INNOVATIVE TEACHING STRATEGY

Teaching Innovations Using Systems Thinking to Guide Fieldwork Projects in RN-to-BSN Education

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Abstract

Background: A critical need exists to improve quality and safety within RN-to-BSN education through innovative teaching strategies. RN-to-BSN students are poised to improve patient outcomes through system-level awareness by use of scholarly fieldwork projects within practice settings. The purpose of this scholarship of teaching project was to use an adapted version of the Systems Awareness Model to develop and categorize RN-to-BSN students' learning experiences and capstone-type fieldwork projects guided by systems thinking. Faculty members of the Catalysts for Change Community led this project. ***Methods:*** A modified Delphi technique using multiple iterations to reach consensus by faculty experts was used in the design of this scholarship of teaching project. The philosophical underpinning guiding this project was collaborative scholarship. The seven steps of the System Awareness Model adapted for leadership and management were used to guide faculty championing quality and safety of innovative teaching strategies in face-to-face, hybrid, or online teaching-learning environments. ***Results:*** Faculty described examples of evidence-based practice (EBP), change, and practice projects including ideas, titles, and descriptions in alignment with Quality and Safety Education for Nurses (QSEN) competencies and with newly adopted American Association of Colleges of Nursing Education Essentials. A grading rubric is provided for evaluating fieldwork student project outcomes. ***Conclusions:*** The teaching strategies and fieldwork projects described in this paper reinforce the American Association of Colleges of Nursing (AACN) RN-to-BSN White Paper and the Commission on Collegiate Nursing Education (CCNE) Teaching Standards. Suggestions for future research are offered.

Keywords: Innovative teaching strategies, system awareness model, systems thinking, RN-to-BSN education

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Teaching Innovations Using Systems Thinking to Guide Fieldwork Projects in RN-to-BSN Education

The Quality and Safety Education for Nurses (QSEN) Institute strives to improve the delivery of safe care in health systems. QSEN leaders endeavor to unify academic-clinical partners as catalysts for change. QSEN's RN-to-BSN Catalysts for Change Community (RN-to-BSN CCC), formerly the International QSEN RN-to-BSN Task Force, promotes the science of systems thinking to advance change across the academic-clinical chasm. Systems thinking (ST) is a cogent teaching approach for leading improvement (McKimm et al., 2020). The RN-to-BSN CCC leverages RN-to-BSN students as educational consumers who lead change. As such, the RN-to-BSN CCC undertook a scholarship of teaching project that sought to inform and entice future scholarship in teaching and learning. Boyer (2016) noted that scholarship of teaching begins with the educator's knowledge and progresses to the dissemination of their knowledge. These nurse educators set out to identify teaching innovations that represent capstone-type fieldwork projects reflective of improving quality and safety outcomes within health systems.

The RN-to-BSN CCC acknowledges a critical need for innovative teaching strategies (ITS) in RN-to-BSN education designed to improve quality and safety within clinical settings (Horntvedt et al., 2018). This report summarizes how faculty members of the RN-to-BSN CCC developed, implemented, and evaluated previous fieldwork projects that used ITS in both the classroom and clinical learning settings. Dolansky and Moore (2013) noted that as nurses develop system level thinking skills, they also have the ability to recognize the interconnectivity of processes and functions, contributing to enhancing quality and safety. The purpose of this scholarship of teaching project was to develop and categorize RN-to-BSN students' learning experiences and capstone-type fieldwork projects guided by ST. An adapted version of the Systems Awareness Model (SAM; Phillips et al., 2016) was used as the framework to assist in the scaffolding of learning experiences that might foster the growth of ST, promoting a culture of quality and safety.

