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SEPTEMBER 1999

TECHNIQUES

CONNECTING EDUCATION AND CAREERS

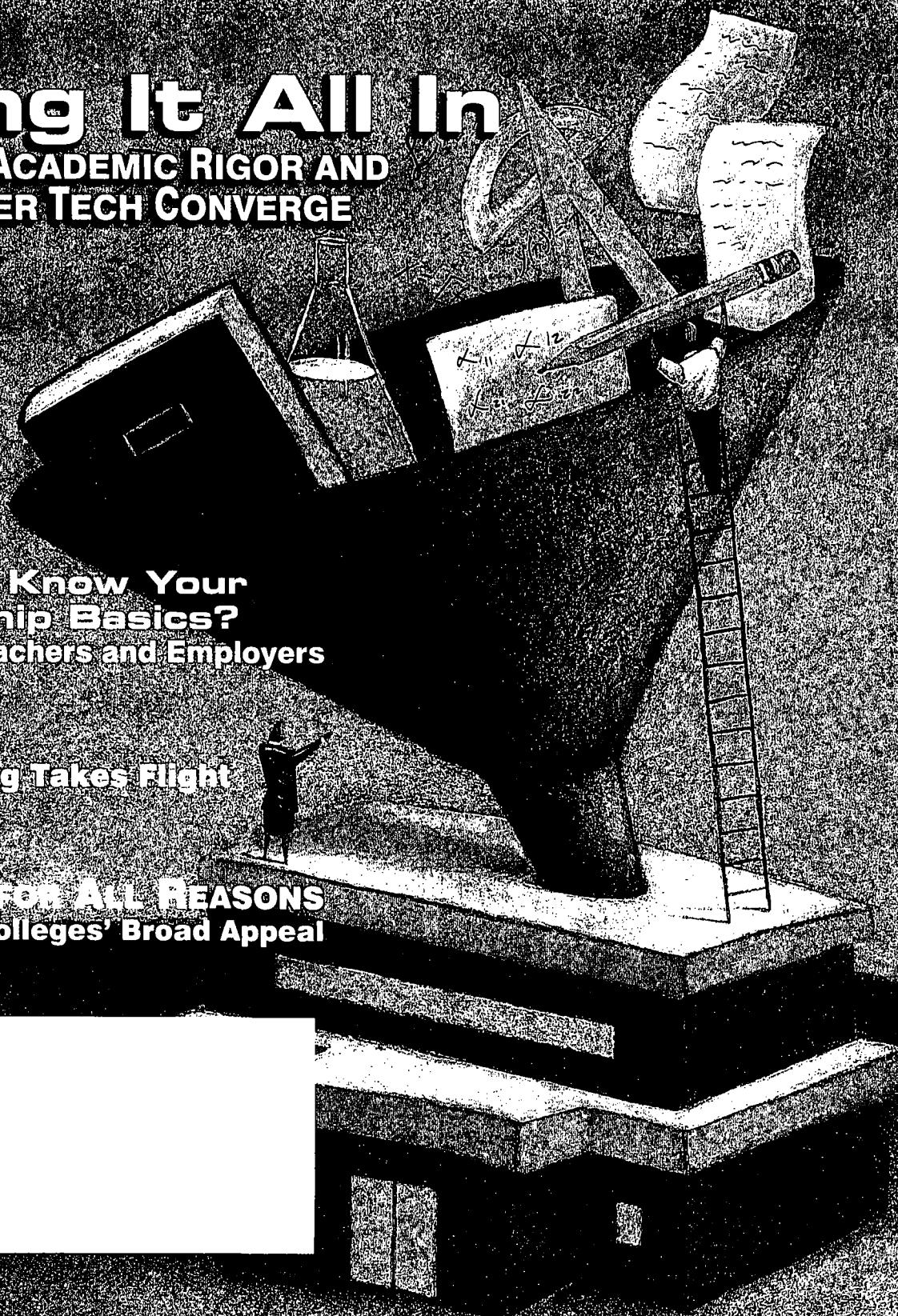
Taking It All In

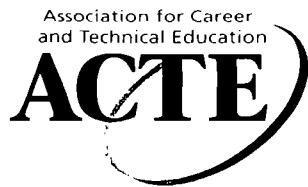
WHEN ACADEMIC RIGOR AND
CAREER TECH CONVERGE

