of an outcome evaluation is to determine whether an educational intervention results in the intended behavior change, whereas the purpose of an impact evaluation is to determine whether long-term education goals are met. As the importance of EBP and practice-based evidence continues to grow, impact evaluations are becoming recognized as essential for examining the long-term effectiveness of different educational interventions and methods used to disseminate practice guidelines to healthcare providers (Haber et al., 2020; Shaw et al., 2019).

Total Program Evaluation

Within the framework of the RSA model (Abruzzese, 1992), the purpose of **total program evaluation** is to determine the extent to which all activities for an entire department or program over a specified time meet or exceed the goals originally established. Guiding questions appropriate for a total program evaluation from this perspective might be “To what extent did programs undertaken by members of the nursing staff development department during the year accomplish annual goals established by the department?” and “How well did patient education activities implemented throughout the year meet annual goals established for the institution’s patient education program?”

The scope of program evaluation is broad, generally focusing on overall goals rather than on specific learning objectives. Given its scope, total program evaluation is also complex, usually focusing on the learner *and* the teacher *and* the educational activity, rather than on just one of these three components. Abruzzese (1992) describes the scope of program evaluation as encompassing all aspects of educational activity (e.g., process, content, outcome, impact) with input from all the participants (e.g., learners, teachers, institutional representatives, and community stakeholders).

It is not surprising, then, that quite a few other models and related theories have been developed to conceptualize and organize total program evaluation. Kirkpatrick’s early four-level model, known as the logic model, consisted of four components: reaction, learning, behavior, and results (Shinners & DeSilets, 2018). Although these four levels have kept the same labels, the Kirkpatrick model has since been updated to better account for context, process, and relevant influences such as stakeholder preferences (Moreau, 2017; Shinners & DeSilets, 2018). Stufflebeam and Zhang (2017) describe how the CIPP model can be used to evaluate program improvement and accountability. Gullickson et al. (2019) use the CIPP model in their discussion of how program evaluation can grow and emerge as a profession. Frye and Hemmer (2012) have authored a guide for educators to use in choosing a program evaluation model that is theoretically and practically consistent with the purpose for and scope of evaluation. These authors’ intent is to help those evaluating educational programs to appreciate and adequately account for how complex program evaluation really is.

Kirkpatrick's logic model for program evaluation has been popular for more than 2 decades and, according to Frye and Hemmer (2012), remains one of the most frequently used models in federal program evaluations (e.g., the CDC's *Morbidity and Mortality Weekly Report*). Consistent with its roots in general system theory, the logic model views an education program as "a social system composed of component parts, with interactions and interrelations among the component parts, all existing within, and interacting with, the program's environment" (Frye & Hemmer, 2012, p. 290).

A more recent use of Kirkpatrick's model for program evaluation is described by Nocera et al. (2016) in their report of a statewide nurse training program to prevent infant abuse. Standardized training developed by the National Center on Shaken Baby Syndrome was provided to nurses in 85 hospitals and one birthing center in North Carolina from 2008 to 2010 in preparation for statewide adoption. Satisfaction with training content and methods as well as long-term adherence were among evaluative findings.

Phillips et al. (2016) describe use of the logic model to evaluate interprofessional education of practitioners from mixed health professional backgrounds who provide care to patients with both psychological and medical comorbid illness. Evaluation included observation, surveys, and network analysis conducted before, immediately after, and 3 months after completion of training. Results demonstrated that confidence and knowledge increased immediately after training and these increases were sustained 3 months later among members of seven healthcare disciplines. In addition, physicians sustained increased use of motivational interviewing after 3 months.

As stated earlier, the RSA model developed by Abruzzese (1992) remains useful as a general framework for categorizing the basic types of evaluation: process, content, outcome, impact, and total program. As depicted in this model, differences between these types are largely a matter of degree. For example, process evaluation occurs most frequently; total program evaluation occurs least frequently. Content evaluation focuses on immediate effects of teaching; impact evaluation concentrates on more long-term effects of teaching. Conducting process evaluation requires fewer resources compared with impact and program evaluation, which require extensive resources for their implementation.

The RSA model further illustrates one way that process, content, outcome, and impact evaluations can be considered together as components of total program evaluation.

According to Abruzzese (1992), resources required for total program evaluation may include the sum of resources necessary to conduct process, content, outcome, and impact evaluations. A program evaluation may require significant expenditures for personnel if the evaluation is conducted by an individual or team external to the organization. Additional resources required may include time, materials, equipment, and personnel necessary for data entry, analysis, and report generation. The time span over which data are collected may extend from several months to one or more years, depending on the time frame established for meeting the goals to be evaluated.

Wolf and Bailey (2018) exemplify Abruzzese's description of total program evaluation as broad in terms of scope and complexity as well as taking place over a time period from months to years in their description of an evaluation of a city-wide health intervention program for vulnerable children and their families with low incomes and burdened by chronic physical, developmental, and behavioral conditions. Interviews and focus groups with families, case managers, and healthcare providers as well as surveys and quarterly reports from 2010 through 2015 were used to collect quality improvement data.

Designing the Evaluation

Nurse educators can design an evaluation within the framework, or boundaries, already established by focusing the evaluation appropriately. In other words, the design must be consistent with the purpose, questions, and scope of the evaluation and must be realistic given the available resources. Evaluation design includes at least three interrelated components: structure, methods, and instruments.

Design Structure

An important question to be answered in designing an evaluation is “How detailed should the evaluation be?” The obvious answer is that all evaluations should have some level of rigor, which means they must be precise, exact, and logically organized. In other words, all evaluations should be systematic and thoroughly planned or structured before they are conducted. How rigorous the design structure must be depends on the questions to be answered, how complex the scope of the evaluation is, and how evaluation results will be used. The more the questions address cause and effect, the more complex the scope of the evaluation. Likewise, the more critical and far-reaching the expected use of results, the more the evaluation design should be structured from a research perspective.

Evaluation Versus Research

Evaluation and research are not synonymous, but they are related activities. Traditionally, the primary difference between the two has been related to the purpose for conducting the evaluation or the study. The purpose of an evaluation is to measure whether a practice change is effective in a specific setting with a specific group of individuals—learners and/or teachers, in the case of education evaluation—during a specified time frame. In contrast, the purpose

of research is to generate new knowledge that can be used across settings and individuals with similar characteristics and demographics. As described earlier in this chapter, this distinction between research and evaluation is analogous to the distinction between external and internal evidence (Melnyk & Fineout-Overholt, 2019).

Differences between evaluation and evaluation research have become less distinct over the past several years with the explosion of what was once called applied research into a myriad of research types that include comparative effectiveness, translational, dissemination, implementation, and so on. What these types of research commonly share is that all are intended to measure change in the “real-world” setting as opposed to the tightly controlled setting of traditional randomized, placebo-controlled trials.

As noted earlier, implementation science is intended to improve the quality and effectiveness of health care by providing external evidence to promote uptake of practice-relevant research findings into practice. The primary focus of this chapter is on evaluation, not on research. That said, one evaluation model emerging from implementation science deserves attention. In 1999, Glasgow and colleagues introduced the Reach, Effectiveness, Adoption, Implementation, and Maintenance (RE-AIM) framework as an evaluation model for examining the effectiveness and sustainability of research interventions in the practice setting. Glasgow et al. (2019) define these five terms as follows:

- **R** - Reach is the number and the representativeness of those willing to participate in an intervention or program and reasons why or why not.
- **E** - Effectiveness is both the positive and negative impact of the intervention or program on important individual outcomes, including both specific outcomes related to the intervention and broad outcomes, such as quality of life, as well as variability of outcomes across different participant groups.

- **A** - Adoption is the number and the representativeness of intervention settings and those willing to initiate the program or intervention as well as reasons why or why not.
- **I** - Implementation includes fidelity and consistency with which the intervention or program is initiated, as well as any adaptations and costs.
- M - Maintenance is the extent to which outcomes are sustained by individuals and in each setting for 6 months or longer after an intervention is initiated or a program is completed/no longer externally funded.

The RE-AIM framework has been updated and expanded over the past 20 years to include a website (http://www.re-aim.org) to provide resources, ongoing updates, and access to webinars to support clinicians and others interested in learning about and using the framework (Glasgow et al., 2019). Although most RE-AIM-based evaluations are conducted as research, an increasing number of these evaluations have been conducted to evaluate programs in non-research settings where the evaluators have limited budgets and need to focus their evaluations on what is most relevant to local stakeholders and participants (Glasgow et al., 2019; Kwan et al., 2019). A recent search of the RE-AIM website found nine evaluations of education programs published in peer-reviewed journals between 2019 and 2020.

Participatory action research is one example of research in which the "real world," with all its inherent complexity and confounding variance, is combined with rigor. Anselma et al. (2020) used the RE-AIM framework in their youth-led participatory action research to evaluate effectiveness of a Kids in Action program to increase healthy physical and dietary behavior among 9- to 12-year-old children. Mixed-methods research, which usually includes both qualitative and quantitative data and shares several characteristics with participatory action research, is another frequent design for conducting evaluation research (Phillips et al., 2016). It should be noted that the great majority of process, content, outcome, impact, and total program evaluation published since 2007—as well as many

reports published before that year—and included in this chapter were conducted as **evaluation research**, which is one type of applied research.

Of course, not all outcome, impact, and program evaluations should be conducted as research studies. Some important differences do exist between evaluation and evaluation research. One of the most significant relates to the influence of a primary audience. As discussed earlier in this chapter, the primary audience—meaning the individual or group requesting the evaluation—is a major component to be considered in focusing an evaluation. The evaluator must design and conduct the evaluation consistent with the purpose and related questions identified by the primary audience. Evaluation research, by contrast, does not have an identified primary audience. Consequently, researchers have the autonomy to develop a protocol to answer one or more questions posed by them. A second difference between evaluation and evaluation research is related to timing. The necessary timeline for usability of evaluation results may not be sufficient to prospectively develop a research proposal and obtain institutional review board approval prior to beginning data collection.

Given the differences between evaluation and evaluation research, how are decisions about level of rigor of an evaluation translated into an evaluation structure? The structure of an evaluation design depicts the number of groups to be included in the evaluation, the number of evaluations or periods of evaluation, and the time sequence between an educational intervention and evaluation of that intervention. A group can comprise one individual, as in the case of one-to-one nurse–patient teaching, or several individuals, as in the case of a nursing inservice program or workshop.

A process evaluation might be conducted during a single patient education activity where the nurse observes patient behavior during instruction/demonstration and engages the patient in a question-and-answer exchange upon completion of each new instruction. Because the purpose of process evaluation is to facilitate better learning while

that learning is happening, education and evaluation occur at the same time in this case.

Evaluation also may be conducted immediately after an educational intervention. This structure is probably the most commonly employed in conducting educational evaluations, although it is not necessarily the most appropriate. If the purpose of conducting the evaluation is to determine whether learners who have just completed a class know specific content that they did not know before attending that class, then a structure that begins with collection of baseline data is more appropriate. Collection of baseline data via a pretest, which can be compared with data collected via a posttest at one or more points in time after learners have completed the educational activity, provides an opportunity to measure whether change has really occurred. The ability to measure change in a certain skill or level of knowledge, for example, also requires that the same instruments be used for pretest and posttest data collection at both points in time. Data collection is discussed in more detail later in this chapter.

If the purpose of conducting an evaluation is to determine whether learners know content or can perform a skill resulting from an educational intervention, the most appropriate structure will include at least two groups: one receiving the new educational intervention and one receiving the usual education or standard of care. Both groups are evaluated at the same time, even though only one group is exposed to the new education. The group receiving the new education program is called the treatment or experimental group, and the group receiving standard care or the traditional education program is called the comparison or control group. The two groups may or may not be equivalent. Equivalent groups are those with no known relevant differences between them prior to some intervention, whereas nonequivalent groups may be different from one another in several ways that are potentially relevant to the purpose for conducting the evaluation. For example, patients on nursing unit A may receive an educational pamphlet to read prior to attending a class, whereas patients on nursing unit B may attend the class without first reading the pamphlet. Because patients on the two units

probably are different in many ways (e.g., in terms of age and diagnosis), they would be considered nonequivalent groups.

Use of the term *nonequivalent* is commonly encountered in discussions of traditional research designs. Quasi-experimental designs, such as nonequivalent control group designs, should be among those considered in planning an outcome, impact, or program evaluation. Especially if the purpose of an evaluation is to demonstrate that an education program caused fewer patient returns to the clinic or fewer nurses to leave the institution, for example, the evaluation structure must have the rigor of evaluation research.

Another type of quasi-experimental design, called a time-series design, might include only one group of learners from whom evaluative data are collected at several points in time, both before and after receiving an educational intervention. If data collected before the intervention consistently demonstrate lack of learner ability to comply with a treatment regimen, whereas data collected after the intervention consistently demonstrate a significant improvement in patient compliance with that regimen, the evaluator could argue that the education intervention was the reason for the improvement in this case.

As noted previously, mixed-methods designs, once called pluralistic designs, are appearing more frequently in the literature as approaches especially suited for evaluation of projects that have a community base, that include participants from diverse settings or perspectives, or that require both program processes and outcomes to be included in the evaluation (Antalis et al., 2019; Suutari et al., 2019). Because these designs often are comprehensive, resource-intensive, and long-term in nature, they are most appropriate for program evaluation.

This chapter does not provide an exhaustive description of evaluation designs. Rather, it is intended to increase awareness of the value and usefulness of these designs, especially when the results of an evaluation will be used to make major financial or programmatic decisions. The literature on evaluation of nursing staff

education and patient education has become an increasingly rich source of examples of how to conduct rigorous evaluation.

A literature search that includes many of the following journals is recommended for planning evaluation of healthcare education in a cost-conscious and outcome-focused healthcare environment: *Canadian Journal of Nursing Research*, *Clinical Effectiveness in Nursing*, *Evaluation & the Health Professions*, *Evidence-Based Nursing*, *Health Education Research*, *Journal of Advanced Nursing*, *Journal of Continuing Education in Nursing*, *Journal of Nursing Staff Development*, *Nurse Educator*, *Journal of Nursing Education*, *Nursing Research*, *Research in Nursing & Health*, *Worldviews on Evidence-Based Nursing*, and *Implementation Science*.

Evaluation Methods

The focus of evaluation determines the evaluation design structure. The design structure, in turn, provides the basis for determining what evaluation methods should be used to collect data. Answers to the following questions can assist in selecting the most appropriate, feasible methods when conducting a particular evaluation in a particular setting and for a specific purpose:

- Which types of data will be collected?
- What data will be collected and from whom?
- How, when, and where will data be collected?
- Who will collect the data?

Types of Data to Collect

Evaluation of healthcare education includes collecting data about people, about the educational program or activity, and about the environment in which the educational activity takes place. Data about all three of these aspects are required for process, outcome, impact, and program evaluations. Content evaluations may be

limited to data about the people and the program, although this limitation is not necessary.

Types of data that are collected about people can be classified as demographic (e.g., age, gender, health status) as well as cognitive, affective, or psychomotor behaviors. The types of data that are collected about educational activities or programs generally include such factors as cost, length, number of educators required, teaching–learning methods used, amount and type of materials required, and so on. The types of data that are collected about the environment in which a program or activity is conducted generally include such characteristics as temperature, lighting, location, layout, space, and noise level.

Given the possibility that an unlimited and overwhelming amount of data could be collected, how do you decide which data should be gathered? The most straightforward answer to this question is that you should collect data that will answer the questions that were asked when deciding the evaluation focus. The likelihood that the evaluator will collect the right amount of the right type of data to answer evaluation questions can be significantly improved by (1) remembering that any data collected must be used and (2) using operational definitions allows everyone who is involved to understand what is being evaluated.

An operational definition must clearly define one or more words or phrases being used and must be written in measurement terms. Functional health status, for example, can be theoretically defined as an individual's ability to independently carry out activities of daily living without self-perceived undue difficulty or discomfort. Functional health status can be operationally defined as an individual's composite score on the SF-36 (Short Form 36-item) survey instrument (Stewart et al., 1988; Ware et al., 1978). The SF-36, which has undergone years of extensive reliability and validity testing with a wide variety of patient populations and in several languages, is generally considered the gold standard for measuring functional health status from the individual's perspective. Continuously updated

information about the SF-36 as well as different versions of the actual instrument, including a version for children, can be found online at https://www.rand.org/health-care/surveys_tools/mos/36-item-short-form.html

As another example, patient compliance can be theoretically defined as the patient's regular and consistent adherence to a prescribed treatment regimen. For use in outcome evaluation of a specific educational activity, patient compliance might be operationally defined as the patient's demonstration of unassisted and error-free completion of all steps in the sterile dressing change as observed in the patient's home on three separate occasions at 2-week time intervals.

These examples show that an operational definition states exactly which data will be collected. In the first example, measurement of functional health status requires collection of patient survey data using a specific self-administered questionnaire. The second example provides even more information about data collection than does the first, by including where and how many times the patient's performance of the dressing change is to be observed, as well as stating that criteria for compliance include both unassisted and error-free performance on each occasion.

In addition to data being categorized as describing people, programs, or the environment, data also can be categorized as quantitative or qualitative. Quantitative data are expressed in numbers and generally are stated as statistics, such as the frequency, mean, median, ratio, *F* statistic, *t* statistic, or chi-square. Numbers can be used to answer such questions as how much, how many, how often, and so on, in terms that are commonly understood by the audience for the evaluation. Mathematical analysis of data can, for example, demonstrate with some level of precision and reliability whether a learner's knowledge or skill has changed since completing an educational program, or how much improvement in a learner's knowledge or skill is the result of an educational program.

Qualitative data, on the other hand, include feelings, behaviors, and words or phrases that generally are summarized into themes or categories. Such data also can be described in quantitative terms, such as percentages or counts, but this transformation eliminates the richness and insight into the responses expressed by individuals about their experiences. Qualitative data also can be used as background to better interpret quantitative data, especially if the evaluation is intended to measure such value-laden or conceptual terms as “satisfaction” or “quality.”

Any evaluation may be strengthened by collecting both quantitative and qualitative data. For example, an evaluation to determine whether a stress reduction class resulted in decreased work stress for participants could include participants’ qualitative expressions of how stressed they feel plus quantitative data, such as pulse and blood pressure readings. Although intuitively appealing to want to collect both quantitative and qualitative data, it is resource intensive to do so, such that evaluators must be certain that the focus of the evaluation justifies the decision to collect both types of data.

What Data to Collect and From Whom

Data can be collected directly from the individuals whose behavior or knowledge is being evaluated, from family caregivers or significant others as representatives of these individuals, or from documents or databases that have already been created. Whenever possible, researchers should plan to collect at least some data directly from the individuals being evaluated. In the case of process evaluation, data should be collected from all learners and all educators participating in the educational activity. Content and outcome evaluations should include data from all learners at the completion of one or more educational activities.

Because impact and total program evaluations have a broader scope than do process, content, and outcome evaluations, collecting data from all individuals who participated in an educational program over an extended time may be impossible. This difficulty arises because

data collectors may not be able to locate every participant, or they may lack sufficient resources to gather data from such large numbers of people.

When all participants cannot be counted or located, data may be collected from a sample (subset) of participants who are considered to represent the entire group. A random selection of participants from whom data are collected can minimize bias in the sample but cannot guarantee representativeness. For example, an impact evaluation was conducted to determine whether a 5-year program supporting home-based health education improved the general health status of individuals in the community served by the program. If all members of the community could be counted, a random sample of community members could be generated by first listing and numbering all members' names, and then drawing numbers using a random numbers table until a 10% sample is obtained. Such a method for selecting the sample of community members would eliminate intentional selection of those individuals who were the most active program participants and who might therefore have a better health status than does the entire community. At the same time, the 10% random sample could unintentionally include only those individuals who did not participate in the health education program. Data collected from this sample of nonparticipants would be just as misleading as data collected from the first sample. A more representative sample for this evaluation should include both participants and nonparticipants, ideally in the same proportions in the sample as in the community.

Preexisting data should be used as a source of evaluative data only if the purpose for which they were collected mirrors the purpose of the evaluation currently being considered, if operational definitions are the same, and if the same population of interest is the focus of both past and current evaluations. Data already in existence generally are less expensive to obtain and available sooner than are data collected prospectively for the purpose of conducting an evaluation. Medical records data and disease-specific registry data are two examples of preexisting data sources.

How, When, and Where to Collect Data

Methods for how data can be collected include the following:

- Observation
- Interview
- Questionnaire or written examination
- Record review
- Secondary analysis of existing databases

Which method is selected depends, first, on the type of data being collected and, second, on the availability of resources. When possible, data should be collected using more than one method. Using multiple methods provides the evaluator, and consequently the primary audience, with more complete information about the program or performance being evaluated than could be accomplished using a single method. For example, the nurse teaching patients might use both observation and teach-back to determine whether a patient who will be using self-catheterization to drain the bladder at home can correctly self-catheterize and explain why each step of the catheterization is important prior to discharge from the hospital.

The evaluator can conduct observations in person or can videotape them for viewing at some later time. In the combined role of educator–evaluator, the nurse educator who is conducting a process evaluation can directly observe a learner's physical, verbal, psychomotor, and affective behaviors to respond to them in a timely manner. Using videotape or a nonparticipant observer also can be beneficial for picking up the educator's own behaviors, which the educator is unaware of but might be influencing the learner.

The timing of data collection, or when data collection takes place, has already been addressed both in discussion of different types of evaluation and in descriptions of evaluation design structures. Process evaluation, for example, generally occurs during an educational activity. Content evaluation takes place immediately after

completion of education. Outcome evaluation occurs sometime after completion of education, when learners have returned to the setting where they are expected to use new knowledge or perform a new skill. Impact evaluation generally is conducted from weeks to years after the educational program, because its purpose is to determine which change has occurred within the community or institution resulting from an educational intervention.

The timing of data collection for program evaluation is less obvious than for other types of evaluation, in part because different descriptions of what constitutes a program evaluation can be found both in the literature and in practice. As discussed earlier, Abruzzese (1992) describes data collected for program evaluation as occurring over a prolonged period because program evaluation is itself the culmination of process, content, outcome, and impact evaluations already conducted.

Where an evaluation is conducted can have a major effect on evaluation results. Those conducting an evaluation must be careful not to make the decision about where to collect data based on convenience for the data collector. For example, an appropriate setting for conducting a content evaluation may be in the classroom or skills laboratory where learners have just completed class instruction or training. An outcome evaluation to determine whether training has improved the nurse's ability to perform a skill with patients on the nursing unit, however, requires that data collection—in this case, observation of the nurse's performance—be conducted on the nursing unit.

As another example, an outcome evaluation to determine whether discharge teaching in the hospital enabled the patient to provide self-care at home requires that data collection, or observation of the patient's performance, be conducted in the home. What if available resources are insufficient to allow for home visits by the evaluator? To answer this question, keep in mind that the focus of the evaluation is on performance by the patient—not performance by the evaluator. Training a family member, a visiting nurse, or even the

patient to observe and record patient performance at home is preferable to bringing the patient to a place of convenience for the evaluator.

Who Collects Data

The educator conducting the class or activity being evaluated commonly collects evaluation data because of already being present and interacting with learners. Combining the role of evaluator with that of educator is an appropriate method for conducting a process evaluation because evaluative data are integral to the teaching–learning process. Inviting another educator or a patient representative to observe a class can provide additional data from the perspective of someone who does not have to divide their attention between teaching and evaluating. This second, and perhaps less biased, input can strengthen the legitimacy and usefulness of the evaluation results.

Also, data can be collected by the learners themselves, by other colleagues within the department or institution, or by someone from outside the institution. Santiago de Araújo Pio and colleagues (2020) developed and evaluated an online course that included observational data from course developers and interview data from healthcare providers to inform course development, interview data from healthcare providers piloting the course, and survey data from a broad range of providers to evaluate satisfaction and knowledge acquisition once the course was implemented.

The individuals who are chosen to carry out data collection become an extension of the evaluation instrument. If the data collected are to be reliable, unbiased, and accurate, the data collectors must likewise be unbiased and sufficiently expert at the task. Use of unbiased expert data collectors is especially important for collecting observation and interview data because these data in part depend on the subjective interpretation by the data collector.

Also, data collectors can influence the information that is obtained in other ways. For example, if staff nurses are asked to complete a job satisfaction survey and their head nurse is asked to collect the surveys for return to the evaluator, which problems might occur? Might some staff nurses be hesitant to provide negative scores on certain items, even though they hold one or more negative opinions? Likewise, physiological data can be altered, however unintentionally, by the data collector. For example, an outcome evaluation might be conducted to determine whether a series of biofeedback classes given to young executives can reduce stress as measured by pulse and blood pressure. How might some executives' pulse and blood pressure results be affected by a data collector who is physically attractive or overtly acting rushed or frustrated?