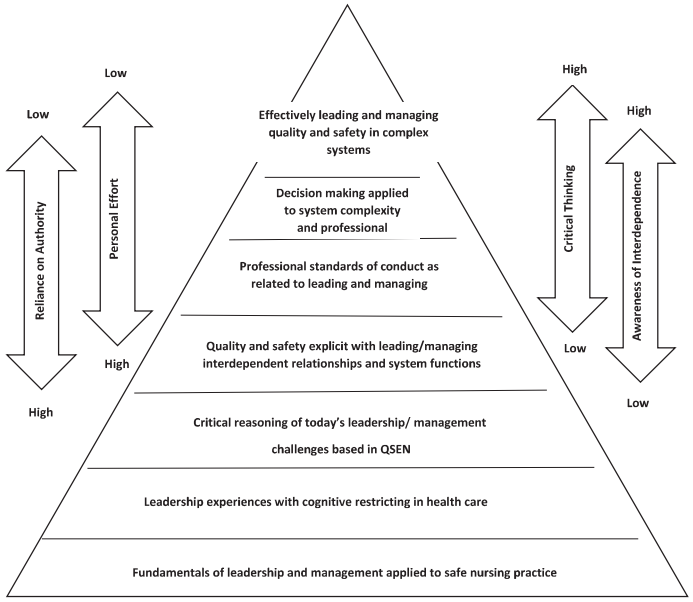
Methods

The philosophical underpinning guiding this scholarly project was collaborative scholarship. Collaborative scholarship enhances discoveries of different dimensions of the same phenomenon for the purpose of knowledge generation (Thompson et al., 2010). Cygan and Reed (2019) emphasized that intraprofessional collaborations between doctorally-prepared nurses impel evidence-based change. The authors of this project explored ITS that resulted in RN-to-BSN students effectively leading and managing quality and safety in practice settings.

The SAM developed by Phillips et al. (2016) was adapted to explore innovative teaching strategies because originally, SAM was developed to foster ST within RN-to-BSN curricula and was not limited to a specific type of learning experience. This model was adapted to focus on the specific use of ITS within RN-BSN programs' fieldwork projects or assignments. Faculty members of the RN-to-BSN CCC were familiar with the SAM, and had previously leveraged the model to develop scaffolded learning experiences. SAM uses seven consecutive steps to increase nurse knowledge and application in leading health systems. At Step 1, nurses focus on fundamentals of theory application, exhibiting high reliance on authority and high personal effort. Conversely, they exhibit low theory application in clinical reasoning and have modest system awareness of interdependent work relationships. By Step 7, it is proposed that nurses have become experienced thinkers, displaying less reliance on authority, spending less personal effort to complete their work, exhibiting higher clinical reasoning, and demonstrating increased interdependence with the health care team. The steps are aligned with Dolansky and Moore's (2013) Systems Thinking Scale which measures reliance on authority, personal effort, critical reasoning, and system interdependencies. The model has been adapted to address academic (Stalter & Jauch, 2019), practice settings (Phillips et al., 2018), and COVID-19 related clinical issues (Phillips & Stalter, 2020). For this scholarship of teaching project, SAM was adapted to develop and categorize RN-to-BSN students' scaffolded learning experiences and capstone-type fieldwork projects. The adapted version integrates the use of ITS in classroom, hybrid, and online environments to foster nurses with effectively leading and managing quality and safety within the complex systems where they work (Figure 1).

Figure 1

Modified System Awareness Model to Explore Innovative Teaching Strategies



Note. The System Awareness Model (SAM) was modified for effectively leading and managing quality and safety in complex systems (Philips et al., 2016). The figure illustrates how SAM was applied to categorize the increasing complexity of fieldwork projects.

Design

A modified Delphi technique using multiple iterations to reach consensus was used in the design of this scholarship of teaching project. The meetings were facilitated by the RN-BSN CCC co-leaders over a period of three to four months. Faculty experts met three times using videoconferencing technologies and shared drives over the three-month period. First, they met as an expert

panel to brainstorm the various teaching strategies they used to educate RN-to-BSN students. Next, the expert panel self-divided into seven teams of two to three members who were focused on each of the seven SAM steps where they discussed student projects used to effectively lead and manage quality and safety in complex systems.

Last, they met to link teaching strategies to SAM steps. Each team brought their recommended ITS to the panel for consensus. At each meeting, notes were taken by the second author and analyzed by the team for informing subsequent conversations. Debates were resolved by consensus where the team worked to come to a collaborative agreement. The use of the modified Delphi Method allowed the RN-to-BSN CCC to leverage the collaborative educator's experiences, culminating in the identification of the ITS. A rubric template, based on criteria used during consensus discussion, is provided for faculty use when evaluating students' fieldwork project presentations (Table 1). The rubric emphasizes exemplary performance and can be modified when used. Criteria used in the rubric included project purpose, learning objectives of the project, justification for the project from a systems thinking perspective, implementation of the plan, use of evidence-based practice in the plan, evaluation of the plan, products from the project, timeline for completion of the project in a graph or table, format, and professionalism.