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ASSOCIATION FOR CAREER AND TECHNICAL EDUCATION PRIORITIES FOR REAUTHORIZING THE ELEMENTARY AND SECONDARY EDUCATION ACT

The Association for Career and Technical Education (ACTE, formerly the American Vocational Association) represents 38,000 secondary and postsecondary teachers, career guidance counselors, administrators and teacher educators, as well as business leaders from across the country who are dedicated to improving vocational, career and technical education for our nation's students. While the primary source of federal support for career and technical education comes through programs authorized under the Carl D. Perkins Vocational and Technical Education Act of 1998 and the federal student aid programs that help students pursue postsecondary career and technical education, we are concerned about the full range of educational opportunities available to students of all ages.

As a critical component of our nation's education system, career and technical education cannot operate in a vacuum. The better prepared that students are when they enter career and technical education, the more effective our course offerings can be. Thus, we support strengthening and expanding educational opportunities at all levels of elementary and secondary education. With high quality and accessible opportunities for lifelong learning that include postsecondary career and technical education for adult students of all ages, individuals will be able to pursue their education and career goals and our economy will continue to grow and prosper.

With these interests in mind, ACTE strongly supports the following as key initiatives in the upcoming reauthorization of the Elementary and Secondary Education Act:

- Improve career awareness and career exploration activities beginning in the early elementary grades and continuing through grade 12.
- Expand education and career planning, beginning in middle school with guidance about where educational opportunities will lead and what coursework is needed to begin to prepare for career options.
- Create opportunities for broader use of applied academics and other teaching methodologies that demonstrate the use and relevance of academic concepts to ensure that students who learn better in a contextual manner receive instruction at academic levels at least as high as those taught using traditional methods.
- Expand the use of technology in education as both a teaching tool and a critical component of the curriculum.
- Improve and expand professional development for teachers, administrators and counselors to ensure that they have the academic and technical skills necessary to teach to the levels that students will need to pursue their career goals.
- Expand the development of voluntary professional teaching standards that include career and technical education.
- Expand the development of voluntary industry-recognized skill proficiencies to demonstrate the levels of academic and occupational instruction that are needed for students to pursue their career choices and further their education.
- Ensure coordination among federal, state and local education programs to promote cost-efficient programs, ensure non-duplication and provide high quality educational opportunities for students at all levels.

*For more information, please contact Nancy O'Brien, Assistant Executive Director for Government Relations,
Association for Career and Technical Education (703) 683-3111, x311.*

The CAREER and TECHNICAL STUDENT ORGANIZATION (CTSO) and The NATIONAL COORDINATING COUNCIL for CAREER and TECHNICAL STUDENT ORGANIZATIONS (NCCCTSO)

The Career and Technical Student Organization (CTSO)

The concept of an organization designed to support students learning a vocation had its roots in the activities of such institutions as trade guilds and apprenticeship societies common in the 18th and 19th centuries. In more contemporary history, the development of career and technical education and the career and technical student youth organization can be chronicled through a number of relevant Federal laws.

Smith-Hughes Act (1918)

This act, often referred to as the "Granddaddy Act" of vocational education, in effect provided the foundation for vocational student organizations. Although the act did not specifically mention student organizations, it provided funds for vocational agriculture teachers whose duties included advising and supervising a vocational student organization.

"George Acts"

These acts (1929, 1934, 1936, and 1946) were a series of laws that supplemented and continued the appropriations for vocational education started by the Smith-Hughes Act. Of the four acts, the most important to youth organizations was the George-Barden Act of 1946, also known as the Vocational Education Act of 1946. This act was the first to mention a vocational student organization by name, and it specifically stated that funds could be used for vocational agriculture teacher activities that were related to the vocational agriculture student organization.