Use of trained data collectors from an external agency is, in most cases, not a financially viable option. The potential for a data collector to bias data can be minimized using less expensive alternatives, however. First, the number of data collectors should be limited as much as possible, because this step automatically decreases person-based variation. Also, individuals assisting with data collection should wear similar conservative clothing and speak in a moderate tone. Because moderate tone, for example, may not be interpreted the same way by everyone, at least one practice session or dry run should be held with all data collectors prior to conducting the evaluation. In addition, data collection should be conducted by someone who has no vested interest in the results and who will be perceived as unbiased and nonthreatening by those persons providing the data. Furthermore, providing interview scripts to be read verbatim by the interviewer can ensure that all patients or staff being interviewed are asked the same questions.

With the emphasis on continuous quality improvement (CQI) in healthcare organizations, nurses and other professionals are expected to become more knowledgeable about what data are needed and how to use measurement techniques to collect evidence in their work setting (The Joint Commission, 2017). In response to the demand for measurable evidence to support healthcare decision

making, the field of data analytics has grown exponentially. The enactment of the American Recovery and Reinvestment Act of 2009 and the introduction of incentives to promote meaningful use of health information technology and electronic health records (EHRs) has effectively provided nurse educators and other healthcare providers with a rich source of data that can be used to evaluate delivery of care and resulting patient outcomes (Centers for Medicare & Medicaid Services, 2017). Although some benefits of EHRs are yet to be realized, many facilities already have staff available to help nurse educators extract data that are useful for evaluation.

Evaluation Instruments

In the selection, revision, or construction of evaluation instruments, nurse educators must consider some key points. Whenever possible, an evaluation should be conducted using existing instruments. This is because instrument development not only requires considerable expertise, time, and resources but also requires testing to be sure the instrument, whether it is in the form of a questionnaire or a type of equipment, demonstrates reliability and validity before it is used for collecting data.

The initial step in instrument selection is to conduct a literature search for evaluations similar to the evaluation that is being planned. A helpful place to begin is with the same journals listed earlier in this chapter. Instruments that have been used in more than one study should be given preference over an instrument developed for a single use. This is because instruments used multiple times generally have been more thoroughly tested for reliability and validity. Once potential instruments have been identified, each instrument must be carefully critiqued to determine whether it is, in fact, appropriate for the evaluation planned.

First, the instrument must measure the performance being evaluated exactly as that performance has been operationally defined for the evaluation. For example, if satisfaction with a continuing education

program is operationally defined to include a score of 80% or higher on five specific program components (such as educator responsiveness to questions, relevance of content, and so on), then the instrument selected to measure participant satisfaction with the program must include exactly those five components and must be able to be scored in percentages.

Second, an appropriate instrument should have documented evidence of its reliability and validity with individuals who are as closely matched as possible with the people from whom data will be collected. For example, when evaluating the ability of older adult patients to complete activities of daily living, one would not want to use an instrument developed for evaluating the ability of young orthopedic patients to complete routine activities. Similarities in reading level and visual acuity also should exist if the instrument being evaluated is a questionnaire or scale that participants will complete themselves. In addition, existing instruments being considered for selection must be affordable, must be feasible for use in the location planned for conducting data collection, and should require minimal training on the part of data collectors.

A cognitive test is the evaluation instrument most likely to require modification from an existing tool or development of an entirely new instrument. The primary reason for constructing such a test is that it must be consistent with the content covered during the educational program or activity. The intent of a cognitive test is to be comprehensive and relevant and to fairly test the learner's knowledge of content. Using a test blueprint is one of the most helpful methods for ensuring comprehensiveness and relevance of test questions. A blueprint enables the evaluator to be certain that the test covers each area of instructional content and that content areas emphasized during instruction are similarly emphasized during testing.

Multiple questionnaires, scales, and other types of instruments exist to measure patient and healthcare provider characteristics, such as traits, perceptions, beliefs, attitudes, activity levels, conflicts,

communication skills, and relationships. An instrumentation study conducted by S, enyuva et al. (2020) found that their 42-item Patient Education Implementation Scale demonstrated moderate to strong internal consistency reliability for both subdimensions and the overall scale (Cronbach's alpha coefficient of 0.97), as well as moderate to strong content and construct validity. The scale is intended to provide an objective evaluation of nurses' activities in four areas: determining patients' education needs, assessment and planning, education implementation, and evaluation and documentation of patient learning after completion of the education. Many other measurement tools are available that have been tested for how consistently and accurately they perform in collecting patient or staff education data; however, testing of instruments used in an evaluation cannot automatically be assumed (Browers et al., 2017; Feo et al., 2020; Khadjesari et al., 2020).

One helpful step in instrument selection for evaluation of patient education is to review materials used to provide that education. Did the educator use a step-by-step checklist to teach the patient how to flush a urinary catheter? That same checklist might be used to observe whether the patient remembers each step during return demonstration. A checklist for both teaching and evaluation almost guarantees that the nurse is measuring the performance being evaluated exactly as that performance was operationally defined prior to instruction and evaluation. Also, a review of materials used to provide this patient education may yield references to research articles that might identify instruments appropriate for use in your evaluation.

Barriers to Evaluation

If evaluation is so important to healthcare education, why is evaluation often an afterthought or even overlooked entirely? The reasons given for not conducting evaluations are many and varied but rarely, if ever, are impossible to overcome. Barriers to evaluation must first be identified and understood; then, the nurse educator

must design and conduct the evaluation in a way that minimizes or eliminates as many identified barriers as possible.

Barriers to conducting an evaluation can be classified into three broad categories:

1. Lack of clarity
2. Lack of ability
3. Fear of punishment or loss of self-esteem

Lack of Clarity

If the focus for evaluation is unclear, unstated, or not well defined, then undertaking an evaluation is difficult if its purpose or what will be done with the results is unknown. Often evaluations are attempted to determine the quality of an educational program or activity, yet quality is not defined beyond some vague sense of goodness. What is “goodness” and from whose perspective will it be determined? Who or what will demonstrate evidence of goodness? What will happen if goodness is or is not evident? Inability to answer these or similar questions creates a significant barrier to conducting an evaluation by even the most seasoned evaluator.

Barriers in this category have the greatest potential for successful resolution because the best solution for lack of clarity is to provide clarity. Recall that evaluation focus includes five components: (1) audience, (2) purpose, (3) questions, (4) scope, and (5) resources. To overcome a potential lack of clarity, the nurse educator must identify all five components and make them available to those conducting the evaluation.

A clear identification of who constitutes the primary audience is very important. This is because it is from the perspective of the primary audience that terms such as “quality” should be defined and operationalized. Although the results of the evaluation provide the information on which decisions will be made, the primary audience makes those decisions. Also, a clearly stated purpose is as

important as knowing who the audience is because the purpose explains why the evaluation is being conducted. For example, if the purpose for teaching patients about their medications is so that they can be independent in self-care at home, then the nurse must evaluate both the knowledge and physical ability of these patients to take their medicines correctly prior to discharge. Using teach-back can inform the nurse whether patients understand what the medications are for, how frequently and in what dosage they should be taken, and what might be side effects that should prompt patients to contact their primary care provider immediately. Filling the prescriptions in advance before discharge can allow the nurse to observe whether the patients are able to read the labels, open the containers, and take the medications as directed (Visiting Nurse Associations of America, 2019).

Lack of Ability

Inability to conduct education evaluations most often results from lack of knowledge, confidence, interest, or resources needed to carry out this process. Members of the primary audience are accountable for providing the necessary resources—personnel, equipment, time, facilities, and so on—to conduct the evaluation they are requesting. Unless these individuals have some expertise in evaluation, they may not know what resources are necessary. The persons conducting the evaluation, therefore, must accept responsibility for knowing the resources that are necessary and for providing this information to the primary audience. The person asked or expected to conduct the evaluation may be as uncertain about necessary resources as the primary audience is, however.

Lack of knowledge of which resources are necessary or lack of actual resources may create a barrier to conducting an evaluation that can be difficult—though not impossible—to overcome. Lack of knowledge can be resolved or minimized by enlisting the assistance of individuals with needed expertise through consultation or contract (if funds are available), through collaboration, or indirectly through literature review. Remember that patient care is a team activity. If a

patient, for example, needs to learn how to use crutches correctly before being discharged, the nurse can appropriately request a physical therapist who is expert in evaluating the patient's ability to use them safely.

Fear of Punishment or Loss of Self-Esteem

Evaluation might be perceived as a judgment of someone's value or personal worth. Both the learner and the teacher may fear that anything less than a perfect performance will result in criticism, punishment, or evidence that their mistakes will result in their being labeled as incompetent (Zhu et al., 2018). These fears form one of the greatest barriers to conducting an evaluation.

Unfortunately, these fears may not easily be overcome, especially for individuals who have had negative experiences with teaching and learning in the past. Consider, for example, traditional quality assurance monitoring, where results are used to correct deficiencies often through punitive measures, such as losing the opportunity for promotion or losing respect from colleagues. As another example, many times an educator has interpreted learner dissatisfaction with a teaching style as learner dislike for the educator as a person. And everyone probably has experienced test anxiety as a learner at some point in their life.

The first step in overcoming this barrier is to realize that the potential for its existence may be close to 100%. Individuals whose performance or knowledge is being evaluated are not likely to state outright that evaluation represents a threat to them. Rather, they are far more likely to demonstrate self-protective behaviors or attitudes that can range from failing to participate in a teaching session or attend a class that has a posttest to providing socially desirable answers on a questionnaire or to responding with anxiety or anger to evaluation questions. It is even possible that an individual may intentionally choose to fail an evaluation as a method for controlling the uncertainty of success.

The second step in overcoming the barrier of fear or threat in being evaluated is to remember that there is more to every person than how they behave or respond in a single situation. If the purpose of an evaluation is to facilitate better learning, as in process evaluation, then the focus is on the process. For example, in teaching a patient how to perform urinary self-catheterization using the same clean technique as they will use at home, the educator carefully and thoroughly explains each step of the process, observing the patient's responses (e.g., level of attention or nonverbal reactions) during the explanation. When the patient tries to demonstrate the steps, however, they are unable to begin. Why? One answer may be that the use of an auditory teaching style does not match the patient's visual learning style. Another possibility might be that too many distractions are present in the immediate environment, making concentration on learning all but impossible. And yet another reason may be psychosocial, such as embarrassment about carrying out this procedure. The educator must attend to these teaching and learning factors for education to be successful.

A third step in overcoming the fear of being evaluated on the outcomes of education is to point out achievements, if they exist, or to continue to encourage effort if success at learning has not been achieved. For example, the nurse educator should praise the efforts of the learner honestly, focusing on the task at hand.

Communication of information about why an evaluation is being done is very important for those who are the subjects of an evaluation as much as for those who will conduct the evaluation. If learners or educators know and understand the focus of an evaluation, they may be less fearful than if such information is left to their imaginations.

Last, failure to provide and protect certain information about the learner may be unethical or even illegal. People must be reassured that their privacy will be protected; otherwise, they may be unwilling to be evaluated. For example, any evaluative data about an individual that can be identified with that specific person should be

collected only with the individual's informed consent. The ethical and legal importance of informed consent as a protection of human rights must be a central concern and responsibility of anyone involved in collecting data for evaluation purposes.

Conducting the Evaluation

How smoothly an evaluation is implemented depends primarily on how carefully and thoroughly that evaluation was planned and how carefully the instruments for data collection were selected or developed. However, these two factors alone do not always guarantee success. To minimize the effects of unexpected events that can occur when carrying out an evaluation, the following three methods are likely to add to a successful achievement of the process:

1. Conduct a pilot test first.
2. Include extra time to complete all the evaluation steps.
3. Keep a sense of humor throughout the experience.

Conducting a pilot test or trial run of the evaluation involves trying out the data collection methods, instruments, and plan for data analysis with a few individuals who are the same as or very similar to those who will be included in the full evaluation. If the nurse educator plans to use any newly developed instruments for the evaluation, a pilot test must be conducted to assess the reliability, validity, interpretability, and feasibility of those new instruments. Also, a pilot test should be carried out prior to implementing a full evaluation that is expected to be expensive or time consuming to conduct or on which major decisions will be based. Process evaluation generally is not pilot tested unless a new instrument will be used for data collection, but pilot testing should be considered prior to conducting outcome, impact, or program evaluations.

Fields et al. (2016) conducted a pilot study for 1 year to test feasibility and acceptability of a multidisciplinary team education program to help patients with gout to manage their disease. Education included a nurse-taught curriculum, monthly phone calls from pharmacists, and patient knowledge exams at baseline, 6 months, and 12 months. The curriculum was developed by a

rheumatologist and a social worker. Both patients and providers completed evaluations of the program. Among 45 patients who were enrolled in the study, 42 remained enrolled at 6 months and 40 at 12 months. After 1 year, 84.6% of patients rated the education as useful in understanding and managing their gout, 81% evaluated the education from nurses as helpful, and 50% evaluated the calls from pharmacists also as helpful.

Including extra time while conducting an evaluation means leaving room for unexpected delays. Almost invariably, more time is needed than anticipated for evaluation planning, data collection, analysis of evaluation results, and reporting the results that will be meaningful and useful to the primary audience.

Because delays not only will likely occur but also are likely to crop up at inconvenient times during the evaluation, keeping a sense of humor is vitally important. An evaluator with a sense of humor is more successful at maintaining a realistic perspective on the evaluation process as well as when reporting results that include negative findings. However, it is important to acknowledge that an audience with a vested interest in positive evaluation results may blame the evaluator if results are less impressive than expected.

Analyzing and Interpreting Data Collected

The purposes for conducting data analysis are twofold: (1) to organize data so that they can provide meaningful information and (2) to provide answers to evaluation questions. The terms *data* and *information* are not the same. Data, a collection of a mass of numbers or a mass of comments, do not become information until they have been organized into coherent tables, graphs, or categories that are relevant to the purpose for conducting the evaluation.

Basic decisions about how data will be analyzed are dictated by the nature of the data and by the questions used to focus the evaluation. As described earlier, data can be either quantitative or qualitative. Data also can be described as either continuous or discrete. Age and level of anxiety are examples of continuous data; gender and diagnosis are examples of discrete data. Finally, data can be differentiated by level of measurement. All qualitative data are at the nominal level of measurement, meaning they are described in terms of categories such as health focused versus illness focused. Quantitative data, in contrast, can be at the nominal, ordinal, interval, or ratio level of measurement. The level of measurement of the data determines which statistics can be used to analyze those data. A useful suggestion for deciding how data will be analyzed is to enlist the assistance of someone with experience in data analysis.

Analysis of data should be consistent with the type of data collected. In other words, all data analysis must be rigorous, but not all data analysis needs to include use of inferential statistics. For example, qualitative data, such as verbal comments obtained during interviews and written comments obtained from open-ended questionnaires, are summarized, or themed, into categories of similar comments. Each category or theme is qualitatively described by directly quoting one or more comments that are typical of that category. These

categories then may be quantitatively described using descriptive statistics, such as total counts and percentages.

As noted earlier in this chapter, different qualitative methods for analyzing data continue to emerge as they gain traction and are recognized as legitimate in a scientific environment once ruled by traditional experimental quantitative methods. The method used should be consistent with the purpose for the evaluation, that is, to provide information that the primary audience can use for decision making. Descriptive content analysis of qualitative data can be used to add meaning to numerical results from quantitative analysis. For example, an average score of 3.5 on a Likert scale of 1 = strongly disagree to 5 = strongly agree can be interpreted to mean that the majority of the students or patients responding to a survey positively viewed their educational program. Results of content analysis of comments provide narrative details that enrich the meaning of the quantitative results.

The first step in analyzing quantitative data consists of organizing and summarizing the data using statistics, such as frequencies and percentages that describe the sample or population from which the data were collected. A description of learners in a sample and from a larger population, for example, might include such information as presented in **Table 14-1**.

Table 14-1 Participants in a Breastfeeding Teaching Session Compared to All Women Eligible for the Teaching Session During the Same Time Frame

Demographic Characteristics	**Teaching Session Participants (*n* = 50)**	**All Eligible Women (*n* = 98)**
Group Averages		

Demographic Characteristics	Teaching Session Participants (*n* = 50)	All Eligible Women (*n* = 98)
	Group Averages	
Age	27.5 years	25.5 years
Length of time employed	3.5 years	7.5 years
Years of post-high school education	2.0 years	2.0 years

The next step in analyzing quantitative data is to select the statistical procedures appropriate for the type of data collected to answer the questions asked during the planning phase of the evaluation. Again, nurse educators are encouraged to enlist the assistance of an expert statistician to assist with data analysis and interpretation.

Reporting Evaluation Results

Results of an evaluation must be reported if the evaluation is to be of any use. Such a statement seems obvious, but many times an evaluation is carried out, yet its results are never made public. Often people participate in an evaluation but never receive feedback or see the final report. How many times have nurses conducted an evaluation without sharing their findings? Almost all health professionals, if they are honest, would have to answer that they have been guilty of this on more than one occasion.

Reasons for not reporting evaluation results are diverse and numerous. The following are four major reasons why evaluation data never make the trip from the spreadsheet to the customer:

1. Ignorance of who should receive the results
2. Belief that the results are not important or will not be used
3. Lack of ability to translate findings into language useful in producing a final report
4. Fear that results will be misused

The following guidelines can significantly increase the likelihood that results of the evaluation will be reported to the appropriate individuals or groups, in a timely manner, and in usable form:

- Focus on the audience.
- Stick to the evaluation purpose.
- Use data as intended.

Focus on the Audience

The purpose for conducting an evaluation is to provide information for decision making by the primary audience. The report of evaluation results, therefore, must be consistent with that purpose. One rule of thumb: Always begin an evaluation report with an

executive summary or an abstract that is no longer than one page. No matter who the audience members are, their time is important to them, and they want something succinct to read.

A second rule of thumb is to present evaluation results in a format and language that the audience can understand and use without additional interpretation. This statement means that in the body of the report, important information should be written using nontechnical terms. For example, graphs and charts generally are easier to understand than are tables of numbers. If a secondary audience of technical experts also will receive the report of evaluation results, it should include an appendix containing the more detailed or technically specific information.

A third rule of thumb is that the evaluator should make every effort to present results in person as well as in writing. A direct presentation, which should include specific recommendations for how the evaluation results might be used, provides an opportunity for the evaluator to answer questions and to assess whether the report meets the needs of the audience. Giving specific recommendations may increase the likelihood that the results of evaluation actually will be used.

Stick to the Evaluation Purpose

Evaluators should keep the main body of an evaluation report focused on information that fulfills the purpose for conducting the evaluation. The main aspects of how the evaluation was conducted and answers to questions asked also should be provided.

Use Data as Intended

Evaluators should maintain consistency with actual data when reporting and interpreting findings. A question not asked cannot be answered, and data not collected cannot be interpreted. For instance, if evaluators did not measure or observe a teacher’s

performance, they should not draw conclusions about the adequacy of that performance. Similarly, if the only measures of patient performance were those conducted in the hospital, the evaluators must not interpret successful inpatient performance as successful performance by the patient at home or at work.

These examples might make what seem like obvious points, but conceptual leaps from the data collected to the conclusions drawn from those data are an all-too-common occurrence. One suggestion that decreases the opportunity to overinterpret data is to include evaluation results and interpretation of those results in separate sections of the report.

A discussion of any limitations of the evaluation is an important part of the evaluation report. For example, if several patients were unable to complete a questionnaire because they could not understand it or because they were too fatigued, the report should say so. Knowing that evaluation results do not include data from patients below a certain educational level or physical status can help the audience realize that they cannot make decisions about those patients based on the evaluation. Discussion of limitations also provides useful information for what not to do the next time a similar evaluation is conducted.

State of the Evidence

A recent search of the Cumulative Index to Nursing and Allied Health Literature (CINAHL) database using the keywords “evaluation,” “patient education,” and “nursing” identified 6,550 articles. When conducted in 2016, this same search identified only 1,962 articles. When the time frame was changed to include only articles published prior to 1992 (the year when “evidence-based practice” first appeared in the literature), no relevant articles were found. Considering that this search was limited to only those articles published in one database and in English, the findings are impressive. Clearly, a body of evidence related to evaluation of patient education and the role of the nurse as educator exists and continues to grow.

As noted in the last edition of this text, a marked shift over the past decade has been the increase in the number of evaluations conducted as evaluation research. This shift has been global and has included all aspects of design and implementation as well as evaluation of patient and staff education. Every published example of evaluation included in this chapter was conducted with research-level rigor, including the one example conducted as a quality improvement project. The RE-AIM framework has become one of the most frequently used not only for research on implementation, but to structure studies for process, outcome, impact, and program evaluation as well.

Summary

Conducting evaluations in healthcare education involves gathering, summarizing, interpreting, and using data to determine the extent to which an educational activity is efficient, effective, and useful for those who participate in that activity as learners, teachers, or sponsors. Five types of evaluation were discussed in this chapter: (1) process, (2) content, (3) outcome, (4) impact, and (5) program evaluations. Each of these types focuses on a specific purpose, scope, and questions to be asked of an educational activity or program to meet the needs of those who request the evaluation or who can benefit from its results. Each type of evaluation also requires some level of available resources for the evaluation to be conducted.

The number and variety of evaluation models, designs, methods, and instruments are growing exponentially as the importance of evaluation becomes widely accepted in today's healthcare environment. Many guidelines, rules of thumb, suggestions, and examples were included in this chapter's discussion of how a nurse educator might go about selecting the most appropriate model, design, methods, and instruments for a certain type of evaluation.

The fact that the vast majority of published reports of patient and nursing staff teaching and learning are evaluation research does **not** mean that direct care nurses are required to conduct research every time they teach a patient or provide a continuing education program to colleagues. These published studies are available so nurse educators can provide evidence-based education. Put another way, this research literature is another step in bringing EBP to the point of care. Perhaps the most important point to remember is this: Each aspect of the evaluation process is important, but all these considerations are meaningless if the results of evaluation are not used to guide future action in planning and carrying out educational interventions.

Review Questions

1. How is the term *evaluation* defined?
2. How does the process of evaluation differ from the process of assessment?
3. How is evidence-based practice (EBP) related to evaluation?
4. How does internal evidence differ from external evidence?
5. What is the first and most important step in planning any evaluation?
6. What are the five basic components included in determining the focus of an evaluation?
7. How does formative evaluation differ from summative evaluation, and what is another name for each of these two types of evaluation?
8. What are the five basic types (levels) of evaluation, in order from simple to complex, as identified in Abruzzese's RSA evaluation model?
9. What is the purpose of each type (level) of evaluation as described by Abruzzese in her RSA evaluation model?
10. Which data collection methods can be used in conducting an evaluation of educational interventions?
11. What are the three major barriers to conducting an evaluation?
12. When and why should a pilot test be conducted prior to implementing a full evaluation?
13. What are three guidelines to follow in reporting the results of an evaluation?

CASE STUDY

After working for several years as a clinical nurse educator in a large children's hospital, Grace has returned to her hometown to join a family practice group that primarily serves families with young children who have low income. Eager to use her experience in a manner that would be of greatest benefit to both families and her new colleagues, Grace meets with the two physicians with whom

she will be working most closely to learn what they view as priority issues on which she should focus. Both agree that one of their primary concerns is teaching parents about the importance of a healthy lifestyle as a way to prevent obesity and decrease the risk of type 2 diabetes. One physician comments, “An increasing number of children are overweight by their third birthday and clinically obese by the time they start school. We have handouts on diet and exercise as well as booklets with healthy recipes that we have been giving parents when they bring their children in for well-child visits. Quite frankly, I do not have the time to do actual teaching.” The other physician agrees, adding, “When I do talk with mothers about the risks of diabetes, many will nod and promise to look at the materials, but I don’t know if they really pay much attention.”

Grace learns that the practice schedules group clinics for school physicals so a parent can bring all their school-aged children at the same time rather than having to worry about childcare or extra time away from work. She plans a group teaching session to take advantage of having several parents available at the same time. This will be the first time Grace has met most of the families.

1. Which type of evaluation should Grace conduct during group teaching sessions to make the sessions most helpful to parents? Why would this be helpful to Grace? How might this type of evaluation be helpful to parents?
2. Putting yourself into Grace’s place, describe in detail the type of evaluation that you would conduct with the physicians as a primary audience. What would you measure and how would you collect the data?
3. If evaluation is so crucial to healthcare education, what are some of the reasons why evaluation seems often an afterthought or is even overlooked entirely by the educator?