Table 1

Fieldwork Project Grading Rubric (100 points)

Criteria	Exemplary (8-10 points)	Developing (5-7 points)	Beginning (1-5 points)	Not Acceptable (0 points)
Project purpose	Clearly articulates project purpose with clear rationale.	Articulates project purpose but lacks clear rationale.	Provides some rationale but does not articulate purpose.	Does not articulate project purpose.
Learning objectives of the project	Clearly demonstrates use of SMART objectives to explain tasks to be undertaken to complete project. Includes at least one objective to address safe practice. Includes at least one objective to address interprofessional collaboration to improve patient/health outcomes.	Adequately demonstrates use of SMART objectives to explain tasks to be undertaken to complete project includes at least one objective to address safe practice. Includes at least one objective to address interprofessional collaboration to improve patient/health outcomes.	States some objectives to explain tasks to be undertaken to complete project but are not in SMART format. Includes at least one objective to address safe practice but does not include one objective to address interprofessional collaboration to improve patient/health outcomes.	Does not demonstrate use of SMART objectives nor explain tasks to be undertaken. Does not include objectives to address safe practice and interprofessional collaboration to improve patient/health outcomes.
Justification for the project from a systems thinking perspective	Clear logical statements showing justification for the project from a systems thinking perspective.	Shows insight into justification for the project from a systems thinking perspective, but some statements are not clear.	States justification for the project but does not show insight into the need for the project from a systems thinking perspective.	No statements for justification or insights for the project from a systems thinking perspective.
Implementation of the plan	Clear logical statements showing insight into topic and analysis. Implementation statement involves evidence to support interprofessional collaboration.	Shows insight into topic and analysis. Implementation statement does not involve evidence to support interprofessional collaboration.	Sparse insight into topic and analysis. Implementation statement does not involve evidence to support interprofessional collaboration.	No statements of insight into topic and analysis. No statements of evidence to support interprofessional collaboration.
Use of evidence-based practice in the plan	Uses reliable evidence when supporting arguments such as peer reviewed journals, professional web sites, or other books. New ideas or examples from experience to contribute to goals. Connections are made with depth and detail.	Uses reliable evidence when supporting arguments such as peer reviewed journals, professional web sites, or other books. Ideas or examples contribute to goals, but connections are not made with depth or detail.	Uses evidence but not in sufficient amount or reliability to support argument. Few if any new ideas or connections and provides minimal or no insight.	Uses no evidence, unreliable evidence, or misleading evidence. No new ideas.

Evaluation of the plan	Clear logical statements showing formative and summative evaluation of plan including insight into topic and analysis goals. Connections are made with depth and detail. Uses data to evaluate contribution of interprofessional collaboration.	Competent but information thin and commonplace; answers only part of questions; Few if any new ideas or connections and provides minimal insight. Does not clearly use data to evaluate contribution of interprofessional collaboration.	Rudimentary and superficial evaluation; no analysis or insight. Statements lack explanation of reasoning. No new ideas.	No formative or summative evaluation. No analysis or insight. Uses no evidence.
Products from the project	Development of slides showing products/policies are clear and complete. Summary slide concisely describes project.	Slides showing products/ policies developed are included. Summary slide is present but vague.	Slides are present but loosely related to project. No clear summary slide.	No products from project are evident. No summary slide is included.
Timeline for completion of the project in a graph or table	Student project timeline displays all tasks, is reasonable in completion and is displayed in a graph or table.	Student project timeline displays all tasks needed to complete the project. Is not in a graph or table.	Student project timeline does not display all tasks needed to complete the project. Is not in a graph or table.	Timeline not present.
Format	Project submitted on time, proper number of pages and has 0-1 misspelled words, 0-1 grammar mistakes, minor APA, or in-text citation error.	Project submitted on time. Has improper number of pages or 2-3 misspelled words, 2-3 grammar mistakes, minor APA, and in-text citation error.	Project submitted late. Has improper number of pages, and has >3 misspelled words, >3 grammar mistakes, moderate amount of APA and in-text citation.	Project not submitted.
Professionalism	Communicates clearly with all involved in the project. Follows rules and policies of the practice setting.	Communications are inconsistent with all involved in the project. Follows rules and policies of the practice setting.	Communications are inconsistent with all involved in the project. Inconsistent with following rules and policies of practice setting.	Communications are inconsistent or non-existent with all involved in the project. Did not follow rules and policies of practice setting.