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Appendix A

Tests to Measure Readability, Comprehension, and Health Literacy and Tools to Assess Instructional Materials

How to Use the Flesch Reading Ease Formula

1. To test a whole piece of writing, take three to five 100-word samples of an article or 25 to 30 100-word samples of a book. For short pieces, test the entire selection. Do not pick good or typical samples but rather choose every third paragraph or every other page. In a 100-word sample, find the sentence that ends nearest to the 100-word mark; that may be, for example, at the 94th or the 109th word. Start each sample at the beginning of a paragraph, but do not use an introductory paragraph as part of the sample. Count contractions and hyphenated words as one word; count numbers and letters separated by space as words.
2. Figure the average sentence length (SL) by counting the number of words and dividing by the number of sentences. In counting sentences, follow units of thought marked off by periods, colons, semicolons, question marks, or exclamation points.
3. Determine word length (WL) by counting the number of syllables in each word in the sample as they are normally read aloud (i.e., two syllables for *$* [“dollars”] and four syllables for *1918* [“nineteen-eighteen”]. It helps to read silently aloud while counting. Divide the syllables by the number of words in the sample and multiply by 100.
4. Determine the average WL by multiplying it by 0.846 and the average SL by multiplying it by 1.015. Then apply the formula:

RE = 206.835 – 0.846 (WL) – 1.015 (SL)

where RE is the reading ease score, after WL and SL have been subtracted from 206.835 (Flesch, 1948; Spadero, 1983; Spadero et al., 1980).

The reading ease score ranges from zero (practically unreadable) to 100 (very easy for any literate person) with interpretations in between (**Table A-1**).

Table A-1 Reading Ease Scores

Ease Score	100 Words	Length	Difficulty Level	Grade Level
0–30	192 or more	29 or more	Very difficult	College grad
30–50	167	25	Difficult	College
50–60	155	21	Fairly difficult	10–12
60–70	147	17	Standard	8–9
70–80	139	14	Fairly easy	7
80–90	131	11	Easy	6
90–100	123 or less	8 or less	Very easy	5

Data from Flesch, R. (1948). A new readability yardstick. *Journal of Applied Psychology, 32*(3), 221–233. https://doi.org/10.1037/h0057532; Spadero, D. C. (1983). Assessing readability of patient information materials. *Pediatric Nursing, 9*(4), 274–278.

Description

How to Use the Fog Formula

1. Count 100 words in succession (W). If the selection is long, choose several samples of 100 words from the text and average the results.
2. Count the number of complete sentences (S). If the 100th word falls past the midpoint of a sentence, include this sentence in the count.
3. Divide the words (W) by the number of sentences (S).
4. Count the number of words having three or more syllables (A), but do not count verbs ending in *-ed* or *-es* that make a word have a third syllable; do not count capitalized words, and do not count combinations of simple words, such as *butterfly*.
5. Apply the formula:

   GL = (W/S 6 + A) × 0.4

In other words, to find the GL (grade level), divide the number of words (W) by the number of complete sentences (S) in the sample 100-word passage, add the number of words having three or more syllables (A), and multiply the result by a constant of 0.4 (Gunning, 1969; Spadero, 1983; Spadero et al., 1980).

How to Use the Fry Readability Graph

1. Select three 100-word sample passages from near the beginning, middle, and end of a book, article, pamphlet, or brochure. Skip all proper nouns as part of the 100-word count. Fewer than three samples and passages of less than 30 sentences can be used, but the user should be aware that there is necessarily a sacrifice in both reliability and validity.
2. Count the total number of sentences in each 100-word sample (estimating to the nearest 10th of a sentence for partial sentences).
3. Average the sentence counts of the three sample passages.
4. Count the total number of syllables in each 100-word sample. Count one syllable per vowel sound; for example, *cat* has one syllable, *blackbird* has two, and *continental* has four. Caution: Do not be fooled by word size (e.g., *polio* [three syllables], *through* [one syllable]). Endings such as *-y*, *-ed*, *-el*, or *-le* usually make a syllable (e.g., *ready* [two syllables], *bottle* [two syllables]). Graph users sometimes have trouble determining syllables. The clue is to believe what you hear (speech sounds), not what you see (e.g., *wanted* is a two-syllable word, but *stopped* is a one-syllable word). Count proper nouns, numerals, and initials or acronyms as words. A word is a symbol or group of symbols bounded by a blank space on either side. Thus, *1945*, &, and *IRS* are all words. Each symbol should receive a syllable count of one (i.e., the date *1945* is one word with five syllables, and the acronym *IRS* is one word with three syllables).
5. Average the total number of syllables for the three samples.
6. Plot on the graph the average sentence count and the average word count to determine the appropriate grade level of the material. **Table A-2** is an example.

Table A-2 Sample Syllable and Sentence Counts

	Number of Syllables	Number of Sentences
First 100 words	153	6.3

	Number of Syllables	Number of Sentences
Second 100 words	161	5.9
Third 100 words	139	5.2
Average count =	453 ÷ 3 = 151	17.4 ÷ 3 = 5.8

In the example, the average number of syllables is 151, and the average number of sentences is 5.8. When plotted on the graph (**Figure A-1**), the point falls within the approximate grade level of 9, which shows the materials to be at the ninth-grade readability level. If the point falls in the gray area when plotted, grade-level scores are invalid (Fry, 1968, 1977; Spadero et al., 1980).

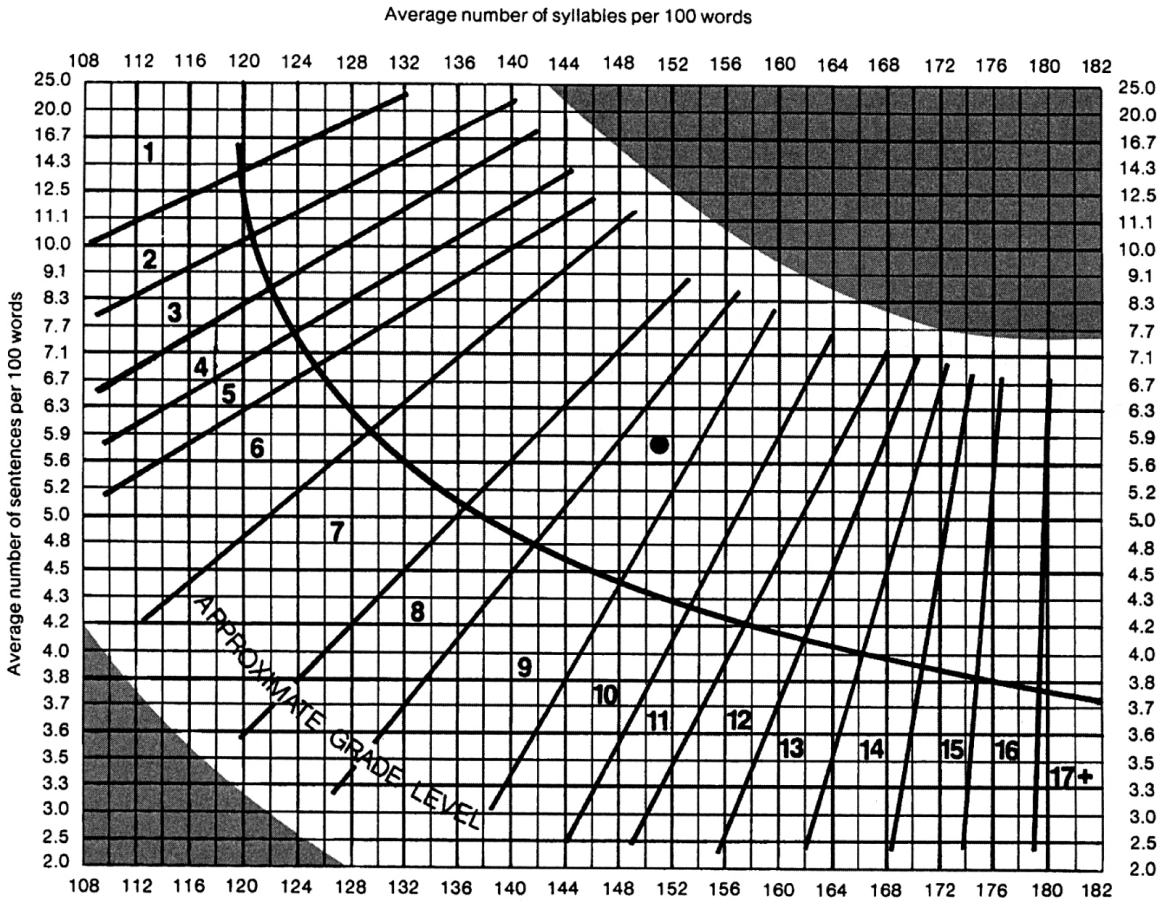


Figure A-1 Fry readability graph.

Courtesy of Edward Fry, Rutgers University Reading Center, New Brunswick, NJ.

Description

How to Use the SMOG Formula

Passages Longer Than 30 Sentences

1. Count 10 consecutive sentences near the beginning, 10 consecutive sentences from the middle, and 10 consecutive sentences from the end of the selection to be assessed. A sentence is any independent unit of thought punctuated by a period, question mark, or exclamation point. If a sentence has a colon or semicolon, consider each part as a separate sentence.
2. From the 30 randomly selected sentences, count the words containing three or more syllables (polysyllabic), including repetitions. Abbreviated words should be read aloud to determine their syllable count (e.g., *Sept.* = *September* = three syllables). Letters or numerals in a string beginning or ending with a space or punctuation mark should be counted if, when read aloud in context, at least three syllables can be distinguished. Do not count words ending in -*ed* or -*es* if the ending makes the word have a third syllable. Hyphenated words are counted as one word. Proper nouns should be counted.
3. Approximate the reading grade level from the SMOG conversion table (**Table A-3**), or calculate the reading grade level by estimating the nearest perfect square root of the number of words with three or more syllables and then adding a constant of 3 to the square root. For example, if the total number of polysyllabic words was 53, the nearest perfect square would be 49. The square root of 49 would be 7. By adding a constant of 3, the reading level would be 10th grade.

Table A-3 **S**MOG Conversion Table

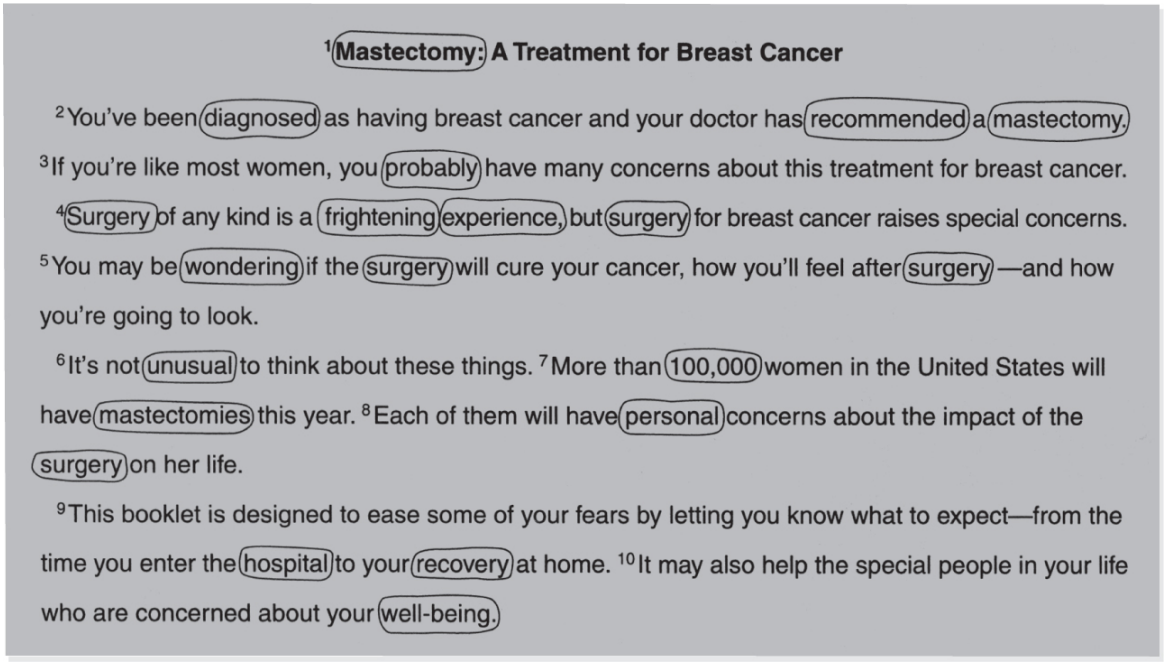
Word Count	Grade Level
0–2	4
3–6	5

7–12	6
13–20	7
21–30	8
31–42	9
43–56	10
57–72	11
73–90	12
91–110	13
111–132	14
157–182	16
183–210	17
211–240	18

Reproduced from Harold C. McGraw, Office of Educational Research, Baltimore County Public Schools, Towson, MD. In U.S. Department of Health and Human Services, National Institutes of Health, & National Cancer Institute. (2004). *Making health communication programs work: A*

planner's guide. http://www.cancer.gov/publications/health-communication/pink-book.pdf

Figure A-2 is an example of how to count all the words containing three or more syllables in a set of 10 sentences taken from one of the many pamphlets designed and distributed by the National Cancer Institute. In Figure A-2, there are 20 words with three or more syllables. Note that the word *United* is not counted as a three-syllable word because only the *-ed* ending makes it polysyllabic (see rule 2). For this passage of 10 sentences, the conversion number is 3 using the conversion table (**Table A-4**) for samples with fewer than 30 sentences. That is, 20 words × 3 (conversion number for 10 sentences) = 60, which falls at the 11th-grade level on Table A-3 as per the rules in the next section for passages shorter than 30 sentences.



[1]**Mastectomy: A Treatment for Breast Cancer**

[2]You've been diagnosed as having breast cancer and your doctor has recommended a mastectomy. [3]If you're like most women, you probably have many concerns about this treatment for breast cancer. [4]Surgery of any kind is a frightening experience, but surgery for breast cancer raises special concerns. [5]You may be wondering if the surgery will cure your cancer, how you'll feel after surgery—and how you're going to look.

[6]It's not unusual to think about these things. [7]More than 100,000 women in the United States will have mastectomies this year. [8]Each of them will have personal concerns about the impact of the surgery on her life.

[9]This booklet is designed to ease some of your fears by letting you know what to expect—from the time you enter the hospital to your recovery at home. [10]It may also help the special people in your life who are concerned about your well-being.

Figure A-2 Example of counting words with three or more syllables.

Reproduced from National Cancer Institute of the National Institutes of Health, Public Health Service, U.S. Department of Health and Human Services. (1987). *Mastectomy: A treatment for breast cancer* [Brochure] (p. 1). Author.

Description

Table A-4 SMOG Conversion for Samples with Fewer than 30 Sentences

Number of Sentences in Sample Material	Conversion Number
29	1.03
28	1.07
27	1.1
26	1.15
25	1.2
24	1.25
23	1.3
22	1.36
21	1.43
20	1.5
19	1.58
18	1.67

17	1.76
16	1.87
15	2.0
14	2.14
13	2.3
12	2.5
11	2.7
10	3

Developed by Harold C. McGraw, Office of Educational Research, Baltimore County Public Schools, Towson, MD. In U.S. Department of Health and Human Services, National Institutes of Health, & National Cancer Institute. (2004). *Making health communication programs work: A planner's guide.* http://www.cancer.gov/publications/health-communication/pink-book.pdf

Passages Shorter Than 30 Sentences

1. Count the number of sentences in the material and the number of words containing three or more syllables.
2. In the left-hand column of Table A-4, locate the number of sentences. Then in the column opposite, locate the conversion number.
3. Multiply the word count found in step 1 by the conversion number. Locate this number in Table A-3 to obtain the corresponding grade level.

Example: If the material is 25 sentences long and 15 words of three or more syllables were counted in this material, the conversion number in Table A-4 for 25 sentences is 1.2. Multiply the word count of 15 by 1.2 to get 18. For the word count of 18, the grade level in Table A-3 is 7. Therefore, the material is at a seventh-grade reading level.

The Cloze Test

How to Construct a Cloze Test

Instead of using packaged cloze tests available from commercial sources, it is suggested that educators devise their own tests so that the resultant scores will indicate a client's comprehension of their own instructions. Problem words or sentences within these printed education materials can be revised accordingly to make them more understandable.

1. Select a prose passage (one without reference to figures, tables, charts, or pictures) from printed educational materials currently in use, such as pamphlets, brochures, manuals, or instruction sheets. Be sure the material is typical of what is normally given to patients but has not been previously read by them. The chosen passage should include whole paragraphs so that readers benefit from complete units of thought.
2. Leave the first and last sentences intact, and delete every fifth word from the other sentences, for a total of about 50 word deletions. Do not delete proper nouns, but delete the word following the proper noun. Replace all deleted words with a line or blank space, all of equal length.
3. Ask the reader to fill in the blanks with the exact word replacements.

Preparing Participants for the Cloze Test

Because the cloze procedure is a test of learners' ability to understand what they have read, nurse educators should be honest about the purpose of the test. For example, they might state that it is important for clients to understand what they are to do when on their own after discharge, so the educator wants to be sure they understand the written instructions they will need to follow. Doak and colleagues (1996) suggest that the following guidelines should be used in preparing participants for the cloze test:

1. Encourage participants to read through the entire test passage before attempting to fill in the blanks.

2. Tell them that only one word should be written in each blank.
3. Let them know that it is okay to guess but that they should try to fill in every blank as accurately as possible.
4. Reassure them that spelling errors are okay if the word they have put in the blank can be recognized.
5. Explain to them that this exercise is not a timed test. (If readers struggle to complete the test, tell them not to worry, that it is not necessary for them to fill in all the blanks, and that they can set the test aside to go on to something else less frustrating or less threatening.)

How to Score a Cloze Test

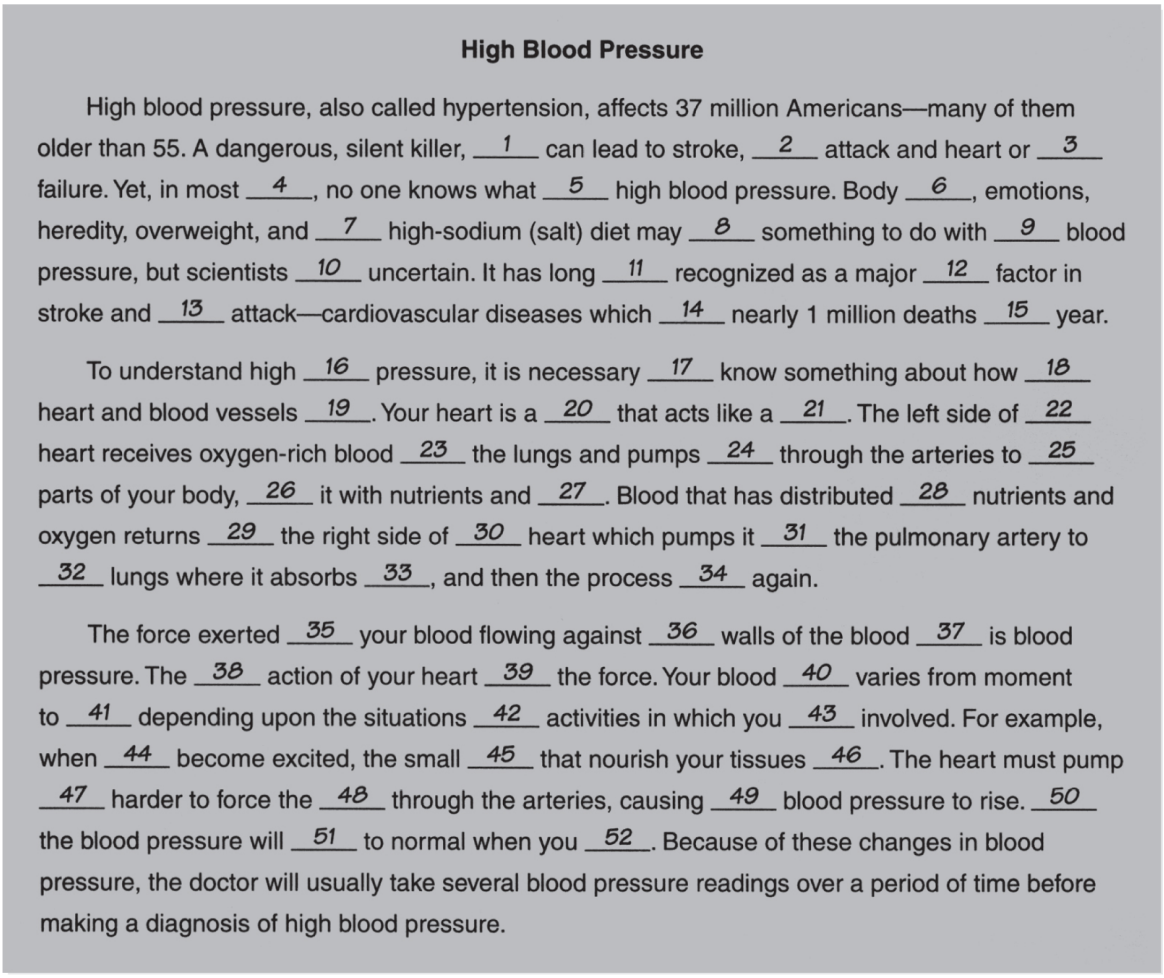
1. Count as correct only those words that exactly replace the deleted words (synonyms are not to be counted as a correct answer).
2. Inappropriate word endings such as *-s*, *-ed*, *-er*, and *-ing* should be counted as incorrect.
3. The raw score is the number of exact word replacements.
4. Divide the raw score by the total number of blank spaces to determine the percentage of correct responses. For example, if the passage has 50 blanks and the patient correctly filled in 25 blanks (10 were incorrect responses and 15 spaces were left blank), divide 25 by 50, and the percentage score would be 50%.
5. A score of 60% or higher indicates the patient is fully capable of understanding the material. A score of 40% to 60% indicates the patient needs supplemental instruction. A score less than 40% indicates that the material as written is too difficult for the patient to understand and is not suitable to be used for teaching (Doak et al., 1996).

The following are the words that were deleted from the sample cloze test in **Figure A-3**.

1. it
2. heart
3. kidney
4. cases
5. causes
6. chemistry
7. a

8. have
9. high
10. remain
11. been
12. risk
13. heart
14. cause
15. a
16. blood
17. to
18. the
19. work
20. muscle
21. pump
22. your
23. from
24. it
25. all
26. supplying
27. oxygen
28. its
29. to
30. your
31. through
32. the
33. oxygen
34. begins
35. by
36. the
37. vessels
38. pumping
39. creates
40. pressure
41. moment
42. or
43. are
44. you
45. arteries
46. constrict
47. even

48. blood
49. your
50. then
51. return
52. relax



High Blood Pressure

High blood pressure, also called hypertension, affects 37 million Americans—many of them older than 55. A dangerous, silent killer, __1__ can lead to stroke, __2__ attack and heart or __3__ failure. Yet, in most __4__, no one knows what __5__ high blood pressure. Body __6__, emotions, heredity, overweight, and __7__ high-sodium (salt) diet may __8__ something to do with __9__ blood pressure, but scientists __10__ uncertain. It has long __11__ recognized as a major __12__ factor in stroke and __13__ attack—cardiovascular diseases which __14__ nearly 1 million deaths __15__ year.

To understand high __16__ pressure, it is necessary __17__ know something about how __18__ heart and blood vessels __19__. Your heart is a __20__ that acts like a __21__. The left side of __22__ heart receives oxygen-rich blood __23__ the lungs and pumps __24__ through the arteries to __25__ parts of your body, __26__ it with nutrients and __27__. Blood that has distributed __28__ nutrients and oxygen returns __29__ the right side of __30__ heart which pumps it __31__ the pulmonary artery to __32__ lungs where it absorbs __33__, and then the process __34__ again.

The force exerted __35__ your blood flowing against __36__ walls of the blood __37__ is blood pressure. The __38__ action of your heart __39__ the force. Your blood __40__ varies from moment to __41__ depending upon the situations __42__ activities in which you __43__ involved. For example, when __44__ become excited, the small __45__ that nourish your tissues __46__. The heart must pump __47__ harder to force the __48__ through the arteries, causing __49__ blood pressure to rise. __50__ the blood pressure will __51__ to normal when you __52__. Because of these changes in blood pressure, the doctor will usually take several blood pressure readings over a period of time before making a diagnosis of high blood pressure.

Figure A-3 Sample cloze test.

Data from the American Heart Association. (1983). *An older person's guide to cardiovascular health*. Author.

Description

Note: The words are listed in missing order. Hyphenated words are counted as one word; words in parentheses are counted as a word.

Newest Vital Sign

How to Use the Newest Vital Sign

1. **When to administer the Newest Vital Sign and who should administer it.**

   A nurse (or other trained clinic staff) is the preferred administrator of the Newest Vital Sign.

   Administer this test when the patient's other vital signs are being taken.

2. **Ask the patient to participate.**

   The following example is a useful way to explain to the patient the purpose of this exercise:

   We are asking our patients to help us learn how well patients can understand the medical information that doctors give them. Would you be willing to help us by looking at some health information and then answering a few questions about that information? Your answers will help our doctors learn how to provide medical information in ways that patients will understand. It will take only about 3 minutes.

3. **Hand the nutrition label to the patient.**

   The patient can and should retain the nutrition label throughout administration of the Newest Vital Sign. The patient can refer to the label as often as desired.

4. **Start asking the six questions, one by one, giving the patient as much time as needed to refer to the nutrition label to answer the questions.**

There is no maximum time allowed to answer the questions. The average time needed to complete all six questions is about 3 minutes. However, if a patient is still struggling with the first or second question after 2 or 3 minutes, the likelihood is that the patient has limited literacy and you can stop the assessment.

Ask the questions in sequence. Continue even if the patient gets the first few questions wrong. However, if question 5 is answered incorrectly, do not ask question 6.

You can stop asking questions if a patient gets the first four correct. With four correct responses, the patient almost certainly has adequate literacy.

Do not prompt patients who are unable to answer a question. Prompting may jeopardize the accuracy of the test. Just say, “Well, then, let’s go on to the next question.”

Do not show the score sheet to patients. If they ask to see it, tell them that “I can’t show it to you because it contains the answers, and showing you the answers spoils the whole point of asking you the questions.”

Do not tell patients if they have answered correctly or incorrectly. If patients ask, say something like: “I can’t show you the answers until you are finished, but for now you are doing fine. Now let’s go on to the next question.”

5. **Score by giving 1 point for each correct answer (maximum 6 points).**

   Score of 0–1 suggests high likelihood (50% or more) of limited literacy.

   Score of 2–3 indicates the possibility of limited literacy.

   Score of 4–6 almost always indicates adequate literacy.

Record the NVS score in the patient's medical record, preferably near other vital sign measures.

Guidelines for Writing and Evaluating Printed Education Materials

To reduce reading level and increase reading ease, do the following:

1. Write in conversational style with an active voice in the present tense using the second-person pronoun *you* or *your*.
2. Use short, simple vocabulary of one- or two-syllable words; avoid multisyllabic words.
3. Spell out words rather than using abbreviations or acronyms, unless they are familiar to the reader or defined.
4. Organize information into chunks or a series of numbered and bulleted lists; use statistics sparingly. A question-and-answer format is an interactive approach to presenting single units of information.
5. Keep sentences short (20 words maximum); avoid complex grammatical sentence structures that contain colons, semicolons, commas, and dashes.
6. Focus on familiar terms; avoid technical jargon and medical terminology; define or spell out difficult words phonetically; include a glossary if medicalese is necessary.
7. Use words consistently (repetition) throughout text; avoid synonyms.
8. Use exact terms; avoid value-judgment words with many interpretations.
9. Put the most important information first by prioritizing the need to know.
10. Use advance organizers to cue the reader about the topic being presented.
11. Limit the use of connective words that lengthen and make sentences more complex.
12. Make the first sentence of a paragraph the topic sentence.
13. Reduce concept density by including only one idea per sentence and limiting each paragraph to a single message or action.

14. Keep the density of words low (do not exceed 30–40 characters per line).
15. Provide adequate white space for margins and between lines and paragraphs (use double spacing).
16. Justify left margins and keep right margins unjustified.
17. Use arrows or numbers that give direction and organization to layouts.
18. Select large print (minimum of 12- to 14-point font) and simple style type (serif); avoid *italics*, all CAPITAL LETTERS, and fancy lettering.
19. Rely on bold print or underlining to emphasize key points or words.
20. Attract attention with consistent use of appealing colors to highlight and organize topics.
21. Use a simple, short title that clearly indicates the subject being presented.
22. Keep the length of the document short; avoid including details and extraneous information.
23. Avoid glossy paper to reduce glare; rely on bold primary colors (not pastels) and black print on white paper for an older audience.
24. Use simple, realistic illustrations that convey the intended message; use few or no cartoons that can trivialize the message and make it less credible; never superimpose typed words on a background design.
25. Include a summary at the end to review key points of information.
26. Put the grade reading level (RL) on the back of the tool for future reference.
27. Determine readability, comprehension, and reading skills by applying at least two formulas or tests.

Exhibit A-1 e-Health Literacy Scale (eHEALS Tool)

I would like to ask you for your opinion and about your experience using the internet for health information. For each statement, tell me which response best reflects your opinion and experience *right now*.

1. How **useful** do you feel the internet is in helping you in making decisions about your health?
    1. Not useful at all
    2. Not useful
    3. Unsure
    4. Useful
    5. Very useful
2. How **important** is it for you to be able to access health resources on the internet?
    1. Not important at all
    2. Not important
    3. Unsure
    4. Important
    5. Very important
3. I know **what** health resources are available on the internet.
    1. Strongly disagree
    2. Disagree
    3. Undecided
    4. Agree
    5. Strongly agree
4. I know **where** to find helpful health resources on the internet.
    1. Strongly disagree
    2. Disagree
    3. Undecided
    4. Agree
    5. Strongly agree
5. I know **how** to find helpful health resources on the internet.
    1. Strongly disagree
    2. Disagree
    3. Undecided
    4. Agree
    5. Strongly agree
6. I know **how to use** the internet to answer my questions about health.
    1. Strongly disagree
    2. Disagree
    3. Undecided

    4. Agree
    5. Strongly agree
7. I know how to use the **health information** I find on the internet to help me.
    1. Strongly disagree
    2. Disagree
    3. Undecided
    4. Agree
    5. Strongly agree
8. I have the skills I need to **evaluate** the health resources I find on the internet.
    1. Strongly disagree
    2. Disagree
    3. Undecided
    4. Agree
    5. Strongly agree
9. I can tell **high-quality** health resources from **low-quality** health resources on the internet.
    1. Strongly disagree
    2. Disagree
    3. Undecided
    4. Agree
    5. Strongly agree
10. I feel **confident** in using information from the internet to make health decisions.
    1. Strongly disagree
    2. Disagree
    3. Undecided
    4. Agree
    5. Strongly agree

Thank you!

**Note: Questions #1 and #2 are recommended as supplementary items for use with the eHEALS to understand consumers' interest in using eHealth in general. These items are not a formal part of the eHealth Literacy scale, which comprises questions #3–#10.*

Modified from Norman, C. D., & Skinner, H. A. (2006). eHEALS: The eHealth Literacy Scale. *Journal of Medical Internet Research*, *8*(4), e27. https://doi.org/10.2196/jmir.8.4.e27

Exhibit A-2 SAM Scoring Sheet

2 points for superior rating

1 point for adequate rating

0 points for not suitable rating

N/A if the factor does not apply to this material

Factor to Be Rated	Score	Comments
1. Content		
(a) Purpose is evident	_____	_____
(b) Content about behaviors	_____	_____
(c) Scope is limited	_____	_____
(d) Summary or review included	_____	_____

2. Literacy Demand

(a) Reading grade level _____ _____

(b) Writing style, active voice _____ _____

(c) Vocabulary uses common words _____ _____

(d) Context is given first _____ _____

(e) Learning aids via “road signs” _____ _____

3. Graphics

(a) Cover graphic shows purpose _____ _____

(b) Type of graphics _____ _____

(c) Relevance of illustrations _____ _____

(d) Lists, tables, etc. explained _____ _____

(e) Captions used for graphics _____ _____

4. Layout and Typography

(a) Layout factors _____ _____

(b) Typography _____ _____

(c) Subheads (chunking) used _____ _____

5. Learning Stimulation, Motivation

(a) Interaction used _____ _____

(b) Behaviors are modeled and specific _____ _____

(c) Motivation—self-efficacy _____ _____

6. Cultural Appropriateness

(a) Match in logic, language, experience _____ _____

(b) Cultural image and examples _____ _____

Total SAM score: _____

Total possible score: _____, Percent score: _____%

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Spadero, D. C., Robinson, L. A., & Smith, L. T. (1980). Assessing readability of patient information materials. *American Journal of Hospital Pharmacy*, *37*, 215–221. https://doi.org/10.1093/ajhp/37.2.215

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Appendix B

Resources and Organizations for People With Disabilities

Assistive Technology

AbleData

103 W. Broad Street, Suite 400

Falls Church, VA 22046

800-227-0216

Email: abledata@neweditions.net

https://www.caregiver.org

Assistive Technology Industry Association

330 N. Wabash Avenue, Suite 2000

Chicago, IL 60611-4267

877-687-2842

Email: info@ATIA.org

http://atia.org

Augmentations and Alternative Communication

American Speech–Language–Hearing Association (ASHA)

2200 Research Blvd

Rockville, MD 20850

Members: 800-498-2071

Nonmembers: 800-638-8255

http://www.asha.org

International Society for Augmentative and Alternative Communication (ISAAC)

312 Dolomite Drive, Suite 216

Toronto, ON M3J 2N2

Canada

+1-905-850-6848

http://www.isaac-online.org

Blindness

American Diabetes Association

2451 Crystal Drive, Suite 900

Arlington, VA 22202

800-342-2383

http://www.diabetes.org

American Foundation for the Blind

2 Penn Plaza, Suite 1102

New York, NY 10121

800-232-5463

http://www.afb.org

Library of Congress

101 Independence Avenue, SE

Washington, DC 20540

202-707-5000

http://www.loc.gov

Administers a free program of Braille and audio materials.

National Braille Press

88 St. Stephen Street

Boston, MA 02115

617-266-6160

888-965-8965

Email: orders@nbp.org

http://www.nbp.org

National Library Service for the Blind and Print Disabled

1291 Taylor Street NW

Washington, DC 20542

202-707-5100

888-657-7323

Email: nls@loc.gov

http://www.loc.gov/nls/

Deafness

Gallaudet University

800 Florida Avenue, NE

Washington, DC 20002-3695

202-651-5000

http://www.gallaudet.edu

Helen Keller National Center for Deaf-Blind Youths & Adults (HKNC)

180 Livingston St

Brooklyn, NY 11201

718-522-2122

Email: info@helenkeller.org

http://www.helenkeller.org

National Institute on Deafness and Other Communication Disorders

31 Center Drive, MSC 2320

Bethesda, MD 20892-2320

301-496-4000

800-241-1044

Email: nidcdinfo@nidcd.nih.gov

http://www.nidcd.nih.gov

Registry of Interpreters for the Deaf, Inc.

333 Commerce Street

Alexandria, VA 22314

703-838-0030

http://www.rid.org

Provides information on interpreting and interpreters; referral to local agencies and state chapters of the Registry of Interpreters for the Deaf for assistance in locating interpreters.

Developmental Disabilities

Eunice Kennedy Shriver National Institute of Child Health and Human Development

PO Box 3006

Rockville, MD 20847

800-370-2943

TTY: 888-320-6942

Email: NICHDInformationResourceCenter@mail.nih.gov

http://www.nichd.nih.gov

Disability Advocacy

Americans with Disabilities Act (ADA)

U.S. Department of Justice

950 Pennsylvania Avenue, NW

Civil Rights Division

Disability Rights Section–NYA

Washington, DC 20530

800-514-0301 (voice)

800-514-0383 (TTY)

http://www.ada.gov

Interagency Autism Coordinating Committee

U.S. Department of Health and Human Services

Member agencies:

- Administration for Community Living
- Agency for Healthcare Resources and Quality (AHRQ)
- Centers for Medicare and Medicaid Services (CMS)
- Centers for Disease Control and Prevention (CDC)
- Food and Drug Administration (FDA)
- Health Resources and Services Administration
- National Institutes of Health (NIH)

Member roster: https://iacc.hhs.gov/about-iacc/members/roster/

Resource page: https://iacc.hhs.gov/resources/private-organizations/

200 Independence Avenue, SW

Washington, DC 20201

1-877-696-6775

https://www.usa.gov/federal-agencies/u-s-department-of-health-and-human-services

National Council on Disability

1331 F Street NW Suite 850

Washington, DC 20004

202-272-2004 (voice)

206-272-2074 (TTY)

http://www.ncd.gov

Head Injury

Brain Injury Association of America

3057 Nutley Street #805

Fairfax VA 22031-1931

703-761-0750

http://www.biausa.org

Healthcare-Related Federal Agencies

Centers for Disease Control and Prevention (CDC)

1600 Clifton Road

Atlanta, GA 30333

404-639-3311

800-232-4636

800-232-6348 (TTY)

http://www.cdc.gov

National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR)

Administration for Community Living

U.S. Department of Health and Human Services

330 C Street SW, Room 1304

Washington, DC 20201

202-795-7398

https://acl.gov/about-national-institute-disbility-independent-living-and-rehabilitation-research

Learning Disabilities

A.D.D. Warehouse

3150 Willow Lane

Weston, FL 33331

954-412-1332

Fax: 954-206-6955

http://www.addwarehouse.com

Attention Deficit Disorder Association

PO Box 103

Denver, PA, 17517

800-939-1019

http://www.add.org

Learning Disabilities Association of America

461 Cochran Road, Suite 245

Pittsburgh, PA 15228

412-341-1515

http://ldaamerica.org

Neuromuscular Disorders

ALS Association National Office

1275 K Street NW, Suite 250

Washington, DC 20005

800-782-4747

202-407-8580

http://www.alsa.org

Epilepsy Foundation

8301 Professional Place East, Suite 200

Landover, MD 20785-2353

301-459-3700

800-332-1000

http://www.epilepsyfoundation.org

Muscular Dystrophy Association—USA

National Headquarters

161 N. Clark, Suite 3550

Chicago, IL 60601

800-572-1717

Email: mda@mdausa.org

http://www.mda.org

Myasthenia Gravis Foundation of America

290 Turnpike Road, Suite 5-315

Westborough, MA 01581

800-541-5454

Email: mgfa@myasthenia.org

http://www.myasthenia.org

National Multiple Sclerosis Association

800-344-4867

http://nationalmssociety.org

Parkinson's Disease Foundation, Inc.

1359 Broadway, Suite 1509

New York, NY 10018

800-457-6676

212-923-4700

800-4PD-INFO

Email: info@pdf.org

http://www.pdf.org

Stroke

National Aphasia Association

PO Box 87

Scarsdale, NY 10583

800-922-4622

Email: naa@aphasia.org

http://www.aphasia.org

National Institute of Neurological Disorders and Stroke (NINDS)

PO Box 5801

Bethesda, MD 20824

301-496-5751

800-352-9424

http://www.ninds.nih.gov

National Stroke Association

9707 E. Easter Lane, Suite B

Centennial, CO 80112-3747

800-STROKES (787-6537)

303-649-9299

Email: info@stroke.org

http://www.stroke.org

Glossary

A

acculturation An individual's adaptation to the customs, values, beliefs, and behaviors of a new country or culture.

adherence Commitment or attachment to health-promoting regimens.

affective domain One of three domains in the taxonomy of behavioral objectives; deals with attitudes, values, and beliefs.

ageism Prejudice against the older adult that perpetuates the negative stereotyping of aging as a period of decline.

aids See *instructional materials (tools)*.

analogue A type of model that uses analogy to compare an object to something else. The model performs like the real object, although its actual appearance may differ. For example, a dialysis machine and the description of a pump explain how the kidneys and heart work, respectively.

andragogy The art and science of helping adults learn; a term coined by Knowles to describe his theory of adult learning.

androgynous The representation of both male and female characteristics in an individual; may be used to describe a person's physical appearance, their state of being gender non conforming, and/or an intersex individual (a person born with the physical and/or genetic characteristics of both male and female).

anomic aphasia The difficulty finding the right noun or verb to convey thoughts. Individuals affected with this disorder retain an understanding of what is being said to them, and they are able to

speak in full sentences. Circumlocution, or speaking in a round-about way, is an attempt to fill in the gaps of speech by talking around an issue or taking a new approach to describe the word that cannot be remembered.

Asperger syndrome A pervasive developmental disability at the high end of the autism spectrum that is characterized by impaired communication, impaired social interaction, and repetitive or restrictive patterns of thought and behavior.

assessment The process of systematically collecting data to determine the relative magnitude, importance, or value of needs, problems, and strengths of the learner to decide a direction for action.

assimilation The willingness of a person emigrating to a new culture to gradually adopt and incorporate the characteristics of the prevailing culture.

assistive technologies Technological tools (computers and communication devices) available for people with disabilities that provide access to education, employment, recreation, and communication opportunities that allow them to live as independently as possible.

asynchronous A message that can be sent via the computer at the convenience of the sender, with the message then being read when the receiver is online and ready to read it; messages that can be sent and responded to any time, day or night.

attention-deficit/hyperactivity disorder (ADHD) A disorder of children and adults with prominent attentional difficulties as demonstrated by inattention and impulsivity that are signs of developmentally inappropriate behavior.

attribution theory Describes the cause-and-effect relationships and explanations that individuals formulate to account for their own and others' behavior and the way in which the world operates.

audio learning resources Instructional tools whose chief characteristic is exploitation of the learners' sense of hearing as a mechanism for teaching. Audiotapes and recorders are examples.

audiovisual materials (tools) Nonprint instructional media that can influence all three domains of learning and stimulate the senses of hearing and/or sight to help convey the message to the learner. This category includes five major types: projected, audio, video, telecommunications, and computer formats.

augmentative and alternative communication (AAC) Devices, such as computers, that allow people who are unable to speak or whose speech is difficult to understand to be able to communicate with others, which has added a whole new dimension and quality to their lives.

augmented feedback An opinion or conveyance of a message through oral or body language by the teacher to the learner about how well they performed a psychomotor skill.

autonomy The right of self-determination.

avoidance conditioning A type of negative reinforcement whereby an unpleasant stimulus is anticipated rather than directly applied and the person receiving the reinforcement avoids doing something they do not want to do when faced with a fearful event.

B

barriers to teaching Those factors that impede the nurse's ability to deliver educational services.

behavioral (learning) objectives Intended outcomes of the education process that are action oriented rather than content oriented and learner centered rather than teacher centered.

behaviorist learning One of the five major learning theories. According to behaviorists, the focus for learning is mainly on what is

directly observable, and learning is viewed as the product of the stimulus conditions (S) and the responses (R) that follow. It is sometimes termed the S-R model of learning.

beneficence The principle of doing good.

blended learning *See hybrid (blended) learning*

blogs One of the newest forms of online communication, also known as web logs or web diaries; an increasingly popular mechanism for individuals to share information and/or experiences about a given topic that include images, media objects, and links allowing for public responses.

C

case-based learning A method of teaching that actively engages learners to focus on real or invented case scenarios simulating life or world situations to understand and solve complex problems, dilemmas, or issues; leads to the development of analytical and problem-solving skills.

causality The ability to grasp a cause-and-effect relationship between two paired, successive events, which is an elementary concept that begins to develop during toddlerhood.

change theory and model Includes Lewin's theory and Prochaska's and DiClemente's Stages of Change model that assert that an initial behavioral change must be followed up with continuing reinforcement in order to affect behavior change long term.

characteristics of the learner One of the three major variables that refers to the learner's perceptual abilities, reading ability, self-direction, and learning style, which must be considered when making appropriate choices of instructional materials.

characteristics of the medium One of the three major variables that refers to the form through which information will be

communicated, which must be considered when making appropriate choices of instructional materials.

characteristics of the task One of the three major variables defined by the behavioral objectives in the cognitive, affective, and psychomotor domains of learning, which must be considered when making appropriate choices of instructional materials.

chronic illness A disease or disability that is permanent and can never be completely cured. It constitutes the number one medical malady of people in this country and affects the physical, psychosocial, economic, and spiritual aspects of an individual's life.

cisgender Denoting or relating to a person whose sense of personal identity with respect to gender corresponds with their birth sex.

cloze test A standardized test to measure comprehension of written materials (particularly recommended for health education literature) based on systematically deleting every fifth word from a portion of a text and having the reader fill in the blanks.

code of ethics An articulation of professional values and moral obligations with regard to the nurse–patient relationship and in support of the mission of the nursing profession.

cognitive development A subtheory of cognitive learning theory, it is a perspective that focuses on the qualitative changes in perceiving, thinking, and reasoning as individuals grow and mature based on how external events are conceptualized, organized, and represented within each person's mental framework or schema. The process of acquiring more complex and adaptive ways of thinking as an individual grows from infancy to adulthood according to Piaget's four stages of cognitive maturation: sensorimotor, pre-operational, concrete operations, and formal operations.

cognitive domain One of three domains in the taxonomy of behavioral objectives; deals with aspects of behavior focusing on the

way in which someone thinks in acquiring facts, concepts, principles, and other abstract ideas.

cognitive-emotional perspective A cognitive theory recognizing that emotions must be considered within a cognitive framework to adequately consider someone's affect as an aspect of conceptual change.

cognitive learning One of the four major learning theories. According to a cognitive theorist's perspective, individuals change as a result of the way they perceive, process, interpret, and organize information based on what is already known; the reorganization of information leads to new insights and understanding.

cognitive load Refers to the total amount of mental effort being used in working memory. Failure to pace the amount of information provided can overwhelm the learner.

cognitive map See *cognitive plan*.

cognitive plan An overall understanding of a skill to be learned.

collaborative learning An unstructured learning strategy that requires students to self-manage their activities as they work toward a shared learning goal.

comprehension The degree to which individuals understand what they have read or heard; the ability to grasp the meaning of a verbal or nonverbal message.

computer-assisted instruction (CAI) An individualized instructional method of self-study using the technology of the computer to deliver an educational activity. The interactive capability of CAI holds enormous potential for reinforcing learning, primarily in the cognitive domain, and its efficacy is dependent on programmatic software, hardware, and the learner's familiarity with and motivation to use this technology.

computer literacy The ability to use the necessary computer hardware and software to meet the needs for information.

concept mapping A contemporary nursing educational strategy that can be used to promote motivation by enabling the learner to integrate previous learning with newly acquired knowledge through diagrammatic mapping, which facilitates the acquisition of complex knowledge with visual links.

concordance A consultative process that is characterized by mutual respect for the client's and the professional's beliefs and that allows for negotiation to take place about the best course of action for the client.

confidentiality A binding social contract or covenant; a professional obligation to respect privileged information between the health professional and the client.

constructivism *See social constructivism*

consumer informatics A discipline that analyzes consumers' needs for information, studies and implements methods of making information accessible to consumers, and models and integrates consumer preferences into medical information systems. Also referred to as consumer health informatics.

content evaluation A systematic assessment taking place immediately after the learning experience to determine the degree to which learners have acquired the knowledge or skills taught during a teaching–learning session.

contextual interference effects Factors that make the initial performance of a motor task more difficult but in actuality make learning more effective.

cooperative learning A highly structured form of group work that focuses on problem solving that leads to deep learning and critical

thinking; a methodology of choice for transmitting foundational knowledge.

cost benefit Money well spent. Cost of services (e.g., education) ensures return of satisfied clients and stability of the economic base of a healthcare facility.

cost–benefit analysis The relationship between cost and outcomes that can be expressed in monetary terms.

cost–benefit ratio Relationship (expressed as a ratio) of program costs to economic benefits gained by the healthcare institution.

cost-effectiveness analysis The efficiency of an educational offering when an actual monetary value cannot be assigned to a program.

cost recovery Monies realized when revenues generated are equal to or greater than expenditures.

cost savings Monies realized through decreased use of expensive services, shortened lengths of stay, or fewer complications resulting from preventive services or patient education.

crystallized intelligence The intellectual ability developed over a lifetime, which includes such elements as vocabulary, general information, understanding of social interactions, arithmetic reasoning, and capacity to evaluate experiences, all of which tend to increase over time as a person ages.

cuing Using prompts and reminders to get a learner to perform routine tasks by focusing on an appropriate combination of time and situation.

cultural assessment An organized, systematic appraisal of beliefs, values, and practices of an individual or group to determine client needs as a basis for planning nursing care interventions.

cultural awareness The process of becoming sensitive to diversity within other cultural groups by examining one's biases and prejudices toward others of another culture or ethnic background.

cultural competence The ability to demonstrate knowledge and understanding of another person's culture and accept and respect cultural differences by adapting interventions to be congruent with that specific culture when delivering care.

cultural distress An emerging paradigm that describes patient reactions to care when nurses do not attend to a person's cultural needs.

cultural diversity Interacting with others who represent different cultures from one's own culture.

cultural literacy The ability of knowing how to communicate with someone from another culture without having to explain undertones, voice intonations, and message contexts during a conversation.

cultural relativism The values and behaviors every human group assigns to its conventions, which arise out of its own historical background and can be accurately interpreted and understood only in the light of that group's cultural worldview.

cultural sensitivity The ability to understand one's own personal attitudes and adjusting one's approach to someone from a different cultural or ethnic background in order to avoid giving offense or creating misunderstandings.

culturally competent model of care A model for conducting a thorough and sensitive cultural assessment that includes the four components of cultural awareness, cultural knowledge, cultural skill, and cultural encounter.

culture A complex concept that is an integral part of each person's life; it includes knowledge, beliefs, values, morals, customs, traditions, and habits acquired by the members of a society.

cybersecurity The effectiveness of the technologies, processes, and practices designed to protect computer systems from unauthorized use or harm.

cycle of poverty See *poverty cycle*.