Sampling Method

All committee members of the RN-to-BSN CCC were invited to participate in this project. The inclusion criteria for the expert panel were participants in the RN-to-BSN CCC, RN-BSN educators, who had familiarity with the steps of SAM and ST. The exclusion criteria for the expert panel were RN-to-BSN educators who had not creatively applied ITS to practice.

Ethical Considerations

This scholarship of teaching project was not a formal research study and did not require an IRB review. However, the expert panel was cognizant of the need to protect the confidentiality of any data obtained from the previous implementation of the ITS. This project sought to inform and encourage future scholarship in teaching and learning through the sharing of gleaned experiences and wisdom in this area. The expert panel verbally agreed to work collaboratively and understood that they were able to stop their engagement in the modified Delphi technique at any time without any repercussions. No student data or identifying information to any educational organization were collected.

Results

Expert Faculty Panel Characteristics

A heterogeneous sample of 14 RN-to-BSN faculty who serve as national leaders focused on QSEN integration among RN-BSN students completed this project. The opportunity to participate was presented by the RN-BSN CCC co-leaders at a regular committee meeting and was open to all committee members. They represented 10 public and 2 private universities across the United States and were either Master's or doctorally-prepared. Teaching experience ranged from 4 to 30 years. The class sizes of the various institutions range from 12 to 25 students.

Innovative Teaching Strategies

Faculty identified, that when working with RN-to-BSN students, they used similar approaches in face-to-face, hybrid, or online teaching and learning environments. The team was focused on the specific use of ITS in fieldwork learning experiences. A shared Google drive was used to house the minutes and working documents. They each identified that their RN-BSN students were expected to implement evidence-based practice (EBP) or quality improvement projects in practice settings. The consensus of the

RN-to-BSN CCC was that fieldwork projects using an ITS must be creatively applied to practice or substantiated using evidence-based tools, as well as having students leading and managing quality and safety in practice settings.

Faculty described how they championed quality and safety by assisting students to address real-life practice gaps, guiding them to lead meaningful change within their practice settings and work environments. Specific examples included "Friday Night in the ER," "Plan-Do-Study-Act presentations," and "Sepsis Reduction within a Hospital System." These examples of how faculty have championed quality and safety were described as helping students be informed about Joint Commission sentinel event alerts, performance measures, characteristics of high reliability organizations, and reinforcing zero harm safety cultures in the practice arena. The discussed projects used a preceptor or mentor model to guide project implementation. The distinguishing factor for using a preceptor versus a mentor was compliance with program policy and/or state law. For this scholarship of teaching project, SAM was adapted to develop and categorize RN-to-BSN students' scaffolded learning experiences and capstone-type fieldwork projects. The adapted version integrates the use of ITS in classroom, hybrid, and online environments to foster nurses with effectively leading and managing quality and safety within the complex systems where they work (Figure 1). Students' fieldwork projects were categorized according to the corresponding level of the modified SAM. Overall, faculty described projects that empower students with essential competencies for instituting change in complex health care systems. Discussions addressed the project purpose, learning objectives of the project, justification for the project from a systems thinking perspective, implementation of the plan, use of evidence-based practice in the plan, evaluation, products used in the project, timeline for completion of the project reflected in a graph or table format, and professionalism. The ITS were selected based on consensus using the modified Delphi technique. These criteria were used to develop a rubric (Table 1) that could be used by faculty in the evaluation of student presentations based on the fieldwork learning experience. A passing score will need to be determined by each program.

Step 1: Fundamentals of Leadership and Management Applied to Nursing Practice

Concepts related to the fundamentals of leadership applied to nursing practice involve three primary concepts: theories and principles of leadership and management, characteristics of effective leaders and managers, and organizational edifice. To apply these concepts to the practice setting, a fieldwork project entitled, Improving Vision, Mission and Strategic Planning Awareness, addresses organizational edifice to advance student knowledge on how nurse leaders translate objectives into actionable cost, performance, and time-related measures. Students worked with one another, along with agency staff, to identify and advance the organization's mission, vision, and strategic plan. Students collaborated with agency leaders to develop a plan using a survey to assess agency staff knowledge, offer an educational intervention (e.g., using a video, PowerPoint, brochure) and then evaluate or conduct a posttest of staff knowledge. This fieldwork project aligns with QSEN competency – patient centered care – by reinforcing organizational vision, mission, and strategic plans that are central to meeting the needs of the patient, family, and community, and by fostering teamwork and collaboration. This ITS also aligns with the American Association of Colleges of Nursing (AACN) *The Essentials: Core Competencies for Professional Nursing Education* (AACN Essentials; 2021) "Domain #10: Personal, Professional, and Leadership Development", in that the activities support the acquisition of nursing expertise and assertion of leadership.