D

debate An active, collaborative teaching and learning strategy that requires students to work as individuals and as a team to research critical and controversial issues or trends and then present “pro” and “con” arguments in support of various points of view.

debriefing *A*n essential component of simulation-based education (SBE) and simulation-based learning (SBL), it is a discussion session that provides feedback to learners after a simulation event has occurred. Debriefing allows time for them to review and reflect on their performance as it relates to expected outcomes.

decision aids Includes printed materials, videos, and interactive web-based tutorials that provide clients with information about specific health issues, particular diagnoses, treatment risks and benefits, and questionnaires to determine whether they need more information for decision making.

defense mechanisms Mechanisms that are employed to protect the self when an individual’s ego is threatened; short-term use is a way of coming to grips with reality, but long-term reliance allows individuals to avoid reality and may act as a barrier to learning and transfer.

deliberative discussion A means of engaging people and communities in a shared dialogue to talk through options and weigh costs and consequences of a variety of possible solutions to a public problem; potential to be used in classrooms on issues relevant to professional practice.

delivery system The physical form of instructional materials, including durable equipment used to present these materials, such as film and projectors, audiotapes and tape players, and computer programs and computers.

demonstration An instructional method by which the learner is shown by the teacher how to perform a particular psychomotor skill.

demonstration materials Tools that stimulate the senses by combining sight with touch, smell, and sometimes even taste with the advantage of helping to teach cognitive and psychomotor skill development. Major forms of media in this category include many types of nonprint media, such as models, real equipment, diagrams, charts, posters, displays, photographs, and drawings.

deontological The ethical notion of the Golden Rule promulgated by the 16th-century philosopher Kant who proposed that individual rights prevail and one person should never be treated merely for the benefit of another person or group.

determinants of learning Factors related to learning needs, readiness to learn, and learning styles.

developmental disability A disorder that manifests itself during the developmental period when a child demonstrates subaverage general intellectual functioning with concurrent deficits in adaptive behaviors. Sometimes referred to as mental retardation or developmental delay.

developmental stages Milestones marking changes in the physical, cognitive, and psychosocial growth of an individual over time from infancy to old age.

digital divide The gap between those individuals who can access and use information technology resources and those who cannot or do not.

digital health divide The gap between those who have access to online health information and those who do not.

digital literacy Familiarity with digital tools needed for e-learning or remote communication.

digital natives Referring to the children and young adults of today who have had lifetime exposure to digital technology that has shaped their way of thinking and processing information.

direct costs Tangible, predictable costs associated with expenditures for personnel, equipment, and other resources.

disability Inability to perform some key life functions; often used interchangeably with the term *functional limitation*.

discovery learning A teaching method that presents learners with challenging, yet achievable problems and encourages them to discover their own solutions.

discrimination learning The ability to differentiate, with more and varied practice, among similar stimuli.

displays Type of demonstration materials, frequently regarded as static, which may be permanently installed or portable. Included in this category are whiteboards, flip charts, and posters.

distance education A flexible telecommunications method of instruction using video or computer technology to transmit live, online, or taped messages directly between the instructor and the learner, who are separated from one another by time and/or location.

distance learning Techniques as varied as online courses, correspondence courses, independent study courses, and videoconferencing to deliver educational programs to students studying at a distance.

distributed practice Learning information over successive periods of time, which is much more effective for remembering facts and forging memories than massed practice or cramming, which does not allow for long-term recall of information.

domains of learning Cognitive, psychomotor, and affective are the three domains in which learning occurs.

dual coding The idea that two separate pathways exist, one verbal and one visual, for encoding information into memory.

Dunn and Dunn learning style inventory A self-reporting instrument that is used in the identification of how individuals prefer to function, learn, concentrate, and perform in learning activities.

duty Comes from the Greek word *deon* and is an ethical belief system that stresses the importance of professionals following the rules and standards of practice, such as the delivery of good quality care and the demonstration of respect for others, truth telling, honesty, and respect for life.

dysarthria Difficulty with voluntary muscle control of speech because of damage to the central or peripheral nervous system that controls muscles essential to speaking and swallowing. Types of dysarthria include flaccid, spastic, ataxic, hypokinetic, and mixed. Persons with degenerative neurologic diseases often suffer with this disorder.

dyscalculia A severe learning disability that impairs those parts of the brain involved in mathematical processing.

dyslexia A neurodevelopmental learning disorder that is characterized by slow and inaccurate word recognition; affects approximately 10% to 15% of the U.S. population.

E

education An overall umbrella term used to describe the process, including the components of teaching and instruction, of producing observable or measurable behavioral changes (in knowledge, attitudes, and/or skills) in the learner through planned educational activities.

education process A systematic, sequential, planned course of action that parallels the nursing process and consists of two interdependent operations, teaching and learning, which form a continuous cycle to include assessment of the learner, establishment of a teaching plan, implementation of teaching methods and tools, and evaluation of the learner, teacher, and education program.

educational contracting See *learning contract*.

educational objectives See *instructional objectives*.

edutainment Computer games as educational software that are disguised in a game format.

egocentric causation When children in the early childhood period attribute the cause of illness to the consequences of their own transgressions.

egocentricism A characteristic belief of the young child carried through to adolescence that everyone is focusing on them and their activities.

e-health literacy The ability to seek, find, understand, and appraise health information from electronic sources and apply the knowledge gained to addressing or solving a health problem.

e-learning An abbreviation for electronic learning, which professional development and training organizations have capitalized on by using the power of computer technology to provide learning solutions for workforce training; it involves the use of technology-based tools and processes to provide for customized learning anytime or anywhere.

embedded figures test (EFT) A test designed to measure how a person's perception of the environment (field independence/field dependence) is influenced by the context in which it appears.

emoticons Symbols commonly used to represent emotions, such as a :) (smiley face) or ;) (winking), by people who are sending e-mail messages.

emotional intelligence (EI) The ability to manage emotions, motivate oneself, read the emotions of others, and work effectively in interpersonal relationships.

emotional readiness A state of psychological willingness to learn, which is dependent on such factors as anxiety level, support system, motivation, risk-taking behavior, frame of mind, and psychosocial developmental stage.

enculturation The natural conscious and unconscious conditioning process of learning accepted cultural norms, values, and roles in society and achieving competence in one's culture through socialization.

escape conditioning An individual's response that causes an unpleasant or uncomfortable stimulation to cease.

ethical A term that refers to the external value system and standards of behavior of healthcare professionals.

ethical dilemma A specific type of moral conflict in which two or more ethical principles apply but support mutually inconsistent courses of action.

ethics Guiding principles of human behavior.

ethnic group A community or population of people, also referred to as a subculture, that has experiences and shares a common cultural background or descent different from those of the dominant culture.

ethnicity A dynamic and complex concept referring to how members of a group perceive themselves and how, in turn, they are perceived by others in relation to the population subgroup's common heritage of customs, characteristics, language, and history.

ethnocentrism The belief that one's own culture is superior and all other cultures are less sophisticated.

evaluation A systematic and continuous process by which the significance of something is judged; the process of collecting and using information to determine what has been accomplished and how well it has been accomplished to guide decision making.

evaluation research Scientific inquiry applied to a specific program or activity to determine processes, outcomes, and/or their relationship.

evidence-based practice (EBP) The conscientious use of current best evidence in making decisions about client care; most EBP models gather evidence from systematic reviews of clinically relevant, randomized controlled trials upon which to base practice decisions, especially about treatment.

experiential readiness A state of willingness to learn based on such factors as an individual's past experiences with learning, cultural background, previous coping mechanisms, locus of control, orientation, and level of aspiration.

expressive aphasia An absence or impairment of the ability to communicate through speech or writing caused by a dysfunction in Broca's area of the brain, which is the center of the cortex that controls motor abilities.

external evidence Evidence derived from research that is generalizable beyond a specific study setting or sample.

external locus of control The belief that an individual's motivation to learn comes from outside oneself, attributing success or failure of

an action to luck, the nature of the task, or the efforts of someone else.

extrinsic (augmented or enhanced) feedback A response provided by the teacher through the sharing of opinion or the conveying of a message via body language about how well a learner has performed; often used in relation to psychomotor skill performance.

F

fixed costs Predictable and controllable expenses that remain stable over time.

Flesch Reading Ease formula An objective, statistical measurement tool for readability of written materials between fifth grade and college level, based on a count of the two basic language elements of average sentence length in words of selected samples and of average word length measured as syllables per 100 words of sample.

fluid intelligence The intellectual capacity to perceive relationships, to reason, and to perform abstract thinking, which declines over time as degenerative changes occur with aging.

Flynn effect A trend in the increase in IQ scores over a relatively short time frame likely due to increasing levels of education and the information-age explosion.

Fog index A formula appropriate for use in determining readability of materials from fourth grade to college level based on average sentence length and the percentage of multisyllabic words in a 100-word passage.

forgetting curve The decay of skills over time when not reinforced by repeated practice.

formal operations period As defined by Piaget, this is the fourth and final stage of cognitive development in which adolescents (ages 12 to 19 years) and adults are capable of abstract thought, internalization of ideas, complex logical reasoning, and understanding causality.

formative evaluation A systematic and continuous assessment of success of the teaching process made during the implementation of materials, methods, and activities to control, ensure, or improve the quality of performance in delivery of an educational program. Also referred to as process evaluation.

Fourth Industrial Revolution An era characterized by a fusion of technologies that are blurring the lines between the physical, digital, and biological spheres.

Fry readability graph A measurement tool for testing the readability of materials (especially books, pamphlets, and brochures) at the level of first grade through college by using a graph to plot the number of syllables of words and the number of sentences in three 100-word samples.

functional illiteracy The lack of fundamental education skills needed by adults to read, write, or comprehend information to function effectively in today's society; the inability to read well enough to understand and interpret written information for use as intended.

functional literacy Possessing the skills in reading, writing, and numeracy needed by people to function effectively in their community.

functional magnetic resonance imaging (fMRI) A type of advanced technology that has revolutionized the field of neuroscience by making colorful images of the brain on computer monitors to determine the possible areas of nerve activity involved in the processes of thinking, emotions, and recall.

G

gaming An instructional method requiring the learner to participate in a competitive activity (which may or may not reflect reality) with preset rules.

Gardner's eight types of intelligence A theory that describes the styles of learning in children.

gender The attitudes, feelings, beliefs, behaviors, and social norms of men and women that are expected by society in general and by different cultures in particular.

gender bias A preconceived notion about the abilities of women and men that prevents individuals from pursuing their own interests and achieving their potentials.

gender-fair language Language used to reduce gender stereotyping and social discrimination.

gender gap The behavioral and biological differences between males and females.

gender-related cognitive abilities A comparison among the sexes as to how males and females act, react, and perform in situations affecting every sphere of life resulting from genetic and environmental influences on behavior.

gender-related personality behaviors The observed differences among the sexes in personality and affective behaviors that are thought to be largely determined by culture but to some extent are a result of interaction between environment and heredity.

geragogy The art and science of teaching the older adult.

gestalt perspective A subtheory of cognitive learning and the oldest of psychological theories, which emphasizes the importance of perception in learning from a cognitive perspective, with a focus on

the configuration or organization of a pattern of stimuli rather than of discrete stimuli. It reflects the maxim that “the whole is greater than the sum of the parts.”

global aphasia The most severe form of aphasia that produces deficits in both the ability to speak and the ability to understand language as well as difficulty with reading and writing as a result of extensive damage to the left side of the brain.

goal A desirable outcome to be achieved by the learner at the end of the teaching–learning process; goals are global and more future oriented and long term in nature than the specific, short-term objectives that lead step by step to the final achievement of a goal.

group discussion A commonly employed method of instruction whereby a group of learners (ideally 3 to 20 people) gathers together to exchange information, feelings, and opinions with one another and the teacher; the activity is learner centered and subject centered.

H

habilitation All activities and interactions that enable individuals with a disability to develop new abilities to achieve their maximum potential.

haptic device A specific type of replica using mechanical technology that allows learners to touch, feel, and manipulate three-dimensional objects in real and virtual environments.

health belief model A framework or paradigm used to explain or predict health behavior composed of the interaction between individual perceptions, modifying factors, and likelihood of action.

healthcare setting One of three classifications of instructional settings, in which the delivery of health care is the primary or sole function of an institution, organization, or agency. Examples: hospitals, visiting nurse associations, public health departments,

outpatient clinics, physician offices, health maintenance organizations, extended-care facilities, and nurse-managed centers.

healthcare-related setting One of three classifications of instructional settings, in which healthcare-related services are offered as a complementary function of a quasihealth agency. Some examples are American Heart Association, American Cancer Society, Muscular Dystrophy Association, and Leukemia Society of America.

health literacy How well an individual can read, interpret, and comprehend health information for maintaining an optimal level of wellness.

health locus of control (HLOC) An individual's sense of responsibility for health behaviors and belief that health is dependent on internal and external factors.

health promotion model (HPM) A framework that describes the interaction of health-promoting factors including cognitive perceptual factors, modifying factors, and likelihood of participation in health-promoting behaviors.

health-seeking behavior Actions taken by an individual with a perceived health problem or who feels ill to find medical attention to get an immediate and appropriate remedy.

hearing impairment A complete loss or a reduction in sensitivity to sounds by persons who are deaf or hard of hearing.

hidden costs Costs that cannot be predicted or accounted for until after the fact.

hierarchy of needs Theory of human motivation based on integrated wholeness of the individual and levels of satisfaction of basic human needs organized by potency.

humanistic learning One of the five major learning theories, which views learning as being facilitated by curiosity, needs, a positive self-concept, and open situations where freedom of choice and individuality are promoted and respected.

Hybrid (blended) learning A more recently used term in education that combines e-learning technology with the more traditional instructor-led methodology, such as lecture or demonstration.

Hy/Flex A model of learning that combines hybrid in-person/online learning with flexibility about when the learner chooses either method.

I

identity-first language The practice of placing the disability-related word first when describing a person with a disability.

ideology Thoughts, attitudes, and beliefs that reflect the social needs and desires of an individual or ethnocultural group.

illiterate The total inability of an adult to read, write, or comprehend information or whose reading and writing skills are at or below the fourth-grade level.

illusionary representations A category of instructional materials that depict two-dimensional realism. Examples are photographs, drawings, and audiotapes, which depend on imagination to fill in the gaps and offer the learner experiences that simulate reality.

iloralacy The inability to understand simple oral language.

imaginary audience A type of social thinking that explains the pervasive self-consciousness of adolescents who may feel embarrassed because they believe everyone is looking at them, which has considerable influence over their behavior.

impact evaluation The process of assessing outcomes or effects of an educational activity that extend beyond the activity itself to address organizational and/or societal effects.

implementation science The scientific study of methods to promote systematic uptake of research findings and evidence-based practices into routine practice to improve the quality and effectiveness of health services.

indirect costs Costs that may be fixed but are not necessarily directly related to an educational activity (e.g., heating, electricity, house keeping).

infodemic The global pandemic of complex, contradictory, and outright false information spreading rapidly via social media platforms, particularly in reference to the COVID-19 pandemic, that interferes with people acquiring, understanding, and using information in a sound and ethical manner.

informatics See *consumer informatics*.

Information Age An era in which sweeping advances in computer and information technology transformed the economic, social, and cultural life of society.

information literacy The ability to access, evaluate, organize, and use information from a variety of sources.

information processing A cognitive perspective that emphasizes thinking processes: includes thought, reasoning, the way information is encountered and stored, memory functioning, and information retrieval; a subtheory of cognitive learning theory.

information-seeking behavior Actions people take to obtain information about their health, illness, or risks to health, including determining how reliable the information is and overcoming difficulties in getting health-related information.

input disabilities A general category of learning disability that refers to the process of receiving and recording information in the brain, which includes visual, auditory, perceptual, and integrative processing. Examples are dyslexia and short- and long-term memory disorders.

instruction The communicating of information about a specific skill in the cognitive, affective, or psychomotor domain with the objective of producing learning; often used interchangeably with *teaching*.

instructional materials (tools) The resources or vehicles used to help communicate information, which include both print and nonprint media, to aid teaching and learning by stimulating the various senses, such as vision and hearing. These are intended to supplement, not replace, actual teaching. Synonymous terms are *educational aids* and *audiovisual materials*.

instructional objectives Intended outcomes of the education process that are in reference to an aspect of a program or a total program of study that are content oriented and teacher centered. Also referred to as educational objectives.

instructional setting A situation or area in which health teaching takes place as classified based on what relationship health education has to the primary function of an organization, agency, or institution in which the teaching occurs.

instructional strategy See *teaching strategy*.

intellectual disability A condition that originates before the age of 18 and results in impaired reasoning, learning, problem solving, and adaptive behavior.

internal evidence Evidence that is not generated from research but is appropriate for use when, for example, it is derived from a systematically conducted evaluation.

internal locus of control Individuals are motivated from within to learn, attributing success or failure to their own ability or effort.

internet A huge global computer network, of which the World Wide Web is a component, established to allow transfer (exchange) of information from one computer to another; it provides a diverse range of services used to deliver information to large numbers of people and to enable people to communicate with one another, such as via e-mail, real-time chat, or electronic discussion groups.

interprofessional education (IPE) Education directed at nursing staff to increase the nurses' capacity both for providing care independently to the consumer and for working in a collaborative, team-based approach to healthcare delivery.

interprofessional practice Team-based care in which healthcare professionals work collaboratively with one another and in partnership with patients to deliver appropriate, cost-effective, and efficient care within the complex environment of the healthcare system.

intrinsic (inherent) feedback A response that is generated within the self, giving learners a sense of or a feel for how they have performed; often used in relation to a psychomotor skill performance.

J

jigsaw A student-centered learning method that involves giving individual learners a different piece of a specific cooperative task so that learners become interdependent and work simultaneously to complete the task.

justice The equal distribution of benefits and burdens.

K

knowledge deficit A gap in what a learner needs or wants to know; this category of nursing diagnosis can include learning needs in the

cognitive, affective, and psychomotor domains.

knowledge readiness A state of willingness to learn dependent on such factors as the learner's present knowledge base, the level of learning capability, and the preferred style of learning.

Kolb's learning style inventory An experiential learning model that includes four modes of learning reflecting the dimensions of perception and processing.

L

learner characteristics See *characteristics of the learner*.

learning A conscious or unconscious permanent change in behavior as a result of a lifelong, dynamic process by which individuals acquire new knowledge, skills, and/or attitudes that can be measured and can occur at any time or in any place through exposure to environmental stimuli.

learning contract A mutually agreed-on specific plan of action between the learner and the educator clearly defining the specific behavioral objectives and predetermined goal to be achieved as a result of instruction. Also referred to as an educational contract.

learning curve A record of an individual's improvement in psychomotor skill development made by measuring their ability at different stages during a specified time period, which includes six stages: negligible progress, increasing gains, decreasing gains, plateau, renewed gains, and approach to limit. Also referred to as the experience curve.

learning disability A generic term that refers to a heterogeneous group of disorders manifested by significant difficulties with learning. Inattention and impulsivity are signs indicating developmentally inappropriate behavior.

learning management system (LMS) Web-based technologies that provide data management, assessment, reporting**,** and a platform for instructional materials to assist online learner**s** and faculty to engage in teaching/learning activities.

learning needs Gaps in knowledge that exist between a desired level of performance and the actual level of performance; what the learner needs or wants to know.

learning styles The manner by which (how) individuals perceive and then process information. Certain characteristics of style are biological in origin, whereas others are sociologically developed as a result of environmental influences.

learning theory A coherent framework and set of integrated constructs and principles that describe, explain, or predict how people learn.

lecture The oldest, most commonly used, and most traditional instructional method by which the teacher verbally transmits information in a highly structured format directly to a group of learners.

legal rights and duties Rules governing behavior or conduct that are enforceable by law under threat of punishment or penalty, such as a fine, imprisonment, or both.

legally blind A person's vision is 20/200 or less in the better eye with correction or visual field limits in both eyes are within 20 degrees diameter.

listening test A standardized test to measure comprehension using a selected passage from instructional material written at approximately the fifth-grade level that is read aloud at a normal rate to determine what a person understands and remembers when listening.

literacy The ability of adults to read, understand, and interpret information written at the eighth-grade level or higher. An umbrella term used to describe socially required and expected reading and writing abilities; the relative ability of persons to use printed and written material commonly encountered in daily life.

literate Having the ability to write and to read, understand, and interpret information written at the eighth-grade level or higher.

locus of control The location of control of behaviors as either self-directed or directed by others. Persons with internal or external locus of control differ particularly in the degree of responsibility taken for their own actions.

low literacy The ability of adults to read, write, and comprehend information between the fifth- and the eighth-grade level of difficulty. Also referred to as marginally literate or marginally illiterate.

M

m-learning Mobile learning; a new strategy that takes advantage of the many wireless, portable, and handheld devices, such as MP3 players, that can access course materials, search the Web, listen to lectures, and record experiences and assignments.

malpractice Failure to exercise an accepted degree of professional skill or knowledge by one rendering professional services that results in injury, loss, or damage to the recipient of those services.

mandatory needs Requisites to be learned for survival or situations where the learner's life or safety is threatened.

marginally literate A term to describe a person with low literacy skills; also known as marginally illiterate.

massed practice Learning information all at once, which is much less effective for remembering facts than learning information over successive periods of time; similar to cramming.

medicalese The vocabulary of medicine.

mental imaging See *mental practice*.

mental practice Imagining or visualizing a skill without body movement that can have positive effects on the performance of the skill. Motor skill acquisition is enhanced when mental practice is used together with physical practice.

metacognition A person's understanding of their way of learning. A concept related to cognitive learning theory.

mnemonic devices Memory tricks and techniques to help a person improve their ability to remember something. Such devices can be in the form of a song, rhyme, acronym, image, or phrase.

mobile technology Electronic equipment such as smartphones, media players, electronic readers, cloud-based digital assistants, and other computer-driven devices that can be used in different places.

models Three-dimensional instructional tools that allow the learner to immediately apply knowledge and psychomotor skills by observing, examining, manipulating, handling, assembling, and disassembling objects while the teacher provides feedback. Replicas, analogues, and symbols are all types of models that enhance instruction by means that range from concrete to abstract.

moral values A term that refers to an internal value system, a certain moral fabric, that is expressed externally in ethical behaviors of healthcare professionals; often used interchangeably with the terms *morality* and *morals*.

motivation A psychological force that moves a person to take action in the direction of meeting a need or goal, evidenced by willingness or readiness to act.

motivational axioms Premises on which an understanding of motivation is based, such as a state of optimal anxiety, learner readiness, realistic goal setting, learner satisfaction/success, and uncertainty-reducing or uncertainty-maintaining dialogue.

motivational constructs Components of motivation that serve as internal or external forces influencing an individual to act or not to act.

motivational incentives Factors that influence motivation in the direction of the desired goal.

motivational interviewing (MI) A method of staging readiness to change for the purpose of promoting desired health behaviors, which is an individualized, flexible, client-centered approach that is supportive, empathetic, and goal directed.

motivational state The interplay of an individual's emotional and cognitive behaviors.

motor learning A set of processes associated with practice or experience leading to relatively permanent changes in the capability for movement.

motor performance Acquisition of a motor skill but not necessarily retention of that skill.

multiculturalism A concept that promotes awareness and acceptance of diversity, and when applied to health care, attention is focused on the special needs of unique populations.

multimedia learning The use of two or more types of learning modes (e.g., audio, visual, or animation) that can be accessed via a computer to engage the learner in the content.

multiple levels of influence The five identified levels of influence on health behaviors, consisting of individual or intrapersonal factors,

interpersonal or relationship factors, organizational and institutional factors, community factors, and public or societal factors.

Myers–Briggs type indicator (MBTI) A self-report inventory that uses forced-choice questions and word pairs to measure four dichotomous dimensions of behavior.

N

needs assessment The process of determining through data collection what a person, group, organization, or community must learn or wants to learn to provide appropriate education programs to meet the required or desired needs of the learners.

negligence Doing or nondoing of an act, pursuant to a duty, that a reasonable person in the same circumstances would or would not do; the acting or the nonacting is the proximate cause of injury to another person or property.

neuroethics A relatively new field that is concerned with the ethical, legal, and social effects of neuroscience and neuropsychology.

neuropsychology The scientific study of psychological behavior based on neurological assessments of the brain and central nervous system.

nonadherence Failure of the patient to follow treatment recommendations that are mutually agreed upon.

nonbinary Individuals who, regardless of their biological sex, have a gender identity that does not conform to culturally defined male (man) or female (woman) gender norms.

nonhealthcare setting One of three classifications of instructional settings in which health care is an incidental or supportive function of an organization, such as a business, industry, and school system.

nonmaleficence The notion of doing no harm.

numeracy The ability to read and interpret numbers.

nurse practice acts Legal provisions of each state defining nursing and the standards of nursing practice, including patient teaching as a professional responsibility to protect the public from incompetent practitioners.

nursing process A model for nursing practice using the problem-solving approach, which includes the phases of assessment, nursing diagnosis, planning, implementation, and evaluation of patient care that parallels the educational process.

O

OARS A mnemonic to describe specific strategies in motivational interviewing (**O**pen-ended questioning, **A**ffirmation of the positives, **R**eflective listening, and **S**ummaries of the interaction) that can be used by the nurse to build motivation to change in patients in the early phases of treatment and continuing throughout treatment.

objective A specific, single, unidimensional behavior that is short term in nature, which should be achievable after one teaching session or within a matter of a few days following a series of teaching sessions.

obstacles to learning Those factors that negatively affect the ability of the learner to attend to and process information.

one-to-one instruction A common instructional method for exchange of information whereby the teacher delivers individual verbal instruction of learning activities in a format designed specifically to meet the needs of a particular learner.

operant conditioning Conditioning that focuses on the behavior of an organism as a result of a positive or negative reinforcer (stimulus or event) applied after a response that strengthens the probability that the response will be performed again; nonreinforcement and

punishment decrease the likelihood that a response will continue to be performed.

organizational health literacy The degree to which organizations equitably enable individuals to find, understand, and use information and services to inform health-related decisions and actions for themselves and others.

outcome The result of actions that may be intended or unintended; synonymous with stated goals.

outcome evaluation See *summative evaluation*.

P

pacing The speed at which information is presented to a learner.

part-practice Breaking down tasks into component parts for easier learning.

patient education A process of assisting consumers of health care to learn how to incorporate health-related behaviors (knowledge, skills, and/or attitudes) into everyday life with the purpose of achieving the goal of optimal health.

patient-centered care (PCC) A model of care in which nurses and other healthcare professionals work to reach a shared understanding with patients and more fully respond to their needs.

pedagogy The art and science of helping children to learn.

peer-assisted learning Learning that is shared between peers rather than being an instructor-learner relationship.

people-first language The practice of putting the person first before the disability in writing and speaking to describe what a person has, not what a person is (e.g., a person with diabetes, not a diabetic person).

personal fable A type of social thinking that leads adolescents to believe that they are invulnerable or invincible, which can result in them engaging in risk-taking behavior.

personal health literacy The degree to which individuals have the ability to find, understand, and use information and services to inform health-related decisions and actions for themselves and others.

physical readiness A state of willingness to learn that is dependent on such factors as measures of physical ability, complexity of task, health status, gender, and environmental effects.

plasticity The ability of the brain to change with learning and experience.

pooled ignorance Lack of knowledge or information about issues or problems during a group discussion session, whereby clients cannot adequately learn from one another if they do not possess a basic, accurate understanding of a subject to draw on for purposes of discourse.

positron emission tomography (PET) A type of technology that has revolutionized the field of neuroscience by making images of the brain to detect which possible areas of the brain are used for thinking, feeling, and remembering.

possible needs Nice-to-know information that is not essential at a given point in time or in situations in which learning is not directly related to daily activities.

poverty cycle A process whereby parents who are of low income and educational level produce children of low income and educational attainment, who grow up and repeat the process with their own children; a situation in which generation after generation are born into poverty owing to many factors, such as poor health care, limited resources, family stress, and low-paying jobs. Also known as the cycle of poverty or the poverty circle.

practice acts Documents that define a profession, describe that profession's scope of practice, provide guidelines for state professional boards regarding entry into a profession via licensure, and outline disciplinary actions that protect the public from unqualified practitioners.

practice-based evidence Evidence derived from practice rather than from research, such as the results of a systematically conducted evaluation, clients' responses to care delivered based on clinical expertise, or a systematically conducted quality improvement project.

presentation The form in which the message (content) is put forth, occurring along a continuum from real objects to symbols.

primary characteristics of culture Factors that influence an individual's identification with an ethnic group and that cause the individual to share a group's worldview, such as nationality, race, color, gender, age, and religious affiliation.

printed education materials (PEMs) As the most common type of teaching tools, these include handouts, leaflets, books, pamphlets, brochures, and instruction sheets, which may be purchased or instructor developed.

problem-based learning A method to stimulate learners to gather and apply information to solve problems based on realistic patient scenarios.

process evaluation See *formative evaluation*.

Prochaska's change model See *stages of change model*.

program evaluation A systematic assessment to determine the extent to which all activities for an entire department or program over a specified time period have accomplished the goals originally established.

programmed instruction A type of self-study tool, usually printed or computerized, that takes the learner through the learning task step by step.

projected learning resources Audiovisual instructional formats that depend primarily on the learners' sense of sight as the means through which messages are received. These resources require equipment to project images, usually in a darkened room, and include movies, PowerPoint slides, overhead transparencies, and others.

protection motivation theory (PMT) A linear motivational theory that explains behavioral change in terms of threat and coping appraisal, which leads to intent and ultimately to action.

psychodynamic learning One of the five major learning theories. Largely a theory of motivation stressing emotions rather than cognition and responses, this perspective emphasizes the importance of conscious and unconscious forces derived from earlier childhood experiences and conflicts that guide and change behavior.

psychomotor domain One of three domains in the taxonomy of behavioral objectives, which is concerned with the physical activities of the body, such as coordination, reaction time, and muscular control, related to the acquisition of a skill or task.

psychosocial development The process of psychological and social adjustment as an individual grows from infancy to adulthood according to Erikson's eight stages of the psychological and social maturation of humans: trust versus mistrust, autonomy versus shame and doubt, initiative versus guilt, industry versus inferiority, identity versus role confusion, intimacy versus isolation, generativity versus self-absorption and stagnation, and ego integrity versus despair.

R

race A group in which physical characteristics of genetic origin are similar among its members, such as skin color, blood type, and hair and eye color.

reachable moment A unique opportunity described by Beddoe when nurses provide emotional support to clients; the time when a nurse truly connects with clients by directly meeting them on mutual terms without the nurse being inhibited by prejudice or bias, setting the stage for the teachable moment.

readability The level of reading difficulty at which printed teaching tools are written. A measure of those elements in a text of printed material that influence with what degree of success a group of readers will be able to read and understand the information; the ease—or, conversely, the difficulty—with which a person can understand or comprehend the style of writing of a selected printed passage.

readiness to learn The time when the learner is receptive to learning and is willing and able to participate in the learning process; preparedness or willingness to learn.

reading The process of transforming letters into words and being able to pronounce them correctly and comprehend the meaning of words; also known as word recognition.

READS A mnemonic to help the nurse remember the five general principles of motivational interviewing (**R**oll with resistance, **E**xpress empathy, **A**void argumentation, **D**evelop discrepancy, and **S**upport self-efficacy).

realia The most concrete form of stimuli that can be used to deliver information. Example: a real person or a model being used to demonstrate a procedure such as breast self-examination.

REALM (rapid estimate of adult literacy in medicine) A reading skills test to measure a client's ability to read medical and health-related vocabulary.

receptive aphasia An absence or impairment of the ability to comprehend what is read or heard because of a dysfunction in Wernicke's area of the brain, which controls sensory abilities. Although hearing is unimpaired, the person is unable to understand the significance of the spoken word and is unable to communicate verbally.

reflection-in-action Occurs when the nurse introspectively considers a practice activity while performing it so that change for improvement can be made at that moment.

reflection-on-action Occurs when the nurse introspectively analyzes a practice activity after its completion so as to gain insights for the future.

reflective practice A notion of evaluation that includes reflection-in-action (formative evaluation) and reflection-on-action (summative evaluation).

rehabilitation The relearning of previous skills, which often requires an adjustment to altered functional abilities and altered lifestyle.

remote learning Education via electronic technology delivered across space and time, usually using an internet connection. Also commonly referred to as online learning, distance learning, e-learning, web-based learning, distance education, and virtual learning.

remote patient monitoring A healthcare model in which the patient collects data and information about their health status and reports the information to healthcare providers via technological means.

repetition A technique that strengthens learning by aiding in retention of new or difficult material through reinforcement of important points.

replica A facsimile constructed to scale that resembles the features or substance of the original object. It may be examined or

manipulated by the learner to get an idea of how something works. Example: resuscitation dolls.

resistance What people oppose talking about or learning, which is an indicator of underlying emotional difficulties that must be dealt with for them to move ahead emotionally and behaviorally.

respondeat superior A legal term referring to the master–servant rule: “let the master respond and answer.”

respondent conditioning Also known as classical, Pavlovian, or association conditioning, emphasizes the importance of stimulus conditions and the associations formed in the learning process, whereby, without thought or awareness, learning takes place when a newly conditioned stimulus becomes associated with a conditioned response.

return demonstration An instructional method by which the learner attempts to perform a psychomotor skill, with cues or prompting as needed from the teacher.

revenue generation Income realized over and above costs; also called profit.

role model The use of self as a role model, often overlooked as an instructional method, whereby the learner acquires new behaviors and social roles by identification with the role model.

role-play A method of instruction by which learners participate in an unrehearsed dramatization, acting out an assigned part of a character as they think the character in reality would act.

S

suitability assessment of materials (SAM) An evaluation instrument designed to measure the appropriateness of print materials, illustrations, and video- and audiotaped instructions for a given client population.

scaffolding An incremental approach to sequencing discrete steps of a procedure by slowing down the pace of performance, exaggerating some of the steps, or breaking lengthy procedures into a series of shorter steps.

schema Each person's mental framework; also referred to as cognitive schema.

secondary characteristics of culture Factors that influence an individual's identification with an ethnic group and that cause the individual to share a group's worldview, such as socioeconomic status, physical characteristics, educational status, occupational status, and place of residence.

selective attention The process of recognizing and selecting appropriate or inappropriate stimuli.

self-directed learning A learner-centered teaching method used by the educator to provide or design instructional activities that guide the learner in independently achieving the objectives of learning; commonly referred to as self-instruction.

self-efficacy An individual's personal beliefs regarding their capacity to take action toward achieving a goal.

self-efficacy theory A framework that describes the belief that an individual is able to accomplish a specific behavior.

self-regulated learning (SRL) An action-oriented approach to learning whereby the learner takes responsibility for their learning rather than just reacting to teaching situations

self-regulation The process of monitoring one's own cognitive processes, emotions, and surroundings to achieve goals.

seminar An educational format that consists of one or more sessions in which a group of learners, facilitated by an educator,

actively participates in discussing questions and issues that emerge from assigned readings on a topic of practical relevance.

sensory disabilities A category of physical disabilities that commonly includes, in particular, hearing and visual impairments but also can involve partial or total loss of tactile, olfactory, and/or gustatory senses.

service learning A teaching method involving experiential activities that provide students with a rich and robust form of learning that takes place in the community.

settings for teaching Any place where nurse educators engage in teaching for disease prevention, health promotion, and health maintenance and rehabilitation.

sex Characteristics of reproductive biology, including genetic traits, reproductive organs, and hormones such as testosterone, estrogen, and progesterone.

sex- and gender-based medicine An emerging field of research that seeks to translate scientific data into practical applications that improve healthcare delivery to individuals of specific sex and/or gender.

simulation A method of instruction whereby an artificial or hypothetical experience that engages the learner in an activity reflecting real-life conditions, but without the risk-taking consequences of an actual situation, is created.

situated cognition A theory that describes knowing as inseparable from doing. Knowledge cannot be separated from the context and is situated in activity related to social, cultural, and physical contexts. Learning is measured by an individual's effective performance across situations instead of just in terms of conceptual knowledge acquired. The way individuals interact with their environment broadens and transforms their thinking.

situational poverty Circumstances whereby poverty leads to poor health or poor health traps a person in poverty. Poverty is considered both a cause and a consequence of poor health.

skill inoculation The opportunity for repeated practice of a behavioral task.

SMOG This formula is a relatively easy-to-use, popular, valid test of readability based on a set number of sentences and polysyllabic words in printed material from grade four to college level.

social cognition An increasingly popular perspective as a subtheory within cognitive learning theory that highlights the influence of social factors on perception, thought, motivation, and behaviors.

social constructivism An increasingly popular perspective as a subtheory within cognitive learning theory proposing that individuals formulate or construct their own versions of reality and that learning and human development are richly colored by the social and cultural context in which people find themselves.

social determinants of health (SDOH) Factors other than medical care that also can shape health in powerful ways, including income, education, employment, and other social factors.

social ecological models Models of behavior that give direct focus to the societal context or environment of individuals within which their health behaviors occur.

social learning As a subtheory of cognitive learning theory, this theory explains that much of learning is a social process that occurs by observation and watching other people's behavior to see what happens to them. Role modeling is a central concept of this theory, with cognitive aspects of internal processing and motivation.

social media Online communication tools, such as blogs, wikis, Twitter, and Facebook.

social presence The ability of participants to project themselves socially and emotionally as real people in an e-learning environment.

socioeconomic status (SES) Variation in health status, health behavior, or learning abilities among individuals of different social and economic levels.

spontaneous recovery A response that appears to be extinguished but reappears at any time (even years later), especially when stimulus conditions are similar to those in the initial learning experience.

staff education A process of assisting nursing staff personnel to acquire knowledge, skills, or attitudes in nursing practice to maintain or improve their ability to deliver high-quality care to the consumer.

stages of change model A model developed by Prochaska that explains the phenomenon of health behaviors of the learner, particularly applied to addictive and problem behaviors; it includes six distinct stages of change: precontemplation, contemplation, preparation, action, maintenance, and termination.

stereotype threat A negative impression associated with an individual's status that triggers physiological and psychological behaviors in patients as well as in providers and may contribute to healthcare disparities.

stereotyping An oversimplified conception, opinion, or belief about some aspect of an individual or group.

stimulus generalization The tendency of initial learning experiences to be easily applied to other similar stimuli.

subobjective A specific statement of a short- term behavior that is written to reflect an aspect of the main objective leading to the achievement of the primary objective.

suitability assessment of materials See *SAM.*

summative evaluation Systematic assessment of the degree to which individuals have learned or objectives have been met as a result of education intervention. Also referred to as outcome evaluation.

symbol A type of model that conveys a message to the learner using abstract constructs, such as words and numbers, that stand for the real thing. Cartoons, graphs, and printed materials are examples of symbolic forms of a message.

symbolic representations Numbers and words; symbols written and spoken to convey ideas or represent objects, which are the most common form of communication and yet the most abstract types of messages.

synchronous Occurring simultaneously in real time.

systematic desensitization A technique based on respondent conditioning that is used by psychologists to reduce fear or anxiety by unlearning or extinguishing it through teaching relaxation techniques or introducing a fear-producing stimulus at a nonthreatening level.

T

tailored instruction Personalizing the message so that the content, structure, and image fit an individual client's learning needs.

task characteristics See *characteristics of the task*.

taxonomic hierarchy See *taxonomy*.

taxonomy A form of hierarchical classification of cognitive, affective, and psychomotor domains of behaviors according to their degree or level of complexity.

teachable moment As defined by Havighurst, that point in time when the learner is most receptive to a teaching situation; it can

occur at any time that a patient, family member, staff member, or nursing student has a question or needs information.

teach back approach A way of assessing how well and how much the patient and/or their family members understood the information given to them; asking patients to explain in their own words what they have been taught to determine if there are any gaps in their interpretation and remembering of information provided; repeating back to the nurse or other healthcare provider the essential points that have been taught is a way to be sure that the content has been learned; also known as tell back or show me.

teaching Also commonly referred to as instruction, it is one component of the educational process; a deliberate, intentional act of communicating information to the learner in response to identified learning needs, with the objective of producing learning to achieve desired behavioral outcomes.

teaching method The way information is taught that brings the learner into contact with what is to be learned; a technique or approach used by the teacher to communicate and share information with the learner. Examples include lecture, group discussion, and one-to-one instruction. It is an overall plan of action for instruction that anticipates barriers and resources of the learning experience to achieve specific behavioral objectives.

teaching plan Overall blueprint or outline for instruction, clearly defining the relationship between the essential components of behavioral objectives, instructional content, teaching methods and tools, time frame for teaching, and methods of evaluation that fit together in a logical pattern of flow to achieve a predetermined goal.

teaching strategy An overall plan of action for instruction that anticipates barriers and resources of the learning experience to achieve specific behavioral objectives.

team-based learning Uses a structured combination of preclass preparation, individual and group readiness assurance tests, and

application exercises.

telehealth Healthcare delivery through audio or audio/video telecommunication over a distance; **also referred to as e-health, e-practice. or telemedicine**.

teleological The ethical notion purported by Mill that, given the alternatives, choices should be made that result in the greatest good for the greatest number of people.

telepractice The provision of nursing, medical, and other types of technology-facilitated healthcare services to clients at a distance.

theory of planned behavior (TPB) A learning theory model developed by Ajzen that added a third element (the concept of perceived behavioral control) to his original theory of reasoned action.

theory of reasoned action (TRA) A framework that is concerned with predicting and understanding human behavior within a social context.

therapeutic alliance model An interpersonal provider–client model that addresses the continuum of compliance, adherence, and collaboration in therapeutic relationships.

therapeutic relationship A principle of humanistic theory that emphasizes the healing nature of a relationship between health professionals and their clients.

think-pair-share A group work strategy in which the instructor poses a discussion question, gives students time to think through the response, and then has students pair with a peer to discuss their responses.

TOFHLA (Test of Functional Health Literacy in Adults) A relatively new instrument for measuring patients' literacy level by using actual hospital materials, such as prescription labels,

appointment slips, and informed consent documents, to determine their reading and numeracy skills.

tools See *instructional materials*.

total program evaluation Within the framework of the Roberta Straessle Abruzzese (RSA) model, the purpose is to determine the extent to which all activities for an entire department or program over a specified period of time meet or exceed the goals originally established.

TPACK A learning model that focuses on technological, pedagogical, and content knowledge factors involved in planning educational interventions.

transcultural Making comparisons for similarities and differences between cultures.

transcultural nursing A formal area of study and practice comparing and analyzing different cultures and subcultures with respect to cultural care, health practices, and illness beliefs with the goal of using these insights to provide culture-specific and culture-universal care to diverse groups of people.

transfer of learning The effects of learning one skill on the subsequent performance of another related skill; includes self-transfer, near transfer, and far transfer.

transference A process in which individuals project their feelings, conflicts, and reactions, especially those developed during childhood, onto authority figures and others in their lives.

transgender Individuals whose gender identity does not match or conform to their sex at birth.

triad communication A technique of involving a third person, such as a family member, significant other, or caregiver, in the communication pattern of the nurse and the client to serve as a

listener and learner in the teaching situation that assists the client in understanding content, encouraging family or caregiver involvement and support, and enhancing client compliance with treatment regimens.

U

unlearning Extinguishing a previously learned response. For the older adult, learning a new way of doing things is often more difficult because it upsets established habits and contradicts existing beliefs (cognitive schemas) that they have embraced for years.

V

variable costs Not predictable, volume-related expenses.

VARK learning style A model that describes four categories or preferences—visual, aural, read/write, and kinesthetic—that reflect learning style experiences.

veracity Truth telling; honesty.

vicarious reinforcement A concept from social learning theory that involves determining whether role models are perceived as rewarded or punished for their behavior.

visual impairment A reduction or complete loss of vision resulting from infection, accident, poisoning, aging, or congenital degeneration of the eye(s).

W

web conferencing Internet-based programs that allow for live, synchronous interactions with the presenter; also known as webinars.

webcasts Live broadcasts over the internet that permit audio and/or video to be transmitted to participants in multiple locations.

webinars Web conferencing with usually two components: a computer-based display, such as a PowerPoint presentation, and a live discussion that allows for interaction via telephone or computer.

white privilege The unearned access to social power, benefits, and advantages based on membership in a dominant social group that leads to and fosters structural racism in a society.

wikis A new form of online communication. Unlike blogs, wikis are more social in their construction in that multiple users come together to collaboratively write the content of a collection of webpages that users can add to, edit, and remove content as desired. Wikipedia is one of the best-known wikis.

worldview The way individuals or groups of people look at the universe to form values and beliefs about their lives and the world around them.

World Wide Web A computer network of information servers around the world that are connected to the internet; a technology-based educational resource that was created as a virtual space for the display of information.

WRAT (Wide Range Achievement Test) A word recognition screening test used to assess a person's ability to recognize and pronounce a list of words out of context as a criterion for measuring comprehension of written materials. The level I test is designed for children ages 5 to 12 years; level II is intended to test persons over 12 years of age.

write-pair-share A group work strategy in which the instructor poses a discussion question, gives students time to write a response, and then has students pair with a peer to discuss their responses.

Index

Note: Page numbers followed by "*f*" and "*t*" indicate figures and tables, respectively.