Step 2: Leadership Experiences with Cognitive Restructuring in Health Care Settings

Concepts related to this step involve self-awareness and systems theory to distinguish between dysfunction and function, and to exhibit situational awareness related to civil protection, fairness, and equality when leading and managing others (implicit bias). To apply these concepts to the practice setting, a fieldwork project entitled, *A Health Equity In-service to Reduce Implicit Bias,* offers students the opportunity to work with staff in agencies to develop an in-service, virtual module or workshop by pre- and post-testing their level of implicit bias using Harvard's Implicit Bias Test (Project Implicit®, 2011), and then offering the Institute for Healthcare Improvement (IHI) Open School Health Equity videos to educate staff. This fieldwork project aligns with the QSEN competencies, patient-centered care and quality improvement, because implicit bias can impede communication and influence healthcare provider actions and team performance and defines organizational culture. The project addresses the AACN Essentials (2021) Domains #6.4 titled "Work with Other Professions to Maintain a Climate of Mutual Learning, Respect, and Shared Values" and #10.3 titled "Develop a Capacity for Leadership."

Step 3: Critical Reasoning of Today's Leadership/Management Challenges Based in QSEN

Concepts related to this step are prioritizing resources (e.g., staffing and budgets) and crisis intervention. Today's leadership and management challenges must integrate best practice to maximize safe optimal outcomes, especially during crises. To apply these concepts in the practice setting, a fieldwork project entitled, *Stop the Bleed*™ certifies people to save lives during a bleeding emergency. RN-to-BSN students led *Stop the Bleed* ™ programs in hospitals or other community-based settings to teach crisis intervention using best practice (American College of Surgeon, 2019-2021). This fieldwork project aligns with the QSEN competencies of "EBP and Safety" and the AACN Essential (2021) #10.2j, "Expand Leadership Skills Through Professional Service."

Step 4: QSEN Mastery Explicit for Leading and Managing Interdependent Relationships and System Functions

Concepts related to this step are communication, teamwork, conflict resolution, negotiating, and problem-solving. To apply these concepts in the practice setting, a fieldwork project entitled, *Friday Night at the ER® (FNER)*, was coordinated by a student or student group hosting a game night for agency employees. FNER is an interactive board game that mimics workflow in a simulated

hospital emergency room (Breakthrough Learning, 2019). Players manage four hospital departments over a 24-hour period. A trained facilitator conducts a group debriefing with a focus on systems thinking. FNER provides a teaching strategy conducive to interprofessional learning and has been used by nursing students and interprofessional teams (Sanko et al., 2021). A positive impact on ST scores via the Systems Thinking Scale (Moore & Dolansky, 2010) after playing FNER has been observed (Sanko et al., 2021; Thornton Bacon, 2018). Learning among interprofessional staff was validated by student-led debriefing sessions. This fieldwork project aligns with the QSEN competency of "teamwork and collaboration" and with the AACN Essentials (2021) Domain #6 "Interprofessional Partnerships in that the Activity Involved Intentional Collaboration Across Professions to Manage Care of Patients."

Step 5: Professional Standards of Conduct, as Related to Leading and Managing

Concepts related to this step integrate the ANA Code of Ethics for ethical decision- making. To apply these concepts in the practice setting, a fieldwork project entitled, the *Utilitarian Ethics Moral Distribution of Resources*, was implemented. Students worked with agency leadership to assess agency staff views (i.e., using a focus group) on the availability and distribution of personal protective equipment (PPE) during a pandemic and then offered an educational intervention using a video, PowerPoint, and a brochure on the topic of utilitarianism. Pre- and post-evaluations are consistent with ethical decision-making. This ITS aligns with the QSEN competency, EBP and Safety where students discriminated between valid and invalid reasons for modifying best clinical practices based on available resources. The AACN Essential (2021) aligned with this project is #10.2, "Demonstrate a Spirit of Inquiry that Fosters Flexibility and Professional Maturity," and #10.3i, "Recognize the Importance of Nursing's Contributions as Leaders in Practice and Policy Issues."