A

AAC. *See* augmentative and alternative communication

AACN. *See* American Association of Colleges of Nursing

Abruzzese's evaluation model. *See* Roberta Straessle Abruzzese

abstract conceptualization (AC mode), 158

abstractness *vs.* concreteness (AC–CE), 161

AC mode. *See* abstract conceptualization

AC–CE. *See* abstractness *vs.* concreteness

ACA. *See* Affordable Care Act

accommodator learning mode, 160

acculturation, 352

action, 247

action *vs.* reflection (AE–RO), 161

active experimentation (AE mode), 158

ADA. *See* Americans with Disabilities Act

ADHD. *See* attention–deficit/hyperactivity disorder

adherence of learner, 240–241

Adobe Flash, 555

adolescence (12-19 years of age), 197–200

adult client population literacy, 269–317

assessment, clues to look for, 285–287

cloze procedure, 297–298

comprehension, 276

computerized readability software programs, 297

cultural diversity, 284

definition of terms, 273–277

e-health, 278

easy-to-read written materials, 303

eHealth Literacy Scale (eHEALS), 301

ethical, financial, and legal concerns, 289–291

Flesch, 295

Flesch–Kincaid scale, 295

Fog, 295–296

Fog index, 295–296

fry readability graph, extended, 296

general reading skills, tests to measure, 298–299

health literacy skills of clients, tests to measure, 298–299

illiteracy impact on motivation and compliance, 287–289

informatics, 278

landmark initiatives, 273*t*

listening test, 298

literacy levels test, measurement tools, 293–294

literacy problems, trends associated with, 279–280

literacy relative to computer instruction, 277–278

literacy relative to oral instruction, 277

myths, stereotypes, and assumptions, 284–285

Newest Vital Sign (NVS), 300–301

online resources, 281*t*

printed education materials comprehension, tests to measure, 297

Rapid Estimate of Adult Literacy in Medicine (REALM), 299–300

readability, 276, 291–293

readability of PEMs, formulas to measure, 294–297

reading, 276

scope and incidence of the problem, 278–280

Simplified Measure of Gobbledygook (SMOG), 296

simplifying, 302–309

state of the evidence, 312–315

strategies to address NAP goals, 314*t*

Suitability Assessment of Materials (SAM), 301–302

teaching strategies, 309–311

Test of Functional Health Literacy in Adults (TOFHLA), 300

those at risk, 281–284

Wide Range Achievement Test (WRAT), 299

writing effective PEMs, guidelines, 304–309

adult learning, cognitive learning theory about, 89

AE mode. *See* active experimentation

AE–RO. *See* action *vs.* reflection

affective domain, 451*f*, 453*t*

characterization level, 455

extrapersonal level, 455

interpersonal level, 455

intrapersonal level, 455

levels of, 455

organization level, 455

receiving level, 455

responding level, 455

teaching in, 455–456

valuing level, 455

Affordable Care Act (ACA), 11, 22

ageism, 208

Agency for Healthcare Research and Quality (AHRQ), 280

aggression, 335

AHA. *See* American Hospital Association

AHRQ. *See* Agency for Healthcare Research and Quality

AMA. *See* American Medical Association

American Association of Colleges of Nursing (AACN), 20

American Hospital Association (AHA), 6, 45

American Medical Association (AMA), 45, 280

American Medical Informatics Association (AMIA), 587

American Nurses Association (ANA), 9, 45

American Sign Language (ASL), 394

Americans with Disabilities Act (ADA), 387, 617

AMIA. *See* American Medical Informatics Association

ANA. *See* American Nurses Association

analogue, 548

andragogy, 200

process elements of, 202*t*

anomic aphasia, 419

anxiety level, 143–144

APD. *See* auditory processing disorder

aphasia, 418–421

anomic aphasia, 419

expressive aphasia, 418

global aphasia, 418

receptive aphasia, 419

ARCS. *See* attention, relevance, confidence, and satisfaction

ARS. *See* audience response system

ASL. *See* American Sign Language

Asperger syndrome, 413–414

assessing learning needs, 129–131

assessing the demands of the organization, 133–134

assessment

chart audits, 137–138

checklists, 136

choosing the right setting, 132

collecting data about the learner, 132

collecting data from the learner, 132

desirable, 133*t*

determining availability of educational resources, 133

documentation, 137

evaluation *vs.,* 633–635

focus groups, 135–136

formal and informal requests, 137

gap analysis, 138–139

identifying learner, 131–132

informal conversations, 134–135

involving members of healthcare team, 132

mandatory, 133*t*

methods for, 134–139

observations, 136–137

of nursing staff, 137–138

of the learner, 129–131

possible, 133*t*

prioritizing needs, 132

process of, 633

quality assurance reports, 137

questionnaires, 136

rules and regulations, 138

self-assessment, 138

structured interviews, 135

taking time-management issues into account, 134

tests, 136

written job descriptions, 137

assimilation, 352

assimilator learning mode, 160

assistive technologies, 425–426

association learning, 79

ASSURE model, 16

asynchronous, 594

attention, relevance, confidence, and satisfaction (ARCS) model, 236

attention-deficit/hyperactivity disorder (ADHD)

combined/other, 410

hyperactive/impulsive, 410

inattentive, 410

manifesting forms, 410

attentional phase of Bandura's model, 91

attribution theory, 92

audience response system (ARS), 481

audio learning resources, 556–561

advantages, 558*t*

disadvantages, 558*t*

audiovisual materials, 552–558

audio learning resources, 556–561

compact discs and digital sound players, 557

Microsoft PowerPoint, 554–555

projected learning resources, 554–556

radio and podcasts, 558

telecommunications learning resources, 561–563

video learning resources, 558–561

auditory processing disorder (APD), 403

augmentative and alternative communication (AAC), 420

augmented feedback, 110, 461

autism spectrum disorder, 413–414

autonomy, 46–47

avoidance conditioning, 82

B

Bandura, Albert, 90–91, 233, 235, 237

barriers to teaching, 23–27, 24*f*

behavioral objectives, 444

behavioral objectives and teaching plans, 441–473. *See also* affective domain; cognitive domain; psychomotor domain

characteristics of goals and objectives, 444–445

common mistakes in, 449

condition, 446

criterion, 446

domain hierarchies, 450–451*f*

educational objectives, 443

four-part method of objective writing, 447*t*

importance of using, 445–446

instructional objectives, 443

learning contracts use, 483

learning curve, 468–471

learning objectives, 444

performance, 446

performance words with many or few interpretations, 448–449

postcircumcision care, 464

SMART objectives, 449*t*

taxonomy according to learning domains, 449–462

teaching plan development, 462–466

types of objectives, 443–444

writing, 446–447

behaviorist learning theory, 79–84

discrimination learning, 81

operant conditioning, 81

respondent conditioning, 79, 80*f*

spontaneous recovery, 81

stimulus generalization, 81

systematic desensitization, 81

BELIEF framework, 358

beneficence, 51–52

Betty Neuman's Systems Model Theory, 16

blindness, 398

blogs, 593–594

American Life Project, 594

Pew Internet, 594

bodily-kinesthetic intelligence, 162

BPI. *See* brain preference indicator

brain preference indicator (BPI), 152

brain-based learning, 102

C

cable TV, 562

CAHPS. *See* Consumer Assessment of Healthcare Providers and Systems

cardiopulmonary resuscitation (CPR), 149

case studies, 491–492

case-based learning (CBL), 491–492

causality concept, 195

cautioning, 254

CBL. *See* case-based learning

CE mode. *See* concrete experience

Centers for Medicare and Medicaid Services (CMS), 20, 45

Certified Language International, 362

Certified Nurse Educator (CNE), 9

change theory and model, 246–248

characteristics of the learner, 537

characteristics of the medium, 537

characteristics of the task, 537

checklists, 136

chronic illness, 422–423. *See also* disabilities, learners with

educating, 383–428

family's role in, 423–425

models and definitions, 386–388

nurse educators, roles and responsibilities of, 422–423

CINAHL. *See* Cumulative Index to Nursing and Allied Health Literature

CIPP. *See* context, input, process, product

circumlocution, 419

classical conditioning, 79

clinical education specialists (CESs), 51

clinical nurse specialists (CNSs), 51

clinical practice guidelines (CPGs), 637

clinical simulations, 503

closed-circuit TV, 562

cloze procedure, 297–298, 668–671

CMS. *See* Centers for Medicare and Medicaid Services

CNE. *See* Certified Nurse Educator

COBRA. *See* Consolidated Omnibus Budget Reconciliation Act

Code of Ethics, 45, 46

cognitive abilities, 334–336

general intelligence, 334

personality traits, 335

cognitive ability, 149

cognitive development, 88–90

cognitive dissonance theory, 237

cognitive domain, 450–454

analysis level, 452

application level, 452

comprehension level, 451–452

evaluation level, 452

knowledge level, 451

levels of, 451–452

synthesis level, 452

teaching in, 452–454

cognitive evaluation theory, 235

cognitive learning theory, 84–93

‘Cold’ cognitive models, 92

adult learning and, 89

benefit of, 89

cognitive load, 88

criticisms of, 93

emotional intelligence (EI), 93

emotions in, 93

empathy and the moral emotions, 92

gestalt perspective, 85–86

information processing, 86–88, 86*f*

memory storage and retrieval, 92–93

mnemonic devices, 88

proponents of, 89

self-regulation, 93

cognitive load, 88

cognitive map, 105

cognitive plan, 105

cognitive-emotional perspective, 92

Coleman-Liau Index, 297

collaborative learning, 487

commercially prepared materials, 541

Common Procedural Terminology (CPT) codes, 25

communication disorders, 418–422

aphasia, 418–421

dysarthria, 421–422

compact discs, 557

compliance of learner, 240–241

illiteracy impact on, 287–289

comprehension, 276

Computer Age, 585

computer instruction, literacy relative to, 277–278

computer literacy, 602

computer simulations, 503

computer-assisted instruction (CAI), 509

computer-based technologies, 583

computerized readability software programs, 297

concept mapping, 236

concordance, 250

concrete experience (CE mode), 158

conditioned response (CR), 79

conditioned stimulus (CS), 79

conductive hearing loss, 392

confidentiality, 43, 48–50

anonymous and, 49

Consolidated Omnibus Budget Reconciliation Act (COBRA), 53

Consumer Assessment of Healthcare Providers and Systems (CAHPS) program, 20

consumer informatics, 586

contemplation, 247

content, 538–539

evaluation, 638–639

principles, 303

context, input, process, product (CIPP) model, 637

contextual interference concept, 109

continuous quality improvement (CQI), 651

contracting converger learning mode, 160

contractor, nurse as, 255

cooperative learning, 486–487, 487

cost benefit, 64

cost recovery, 65

cost savings, 64

cost-benefit analysis, 66–67

cost-benefit ratio, 66

cost-effectiveness analysis, 66–67

CPGs. *See* clinical practice guidelines

CPR. *See* cardiopulmonary resuscitation

CPT. *See* Common Procedural Terminology

CQI. *See* continuous quality improvement

CR. *See* conditioned response

Cronbach's learning curve, 469*f*

crystallized intelligence, 212

CS. *See* conditioned stimulus

cuing, principles of, 311

cultural assessment, 353–359

cultural attributes of the learner, 329–372

diversity care, preparing nurses for, 363–366

general assessment, 359–360

interpreters use, 360–363

Purnell's definition of terms, 352–353

state of the evidence, 369–370

teaching interventions, 359–360

cultural awareness, 352

cultural characteristics, 348–363

primary, 353

secondary, 353

cultural competence, 352

cultural distress, 365

cultural diversity, 352

cultural relativism, 352

culture, 352

Cumulative Index to Nursing and Allied Health Literature (CINAHL), 659

cybersecurity, 615

cycle of poverty. *See* poverty cycle

D

debate, 489

decision aids, 47

defense mechanisms, 94

delivery system, 538

Delphi technique, 138–139

demonstration, 495–498

advantages, 498*t*

limitations, 498*t*

demonstration materials, 545–552

advantage, 548

analogue, 548

disadvantages, 549

displays, 549–550

models, 546–549

posters, 550–552

symbol, 548

deontological, type of ethical belief system, 42

dependence, 183

design, 154

desirable needs, 133*t*

determinants of learning, 127–170

assessing learning needs, 129–131. *See also individual entry*

assessment of the learner, 129–131

educator's role in learning, 129

general guidelines, 167

learning style models and instruments, interpretation of, 166–168

needs of the learner, 128

preferred learning styles, 129

state of readiness to learn, 129, 139–149

state of the evidence, 168

developmental characteristics, 183, 189

dependence, 183

family in patient education, 214–216

independence, 183

interdependence, 183

maturity continuum, 183

state of the evidence, 216–217

teachable moment, 189

developmental disabilities, 408–414

Asperger syndrome, 413–414

attention-deficit/hyperactivity disorder, 409–412

autism spectrum disorder, 413–414

intellectual disabilities, 412–413

developmental stages of adulthood, 200–214

activity-oriented learners, 201

cognitive needs, 212–213

coping mechanisms, 214

emerging adulthood, 202

generativity *vs.* self-absorption and stagnation, 186*t*

goal-oriented learners, 201

independence, 215

Knowles's framework, 200

learning-oriented learners, 202

middle-aged adulthood (41-64 years of age), 204–205

myths associated, 207

older adulthood (65 years of age and older), 205–214

physical needs, 210–211

problems overcome using computers, 211*t*

psychosocial needs, 213–214

teaching strategies, 203–204, 205, 206–214

young adulthood (20-40 years of age), 202–204

developmental stages of childhood, 189–200

adolescence, 185*t*

adolescence (12-19 years of age), 197–200

early childhood, 184*t*

early childhood (3-5 years of age), 191–193

egocentric causation, 192

infancy (first 12 months of life), 189–191

infancy-toddlerhood, 184*t*

long-term learning, 191, 193, 196, 199–200

middle and late childhood, 185*t*

middle and late childhood (6-11 years of age), 193–196

middle-aged adulthood, 186*t*

older adulthood, 187*t*

short-term learning, 191, 192–193, 195–196, 199

stage-appropriate teaching strategies, 184–188*t*

teaching strategies, 191–192, 191–193, 193–196, 197–200

toddlerhood (1-2 years of age), 189–191

young adulthood, 186*t*

developmental stages of the learner, 181–218

normative age-graded influences, 182

normative history-graded influences, 183

normative life events, 183

Diabetes Knowledge Test, 136

Digital Age, 585

digital divide, 616

digital health divide, 600

digital immigrants, 554

digital learning resources, 563–566

Adobe Flash, 555

digital literacy, 602

digital natives, 554

digital sound players, 557

digital video files, 560–561

direct costs, 63–64

disabilities (social) model, 386

disabilities, learners with, 383–428. *See also* communication disorders; developmental disabilities; learning disabilities

developmental disabilities, 408–414

disability-sensitive language, 389

educating, 383–428

identity-first language, 389

language of disabilities, 388–389

models and definitions, 402–403

nurse educators, roles and responsibilities of, 390–391

people-first language, 388

physical disabilities, 415–418

types of disabilities, 391–422

disability, 387–388

disability-sensitive language, 389

discovery learning, 109

discrimination learning, 81

disease-oriented patient education (DOPE), 8

displays, 549–550

distance education, 611–612

distance learning, 510

distributed practice, 108, 453

diverger learning mode, 160

diversity care, preparing nurses for, 363–366

documentation, 137

informed consent, factors affecting, 48

legal and financial implications of, 59–62

domain hierarchies, 450–451*f*

affective domain, 451*f*, 453*t*

cognitive domain, 450*f*

thinking domain, 450

DOPE. *See* disease-oriented patient education

Dorothy Orem's Self-Care Theory, 16

dual coding, 166

Dunn and Dunn learning styles, 154–155, 155*f*

emotional elements, 154

environmental elements, 154

instrument to measure, 155

physical elements, 155

psychological elements, 155

sociological patterns, 155

duty concept, 50

DVDs, 558, 560

dysarthria, 421–422

dyscalculia, 407–408

dyslexia, 405–407

E

e-health literacy, 278

E–I. *See* Extraversion-Introversion

e-learning, 609–611

e-mail/texting, 597–599

early childhood (3-5 years of age), 191–193

easterner learning style, 161

EBP. *See* evidence-based practice

economic factors in healthcare education, 62–63

justice and duty revisited, 62–63

education in health care, 3–30. *See also* nurse contemporary role as educator

21st century, 8

edutainment, 500

EHRs. *See* electronic health records

EI. *See* emotional intelligence

electronic health records (EHRs), 652

electronic medical record (EMR), 60, 302

Emergency Medical Treatment and Active Labor Act (EMTALA), 53

emotional elements, 154

motivation, 154

persistence, 154

responsibility, 154

structure, 154

emotional intelligence (EI), 93

emotional readiness, 143–147

anxiety level, 143–144

developmental stage, 146–147

fear, 143

frame of mind, 145–146

motivation, 144–145

risk-taking behavior, 145

support system, 144

teachable moment, 146

empathy and moral emotions, 92

EMR. *See* electronic medical record

EMTALA. *See* Emergency Medical Treatment and Active Labor Act

enhanced feedback, 110

environmental elements, 154

design, 154

light, 154

sound, 154

temperature, 154

escape conditioning, 82

ethical, 43

ethical concerns, in adult client population literacy, 289–291

ethical dilemmas, 43

be audience focused, 658

cognitive test, 652

from whom, 649

how, 650–651

internal evidence, 631–632

multiple questionnaires, 653

open-ended questions, 657

operational definition, 648

outcome (summative) evaluation, 639–641

patient compliance, 648

PICO question, 640

practice-based evidence, 631–632

process (formative) evaluation, 635–638

qualitative data, 649

quantitative data, 649

reporting evaluation results, 657–659

research, 644–645

Roberta Straessle Abruzzese (RSA) evaluation model, 635, 636*f*

scales, 653

stick to the evaluation purpose, 658

teach-back method, 638

types of data to collect, 647–649

use data as intended, 658–659

what, 649

when, 650–651

where, 650–651

who, 651–652

evaluator, nurse as, 256

evidence-based practice (EBP), 631–632

Excelsior College, 611

experiential readiness, 147–148

cultural background, 147–148

language, 148

level of aspiration, 147

locus of control, 148

past coping mechanisms, 147

expressive aphasia, 418

external evidence, 631

external locus of control, 148

externals, 228

extraversion, 156

Extraversion–Introversion (E-I), 156–157

extrinsic feedback, 110

F

Facebook, 595

facilitator of change, nurse as, 255

family in patient education, 214–216

feedback, 110–112

extrinsic (augmented or enhanced) feedback, 110

intrinsic (inherent) feedback, 110

feeling, 156

field-independent/field-dependent perception, 152–154

characteristics of, 153*t*

field-dependent learners, 154

field-independent learners, 154

instrument to measure, 153–154

financial concerns, in adult client population literacy, 289–291

financial terminology, 63–65

cost benefit, 66

cost recovery, 65

cost savings, 64

direct costs, 63–64

fixed costs, 63

hidden costs, 64

indirect costs, 63–64

revenue generation, 65

variable costs, 63

fixed costs, 63

Flesch–Kincaid scale, 295

fluid intelligence, 212

altered time perception, 213

changes due to decrease in, 212

decreased short-term memory, 213

increased test anxiety, 212–213

persistence of stimulus (afterimage), 212

slower processing and reaction time, 212

Flynn effect, 334

focus groups, 135–136

focus of evaluation, determining, 633–635

audience, 633–634

content evaluation, 638–639

outcome evaluation, 639–641

purpose, 634

questions, 634

resources, 635

scope, 634–635

Fog formula, 295–296, 666

Fog index, 295–296

formal operations, 185–187*t*

formative evaluation, 635–638

Fourth Industrial Revolution, 582

frame of mind, 145–146

fry readability graph, 666–667

extended, 296

functional illiteracy, 275

G

gaming, 498–501

advantages, 502*t*

game suitability checklist, 501*t*

limitations of, 502*t*

gap analysis, 138–139

Gardner's eight types of intelligence, 162–164

bodily-kinesthetic intelligence, 162

child's style of learning, 164

instrument to measure, 164

interpersonal intelligence, 163

intrapersonal, 163

linguistic intelligence, 163

logical-mathematical intelligence, 163

musical intelligence, 163

naturalistic intelligence, 163

spatial intelligence, 163

GEFT. *See* Group Embedded Figures Test

gender/sex, 142–143

attributes of the learner, 331–343

bias, 334

characteristics, 331–338

gap, 334

gender-fair language, 368

gender-related cognitive abilities, 334–336

general intelligence, 334

identity, 332–334

mathematical capability, 334

problem solving, 334

related personality behaviors, 335

school achievement, 334

spatial ability, 334

verbal capability, 334

geragogy, 206

gestalt perspective, 85–86

global aphasia, 418

goals, 444

Golden Rule, 42

Got Transition Model, 411

group discussion, 484–486

advantages, 487*t*

cooperative learning, 486–487

limitations, 487*t*

team-based learning, 488

Group Embedded Figures Test (GEFT), 153

H

habilitation, 390

HBDI. *See* Herrmann Brain Dominance Instrument

HBM. *See* health belief model

HCFA. *See* Health Care Financing Administration

health behaviors of learner, 223–258

health belief model (HBM), 242–244

as preventative health behavior predictor, 243*f*

individual perceptions, 242

interacting components, 242

likelihood of action, 242

modifying factors, 242

health care, 10–13

economic trends affecting, 10–13

political trends affecting, 10–13

social trends affecting, 10–13

Health Care Financing Administration (HCFA), 64

health education, 6

Health Information Technology for Economic and Clinical Health Act (HITECH), 60

Health Insurance Portability and Accountability Act (HIPAA), 50, 288, 362, 593

health literacy, 275

Health locus of control (HLOC), 228

health maintenance organization (HMO), 46

health promotion model (HPM), 244–245

major components and variables, 244

revised, 244–245

health status, 141–142

health-oriented patient education (HOPE), 8

healthcare setting, 519

healthcare-related setting, 519–520

hearing impairments, 392–398

conductive hearing loss, 392

lipreading, 395

mixed hearing loss, 392

people-first language use, 392

sensorineural hearing loss, 392

sign language, 394–395

sound augmentation, 396–397

telecommunications, 397–398

verbalization by the client, 396

written materials, 395–396

Herrmann Brain Dominance Instrument (HBDI), 152

hidden costs, 64

hierarchy of needs, 98, 230

HIPAA. *See* Health Insurance Portability and Accountability Act

HITECH. *See* Health Information Technology for Economic and Clinical Health Act

HLOC. *See* Health locus of control

HMO. *See* health maintenance organization

HOPE. *See* health-oriented patient education

Hospital CAHPS (HCAHPS), 20

HPM. *See* health promotion model

humanistic learning theory, 97–100

central purpose of, 98

feelings and emotions, 97

hierarchy of needs, 98

Maslow's hierarchy of needs, 97–98

modification in, 99

weaknesses, 99

hybrid (blended) learning, 614

I

identity-first language, 388

ideology, 353

IEP. *See* individualized education plan

IHCAs. *See* interactive health communication applications

illiteracy impact on motivation and compliance, 287–289

illiterate, 274

illusionary representations, 539–540

imaginary audience, 197

implementation science, 631–632

Independence, 183

indirect costs, 63–64

individualized education plan (IEP), 411

Individuals with Disabilities Education Act, 409

infancy (first 12 months of life), 189–191

informal conversations, 134–135

informatics. *See* consumer informatics

Information Age, 585

information literacy, 602

Information processing, 86–88, 86*f*

informed consent, factors affecting, 43, 48

patient autonomy, 48

patient comprehension, 48

patient use of disclosed information, 48

voluntariness, 48

inherent feedback, 110

Institute of Medicine Report, 22–23

institutional review board for the protection of human subjects (IRBPHS), 44

instruction, 15

instructional materials, 535–572, 665–677

choosing variables, 537–538

comprehension, 665–677

content, 538–539

delivery system, 538

evaluating instructional materials, 566–567

general principles, 537

health literacy and tools to assess, 665–677

illusionary representations, 539–540

learner, characteristics of, 537

learner, medium, and task (LMAT), 537

major components of, 537–540

medium, characteristics of, 537

patient education materials assessment tool, 568*t*

presentation, 539–540

readability, 665–677

realia, 539

symbolic representations, 540

task, characteristics of, 537

types of, 540–566

instructional objectives, 443

intellectual disabilities, 412–413

interactive health communication applications (IHCAs), 509

interdependence, 189

internal evidence, 631–632

internal locus of control, 148

internals, 228

Internet, 509, 584–585, 597–599

e-mail/texting, 597–599

online support groups, 618

interpersonal intelligence, 163

interpreters use, 360–363

intrapersonal intelligence, 163

intrinsic feedback, 110, 461

introversion, 156

intuition, 157

IOM. *See* Institute of Medicine Report

IRBPHS. *See* institutional review board for the protection of human subjects

J

JCAHO. *See* Joint Commission on Accreditation of Healthcare Organizations

Jean Watson's Theory of Human Caring, 16

jigsaw, 489

Joint Commission on Accreditation of Healthcare Organizations (JCAHO), 7, 58

Joint Commission, The (TJC), 7

judging, 157

Judging–Perceiving (J–P), 157

Jung and Myers–Briggs typology, 155–158

Extraversion–Introversion (E–I), 156–157

instrument to measure, 157–158

Judging–Perceiving (J–P), 157

Myers–Briggs dichotomous dimensions or preferences, 156*f*

Myers–Briggs types, 156*f*

Sensing–Intuition (S–N), 157

Thinking–Feeling (T–F), 157

justice, 43, 52–53

duty revisited and, 62–63

K

Kant, Immanuel, 42

KAS. *See* Kim Alliance Scale

KAS–R. *See* Kim Alliance Scale Refined

Kim Alliance Scale (KAS), 250

Kim Alliance Scale Refined (KAS–R), 250

kinesthetic learners, 165

knowledge readiness, 148–149

cognitive ability, 149

learning and reading disabilities, 149

present knowledge base, 148

styles, 149

Knowles, Malcolm, 200, 204

Kolb's experiential learning model, 158–162

abstract conceptualization (AC mode), 158

accommodator, 160

active experimentation (AE mode), 158

assimilator, 160

concrete experience (CE mode), 158

converger, 160

diverger, 160

easterner, 161

instrument to measure, 161–162

Kolb's learning style inventory, 160*f*

learning modes, 160

learning styles, 161–162

northerner, 161

reflective observation (RO mode), 160

southerner, 161

westerner, 161

L

language of disabilities, 388–389

language, information, and design (LID) method, 303

LEARN model, 358

learner readiness, 232

learner, medium, and task (LMAT), 538

learning, 15

ability, factors affecting, 26–27

learning contracts, 466–468

components of, 467–468

content, 467

evaluation, 467

performance expectations, 467

time frame, 467

use, 466–467

learning curve, 468–471

decreasing gains, 470

increasing gains, 469–470

negligible progress, 469

plateau, 470

renewed gains, 470

stages, 469–470

learning disabilities, 402–408. *See also* disabilities, learners with; dyslexia

auditory processing disorder (APD), 403

dyscalculia, 407–408

misconceptions and realities about, 405*t*

statistics on, 403

learning management system (LMS), 612–614

learning needs, 131–134

learning objectives, 444

Learning Style Inventory (LSI), 161

learning style theories, models, and instruments, 150–165

Dunn and Dunn learning styles, 154–155, 155*f*

examples of hemisphere functions, 152*t*

field-independent/field-dependent perception, 152–154

Gardner's eight types of intelligence, 162–164

Jung and Myers–Briggs typology, 155–158, 156*f*

Kolb's experiential learning model, 158–162, 160*f*

right-brain/left-brain and whole brain thinking, 151–152

state of the evidence, 115–116

VARK learning styles, 164–165

learning styles, 149–150

application to healthcare practice, 75–116

common principles, 113–115

comparison of, 102–104, 103*t*

construction and testing of, 77

determining learning styles, 150

experiences influencing, 114

learning becoming permanent, 114–115

learning theories, 75–116. *See also* behaviorist, cognitive, social learning, psychodynamic, humanistic, motor learning; neuropsychology and learning