Step 6: Decision Making Applied to System Complexity and Professional Standards

Concepts related to this step include risk management, error mitigation and change theory. To apply these concepts in the practice setting, a fieldwork project entitled, *Sentinel Event: An Analysis and Action Plan*, focuses on viable system-based improvements in an acute care setting. Students worked independently or in groups to identify a potential sentinel event, such as harm caused by a medication error. Students engaged with agency staff to mitigate the potential event by developing a root-cause analysis diagram and a detailed EBP plan for corrective action. Pre and post assessment occurred through survey, debriefing, preparing a bulletin board, in-service module or recommendation for policy change. This assignment encourages students to be less reliant on faculty by achieving a higher level of comfort in decision making and interdependence among colleagues, teams, and the organization. They acquired survey development skills for evaluating the participants' understanding of the error mitigation. The project aligns with QSEN competencies by promoting teamwork and collaboration, EBP, quality, and safety. In addition, this project supports the AACN Essentials (2021) Domain #10, "Personal, Professional, and Leadership Development" by promoting critical thinking and managing change within a complex environment.

Step 7: Effectively Leading and Managing Quality and Safety in Complex Systems

Concepts related to this step pertain to complexity, systems focused actions, and performance measurement. To apply these concepts in the practice setting using a fieldwork project entitled *Sepsis Reduction within a Hospital System*, students completed a comprehensive assessment across departments. They collaborated with interprofessional partners to determine prevention strategies and sepsis occurrence, and prevention-based performance criteria. Students created a detailed staff education program providing the RN-to-BSN student the opportunity to lead and manage sepsis prevention strategies by reporting pre- and post-education results and integrating performance evaluation standards as a sustainable change measure, including return on investments. All six of the QSEN competencies are executed. This innovative learning experience encompasses four of the AACN Essentials (2021): quality and safety (#5); interprofessional partnerships (#6); systems-based practice (#7); and personal, professional and leadership development (#10). Thus, faculty have experienced that as fieldwork projects align with higher steps of the SAM, and so do the rigor, robustness, and acquiescence within the clinical setting, further contributing to nurses' ability to use ST to enhance quality and safety.

Discussions

The impetus for faculty to incorporate fieldwork projects with the practice setting was guided by the AACN RN to BSN White Paper (2012) and the Commission of Collegiate Nursing Education (CCNE, 2018) standards. The AACN RN to BSN White Paper emphasizes the need for RN-to-BSN students to have quality fieldwork experiences in practice settings. The CCNE standard III-H specifically requires curriculum which includes planned clinical practice experiences that enables students to integrate new knowledge and demonstrate attainment of program outcomes; foster interprofessional collaborative practice; and are evaluated by faculty.

We have experienced that within practice settings, the learning experiences have increased in complexity with the advancement of each step of the modified SAM. For example, in Step 1, students advance the mission of an organization. By Step 7, they address system failures and integrate sustainable change using performance measures. Based on this observation, we recommend that systems thinking be measured before and after fieldwork projects to substantiate the effectiveness of student learning and application of knowledge into practice settings. It is recommended that the rubric template, based on criteria used during consensus discussion, be used when evaluating nursing student's fieldwork project presentations (Table 1). The rubric emphasizes exemplary performance and can be modified when used.

A study substantiating psychometric evaluation of a ST rubric (Phillips et al., 2019) could be adapted for capstone-like fieldwork projects. The ITS presented in this article have been used in

practice settings but have not been formally studied as to their overall impact on quality and safety. The ITS are presented as ideal academic-practice fieldwork projects, designed to advance evidence-based system level change within practice settings. We recommend that the next research step is to study the impact of the ITS in the fieldwork projects completed by RN-to-BSN students in their workplaces or practice settings from the perspective of ST, leadership strategies, or specific health related outcomes.

Conclusions

The SAM adapted for leadership and management guided faculty to develop ITS for RN-BSN student fieldwork projects. Project examples were presented by QSEN's RN-to-BSN CCC in alignment with both QSEN competencies and AACN Essentials (2021). The AACN White Paper and the CCNE standard guided the use of these teaching strategies. A rubric for evaluating nursing students' presentations of their fieldwork projects and suggestions for future research were offered.

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