definition, 77

lecture, 482–484

advantages, 484*t*

analogies use, 483

body, 483

conclusion, 483

examples use, 483

introduction, 482–483

key terms use, 483

limitations, 484*t*

opening and summary statements, 483

visual backups use, 483

legal concerns, in adult client population literacy, 289–291

legal rights and duties, 43

legality of patient education and information, 58

lesbian, gay, bisexual, transgender, and queer/questioning (LGBTQ), 338

LGBTQ. *See* lesbian, gay, bisexual, transgender, and queer/questioning

LID. *See* language, information, and design

light, 154

linguistic intelligence, 163

lipreading, 395

listening test, 298

literacy, 274

levels test, measurement tools, 283–294

relative to computer instruction, 277–278

relative to oral instruction, 277

literate, 274

LMS. *See* learning management system

locus of control (LOC), 148, 228

chance external, 229

doctors external, 229

external, 148

internal, 148, 229

others external, 229

logical-mathematical intelligence, 163

long-term learning, 191, 193

long-term services and supports (LTSS), 214

low literacy, 275

LSI. *See* Learning Style Inventory

LTSS. *See* long-term services and supports

M

m-learning (mobile learning), 592

maintenance, 247

malpractice, 50

mandatory needs, 133*t*

marginally illiterate, 275

marginally literate, 275

Maslow's hierarchy of needs, 97–98

massed practice, 107, 453

mathematical capability, 334

maturity continuum, 183

MBTI. *See* Myers–Briggs Type Indicator

medical model, 386

medicalese, 275

memory disorders, 416–418

memory storage and retrieval, 92–93

mental imaging, 461

mental practice, 110, 461

metacognition, 85

MI. *See* motivational interviewing

Microsoft PowerPoint, 554–555

MIDAS. *See* Multiple Intelligences Developmental Assessment Scales

middle and late childhood (6-11 years of age), 193–196

middle-aged adulthood (41-64 years of age), 204–205

Mill, John Stuart, 42

mixed hearing loss, 392

mnemonic devices, 88

mobile technology, 585

Model Nurse Practice Act, 47

model simulations, 503

models and theories, 242–254

models for health education, 252–255. *See also individual entries*

educator agreement with model conceptualizations, 253–254

functional utility of models, 254

integration of models, 254

similarities and dissimilarities of, 252–253

moral model, 386

moral values, 43

motivation, 144–145, 154, 225–240

assessment of, 233–235

beliefs, 228–229

cognitive evaluation theory, 235

comprehensive parameters for, 234*t*

concept mapping, 236

definition, 225

illiteracy impact on, 287–289

motivational constructs, 226

motivational incentives, 226

motivational strategies, 235–240

nonverbal cues, 234

OARS, 238

personal attributes, 228–229

principles, 303

READS, 237

relationship systems, 230

subjective self-reports, 234

motivational axioms, 231–233

learner readiness, 232

learner satisfaction/success, 232–233

realistic goals, 232

state of optimal anxiety, 231–232

uncertainty reduction or maintenance, 233

motivational constructs, 226

motivational incentives, 226

motivational interviewing (MI), 236

motivational state, 227–228

motor learning, 104–112

associative stage, 105

autonomous stage, 105

cognitive stage, 105

contextual interference effects, 109

discovery learning, 109

distributed practice, 108

feedback, 110–112

feedback variables in, 112*t*

massed practice, 107

motor performance, 105

practice, 107–110

practice variables in, 112*t*

prepractice, 107

stages of, 105–106

variables, 106–113

motor performance, 105

multimedia learning, 553

Multiple Intelligences Developmental Assessment Scales (MIDAS), 164

multiple levels of influence, 251

multiple questionnaires, 653

musical intelligence, 163

Myers–Briggs dichotomous dimensions or preferences, 156*f*

Myers–Briggs Type Indicator (MBTI), 157

N

NAAL. *See* National Assessment of Adult Literacy

NALS. *See* National Adult Literacy Survey

NAQC. *See* Nursing Alliance for Quality Care

National Adult Literacy Survey (NALS), 271

National Assessment of Adult Literacy (NAAL), 279

National Institute on Deafness and Other Communication Disorders (NIDCD), 392

National League for Nursing (NLN), 9

National League of Nursing Education (NLNE), 5

naturalistic intelligence, 163

needs assessment, 129–131

negligence, 50

neuropsychology and learning, 100–102

Newest Vital Sign (NVS), 300–301, 672–673

NIDCD. *See* National Institute on Deafness and Other Communication Disorders

Nightingale, Florence, 9

NLN. *See* National League for Nursing

NLNE. *See* National League of Nursing Education

nonadherence, 241

noncompliance, 241

nonhealthcare setting, 520

nonmaleficence, 43, 50–51

nonverbal cues, 234

Northerner learning style, 161

numeracy, 274

nurse contemporary role as educator, 16–23

Betty Neuman's Systems Model Theory, 16

Dorothy Orem's Self-Care Theory, 16

nurse practice acts (NPAs), 9

nurse role as educator, 255

evaluator, 256

facilitator of change, 255

organizer, 256

nursing

education transformation, 17

future of nursing, 22–23

quality and safety education in, 21–22

Nursing Alliance for Quality Care (NAQC), 19

advocacy, 20

consumer-centered care, 19

nursing process *vs.* education process, 14–16, 15*f*

NVS. *See* Newest Vital Sign

O

OARS, 238, 239*b*

affirming the positives involves, 238

open-ended questions, 238

reflective listening, 238

summarizing, 238

objectives, 444

obstacles to learning, 23–27, 26*f*

Occupational Safety and Health Administration (OSHA), 520

OECD. *See* Organization for Economic Cooperation and Development

older adulthood (65 years of age and older), 205–214

one-to-one instruction, 493–495

advantages, 495*t*

limitations, 495*t*

online support groups, 589, 618

online technologies, 12

Online Technologies Self-Efficacy Scale (OTSES), 154

operant conditioning, 81–82

operational definition, 648

oral instruction, literacy relative to, 277

Organization for Economic Cooperation and Development (OECD), 280

organizational factors, 303

organizer, nurse as, 256

OSHA. *See* Occupational Safety and Health Administration

OTSES. *See* Online Technologies Self-Efficacy Scale

outcome (summative) evaluation, 639–641

P

pacing, 518

past coping mechanisms, 147

patient and nursing staff/student education, 13–14

patient centered-care, 18–21

patient compliance, 648

patient education, 5–8. *See also* education in health care

patient education materials assessment tool (PEMAT), 568*t*

Patient Learning Needs Scale, 136

Patient Protection and Affordable Care Act of 2010, 275

Patient Self-Determination Act (PSDA), 46

Patient's Bill of Rights, 6, 58

patient-provider relationship, 56–58

blurring of, 56

Patricia Benner's Novice to Expert Theory, 16

Pavlovian conditioning, 79

PDF. *See* Portable Document Format

pedagogy, 189

PEMAT. *See* Patient Education Materials Assessment Tool

PEMs. *See* printed education materials

people with disabilities

assistive technology, 679

augmentations and alternative communication, 679

blindness, 679–680

deafness, 680

developmental disabilities, 680

disability advocacy, 680–681

head injury, 681

healthcare-related federal agencies, 681

learning disabilities, 681–682

neuromuscular disorders, 682

resources and organizations for, 679–683

stroke, 682–683

people-first language, 388, 392

PEPS. *See* Productivity Environmental Preference Survey

perceived behavioral control, 248

perceiving, 157

perceptual strengths, 155

persistence, 154

personal attributes, 228–229

personal fable, 198

personality traits, 335

aggression, 335

conformity and dependence, 335

gender bias, 334

gender gap, 334

sexual orientation and gender identity, 338–343

values and life goals, 336

personality types, 156–157

physical disabilities, 415–418

physical elements, 155

physical readiness, 139–143, 140*t*

physiotherapist-provided operant conditioning (POC), 84

PIAAC. *See* Program for the International Assessment of Adult Competencies

Piaget, J., 89, 195

PICO question, 640

plasticity, 100

PMT. *See* protection motivation theory

podcasts, 558

pooled ignorance, 485

POPE. *See* prevention-oriented patient education

Portable Document Format (PDF), 564

possible needs, 133*t*

postcircumcision care, 464

posters, 550–552

advantages, 550

poverty cycle (circle of poverty), 345

practice acts, 43

practice-based evidence, 631–632

precontemplation, 247

preparation, 247

present knowledge base, 148

presentation, 539–540

prevention-oriented patient education (POPE), 8

primary characteristics of culture, 353

printed education materials (PEMs), 272, 540

advantages, 546*t*

comprehension, tests to measure, 297

disadvantages, 546*t*

evaluating, 544

guidelines for writing and evaluating, 673

literacy level required, 544

nature of the audience, 544

readability, 291–292

problem solving, 334

problem-based learning, 489

process (formative) evaluation, 635–638

Productivity Environmental Preference Survey (PEPS), 155

Program for the International Assessment of Adult Competencies (PIAAC), 280

program planning and implementation, 65–66

programmed instruction, 508

projected learning resources, 554–556

advantages, 556*t*

disadvantages, 556*t*

ProLiteracy, 271

protection motivation theory (PMT), 246

PSDA. *See* Patient Self-Determination Act

psychodynamic learning theory, 93–97

concept of transfer, 96

criticisms, 96–97

defense mechanisms, 94

ego defense mechanisms, 94*t*

emotional conflicts, 96

transference, 96

psychological elements, 155

psychological learning theories, 79–99. *See also* behaviorist learning theory; cognitive learning theory; humanistic learning theory; psychodynamic learning theory; social learning theory

psychomotor domain, 456–462

adaptation level, 457

anxiety level, 460

articulation, 458*t*

complex overt response level, 457

Dave's levels of, 458*t*

developmental stage, 460

environmental stimuli, 460

guided response level, 457

health status, 460

imitation, 458*t*

levels of, 457–458

manipulation, 458*t*

mechanism level, 457

naturalization, 458*t*

origination level, 457–458

past experience, 460

perception level, 457

practice session length, 460

precision, 458*t*

readiness to learn, 460

set level, 457

situated cognition, 459

teaching of, 458–462

variables, 460

psychosocial development, 200

Purnell's model of cultural competence, 352–353, 355*f*

Q

QSEN. *See* quality of healthcare delivery

quality and safety education (QSEN), 21–22
quality of healthcare delivery (QSEN)
evidence-based practice, 21
informatics, 21
patient-centered care, 21
quality improvement, 21
safety, 22
teamwork and collaboration, 21
questionnaires, 136
R
radio, 558
Rapid Estimate of Adult Literacy in Medicine (REALM), 299–300
reachable moment, 144
readability, 276
calculations, 297
formulas, 294
of PEMs, formulas to measure, 294–297
plus, 297
readiness to learn, 129, 139–149
complexity of task, 140

emotional readiness, 140*t*

environmental effects, 140–141

experiential readiness, 140*t*

gender, 142–143

health status, 141–142

knowledge readiness, 140*t*

measures of ability, 139–140

physical readiness, 139–143, 140*t*

timing, 139

types of, 140*t*

reading, 276

READS, 237

avoiding arguments, 238

expressing empathy, 237–238

rolling with resistance, 237

supporting self-efficacy, 238

realia, 539

REALM. *See* Rapid Estimate of Adult Literacy in Medicine

receptive aphasia, 419

reflection on action, 137

reflection-on-action, 490

reflective observation (RO mode), 158

Regents External Degree Program, 611

registered nurses (RNs), 16

rehabilitation, 390

remote learning, 510–511

remote patient monitoring (RPM), 608

repetition, 311

replica, 548

reproduction phase of Bandura's model, 91

research poster appraisal tool (R-PAT), 552

resistance, 96

respondeat superior, 60

respondent conditioning, 79, 80*f*

responsibility, 154

retention phase of Bandura's model, 91

return demonstration, 495–498

advantages, 498*t*

limitations, 498*t*

revenue generation, 65

revised health promotion model, 244–245

right-brain/left-brain thinking, 151–152

instruments to measure, 151–152

risk-taking behavior, 145

RO mode. *See* reflective observation

Robert Wood Johnson Foundation (RWJF), 21

Roberta Straessle Abruzzese (RSA)

evaluation model, 635, 636*f*

role model, 506–507

advantages, 507*t*

limitations, 507*t*

role modeling, 90

role-play, 504–506

advantages, 506*t*

limitations, 506*t*

RSA. *See* Roberta Straessle Abruzzese

RWJF. *See* Robert Wood Johnson Foundation

S

S–N. *See* Sensing–Intuition

SAM. *See* suitability assessment of materials

SAM scoring sheet, 676–677

satellite broadcasting, 562

scaffolding, 496

scales, 653

school achievement, 334

science, technology, engineering, and math (STEM), 334

secondary characteristics of culture, 353

selective attention, 461

self-composed materials, 542–544

self-directed learning, 507–510

advantages, 510*t*

limitations, 510*t*

self-efficacy theory, 237, 245–246, 253

self-perception theory, 237

self-reflection, 490

self-regulated learning (SRL), 231

self-regulation, 93

seminars, 492–493

sensing, 157

Sensing-Intuition (S-N), 157

sensorineural hearing loss, 392

sensory disabilities, 391–402. *See also* hearing impairments

service learning, 491

SES. *See* socioeconomic status

settings for teaching, 479–523, 518–520

healthcare setting, 519

healthcare-related setting, 519–520

nonhealthcare setting, 520

sharing resources among settings, 520

sex characteristics, 331–338

sexual orientation, 338–343

teaching strategies, 341–343

short-term learning, 191, 192–193

sign language, 394–395

Simplified Measure of Gobbledygook (SMOG), 296–297, 667–668

simulation, 501–504

advantages, 505*t*

clinical simulations, 503

computer simulations, 503

limitations, 505*t*

model simulations, 503

written simulations, 503

situated cognition, 459

situational poverty, 346

SMOG. *See* Simplified Measure of Gobbledygook

social cognition, 92–93

social constructivism, 91–92

social ecological models, 250–252

social learning theory, 90–91

attentional phase, 91

Bandura's model, 91

reproduction phase, 91

retention phase, 91

role modeling, 90

vicarious reinforcement, 90

social media, 592–596

advantages, 595

blogs, 593–594

Facebook, 595

Twitter, 595

webcasts, 596–597

webinars, 596–597

wikis, 594–595

YouTube, 595

social presence, 609

Social Security Administration (SSA), 387

socioeconomic attributes of the learner, 343–348

teaching strategies, 347–348

socioeconomic characteristics, 343–348

socioeconomic status (SES), 194, 343–348

sociological elements, 155

sound, 154

augmentation, 396–397

southerner learning style, 161

spatial ability, 334

spatial intelligence, 163

spontaneous recovery, 81

SRL. *See* self-regulated learning

SSA. *See* Social Security Administration

staff education, 16

stages of change model, 247–248, 253

action, 247

contemplation, 247

maintenance, 47

precontemplation, 247

preparation, 247

termination, 247

Stanford–Binet intelligence test, 334

Statement on a Patient's Bill of Rights, 6

STEM. *See* science, technology, engineering, and math

stereotype threat, 367

stereotyping, 366–369

gender-fair language, 368

stereotype threat, 367

stimulus generalization, 81

strengths, weaknesses, opportunities, and threats (SWOT) analysis, 138

structure, 154

structured interviews, 135

student-teacher relationship, 53–55

subobjectives, 444

Suitability Assessment of Materials (SAM), 301–302

Sullivan Alliance, 8

summative evaluation, 639–641

support system, 144

SWOT. *See* strengths, weaknesses, opportunities, and threats

symbol, 548

symbolic representations, 540

synchronous, 596

systematic desensitization, 81

T

T–F. *See* Thinking–Feeling

tailored instruction, 542

taxonomy (taxonomic hierarchy), 442

TBI. *See* traumatic brain injury

TDD. *See* telecommunication devices for the deaf

teach-back method, 309, 638

teachable moment, 146, 189

teaching ability, factors affecting, 23–26

teaching methods, 15, 481–511. *See also* group discussion; lecture

anecdotes and examples, 516

be organized and give direction, 517

case studies, 491–492

case-based learning (CBL), 491–492

collaborative learning, 487

cooperative learning, 487

debate, 489

delivering material dramatically, 516

demonstration, 495–498

elicit and give feedback, 517–518

evaluation of, 514–515

exhibiting risk-taking behavior, 515–516

gaming, 498–501

including humor, 517

Internet, 509

jigsaw, 489

positive reinforcement, 517

presenting information enthusiastically, 515

problem-based learning, 489

problem-solving activities, 516

remote learning, 510–511

return demonstration, 495–498

role model, 506–507

role play, 504–506

selection of, 511–513

self-directed learning, 507–510

self-reflection, 490

seminars, 492–493

service learning, 491

simulation, 501–504

teach-back or tell-back strategy, 518

technology use, 517

think-pair-share, 490

write-pair-share, 490

teaching plans, 462–466

teaching role of nurses, 9–10

team-based learning, 488

Technical Assistance Center (STD TAC), 25

technological, pedagogical, and content knowledge model (TPACK), 590–592, 591*f*

technology in education, 581–620. *See also* Internet; social media

computer literacy, 602

cybersecurity, 615

digital literacy, 602

e-Health Code of Ethics, 588*t*, 597

for healthcare consumers, 605–606*t*

for healthcare professionals, 610*t*

healthcare consumer education, 599–608

information literacy, 602

issues related to, 614–618

mobile technology, 585

professional education and world wide web, 596

strategies for, 590–599

teacher and the learner, 587–590

workforce training/staff development, 611

World Wide Web, 583–584

technology-based patient education materials, 565–566*t*

telecommunication devices for the deaf (TDD), 397

telecommunications, 397–398, 562

telecommunications learning resources, 561–563

cable TV, 562

closed-circuit TV, 562

satellite broadcasting, 562

telecommunications, 562

telephones, 562–563

television, 561–562

video teleconferencing, 562

telehealth, 608

teleological, type of ethical belief system, 42

telephones, 562–563

telepractice, 607

television, 561–562

temperature, 154

termination, 247

Test of Functional Health Literacy in Adults (TOFHLA), 300

tests to measure general reading skills and health literacy skills of clients, 298–302

text telephones (TTY), 397

theory of planned behavior (TPB), 248–249, 249*f*

theory of reasoned action (TRA), 248–249

factors determining, 249*f*

therapeutic alliance model, 249–250

continuum of, 249*f*

therapeutic relationships, 99

think-pair-share, 490

thinking, 157

Thinking-Feeling (-F), 157

TJC. *See* The Joint Commission

toddlerhood (1-2 years of age), 189–191

TOFHLA. *See* Test of Functional Health Literacy in Adults

tools. *See* instructional materials

total program evaluation, 642–644

basic types, 643

content, 643

impact, 643

Kirkpatrick's four–level model, 642

outcome, 643

process, 643

TPACK. *See* technological, pedagogical, and content knowledge model

TPB. *See* theory of planned behavior

TRA. *See* theory of reasoned action

transcultural, 353

transfer concept, 96

transfer of learning, 460

transference, 96

transtheoretical model (TTM), 247

traumatic brain injury (TBI), 415–416

acute care, 415

acute rehabilitation, 415

effective teaching guidelines for, 417*t*

long-term rehabilitation after discharge, 415

TTM. *See* transtheoretical mode

TTY. *See* text telephones

Twitter, 595

U

unconditioned or unlearned stimulus (UCS), 79

unconditioned response (UCR), 79

unlearning, 76

V

VA. *See* Veterans Administration

variable costs, 63

VARK. *See* visual, aural, read/write, and kinesthetic

veracity, 47–48

verbal capability, 334

verbalization by the client, 396

Veterans Administration (VA), 5

vicarious reinforcement, 90

video learning resources, 558–561

video teleconferencing, 562

visual impairments, 398–402

blindness, 398

visual, aural, read/write, and kinesthetic (VARK) styles, 164–165

instrument to measure, 165

Vygotsky, L., 89

W

web conferencing, 596

webcasts, 596–597

webinars, 596–597

websites for healthcare consumers, 605–606*t*

Band-aides, 606

Blackboards, 606

evaluation criteria, 606*t*

licensure, 607

NetWellness, 606

telepractice, 607

Westerner learning style, 161

whole-brain thinking, 151–152

instruments to measure, 151–152

Wide Range Achievement Test (WRAT), 299

wikis, 594–595

World Wide Web, 609

worldview, 353

WRAT. *See* Wide Range Achievement Test

write-pair-share, 490

written materials, 395–396, 540–544

commercially prepared materials, 541

self-composed materials, 542–544

written simulations, 503

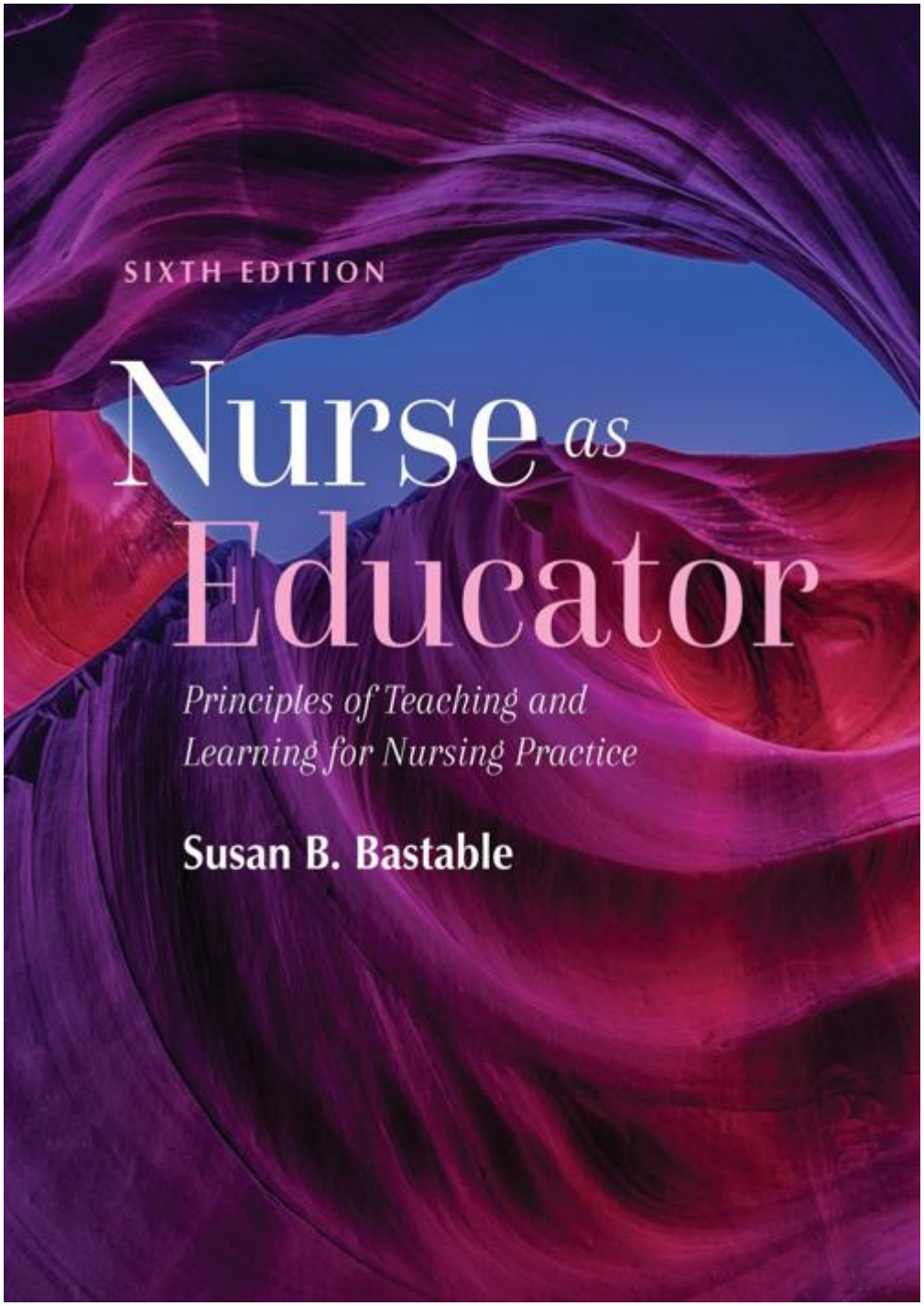
Y

Yerkes–Dodson law, 143

Young Adult Literacy Survey, 279

young adulthood (20-40 years of age), 202–204

YouTube, 595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