Public Law B1-740 (1950)

This law, referred to as Public Law 740, federally chartered a vocational student organization thereby establishing the relationship of a vocational student organization to industrial arts education. It also officially tied the U.S. Office of Education to vocational student organizations by allowing employees of the U.S. Office of Education to be hired for the purpose of working with student organizations. Although this law chartered only one student organization (the vocational agriculture student organization), it established the pattern of treating existing and future vocational student youth organizations as integral parts of vocational education.

Vocational Educational Act of 1963

This act and its subsequent amendments of 1968 and 1976 specified that vocational student organizations were an essential part of vocational instruction; vocational education, therefore, became a legitimate recipient of federal and state grant funds for the purpose of providing leadership and support to vocational student organizations and applicable and appropriate activities.

Carl D. Perkins Vocational Education Act of 1984

This act and the subsequent amendments of 1990 and 1998 have provided federal assistance to secondary, post-secondary, and adult vocational education programs. The purpose of the most recent act, the 1998 Perkins, is fourfold: (1) to build on the efforts of state and localities to develop challenging academic standards; (2) to promote the development of services and activities that integrate academic, vocational and technical instruction and that link secondary and postsecondary education; (3) to increase state and local flexibility to provide services and activities; and (4) to disseminate national research and to provide professional development and technical assistance that will improve vocational and technical education programs.

Today, the career and technical student organization (CTSO) is regarded as an integral part of career and technical education. There are ten CTSOs recognized by the U.S. Department of Education (see Section Three). These organizations provide a unique program of career and leadership development, motivation and recognition for secondary, post-secondary, and adult and collegiate students enrolled, or previously enrolled, in career and technical education programs.

Educators have found that the CTSO is a powerful instructional tool that works best when it is integrated into the career and technical education curriculum by a trained professional. The dedicated instructor provides organized curriculum-oriented activities that help students gain career, leadership, and personal skills that maximize employability and the ability to become productive citizens in the workforce, home, and community.

The ten CTSOs recognized by the U.S. Department of Education are:

- Business Professionals of America
- Distributive Education Clubs of America (DECA)
- Future Business Leaders of America - Phi Beta Lambda (FBLA)
- Future Homemakers of America (FHA)
- Health Occupations Students of America (HOSA)
- National FFA Organization (FFA)
- National Young Farmers Educational Association (NYFEA)
- National Postsecondary Agricultural Student Organizations
- Technology Student Association (TSA)
- Vocational Industrial Clubs of America (SkillsUSA-VICA)

OVERVIEW OF THE CTSOs

Business Professionals of America

Year organization founded:	1966
Membership divisions:	secondary, post-secondary, associate
Total annual membership:	4,000 plus
States with chapters:	20
Local chapters:	2,500 plus
Applicable course work:	business and office career education
Focus areas of chapters:	employability; leadership, civic service, and technical skill development
Competitive program levels:	regional, state, national
Future national conferences:	Philadelphia, PA April 23-27, 1999 Minneapolis, MI April 28-May 2, 2000 Anaheim, CA May 9-13, 2001
Conference participants:	4,500 plus
Mission statement/goals:	The mission of this organization is to contribute to the preparation of a world-class workforce through the advancement of leadership, citizenship, academic, and technological skills.
The organization's ties to curricula:	The Workplace Skills Assessment Program reflects and reinforces the workplace skills taught in the classroom while developing the employability skills necessary for the transition from school to work.

President and CEO:

Gary L. Hannah, CAE

Address information:

Business Professionals of America
454 Cleveland Avenue
Columbus, OH 43231-4021
Telephone: (614) 895-7277
FAX: (614) 895-1165
E-mail: bpa@ix.netcom.com
Web Site URL: www.bpa.org

Distributive Education Clubs of America (DECA)

Year organization founded:	1946
Membership divisions:	high school (marketing education in secondary institutions), Delta Epsilon Chi (marketing education in technical and post-secondary institutions), professional (educators and administrators), alumni (former high school and Delta Epsilon Chi members)
Total annual membership:	180,000
States with chapters:	50, plus the District of Columbia, Guam, and Puerto Rico
Local chapters:	6,000
International chapters:	Canada
Applicable course work:	marketing, business, management, entrepreneurship education
Focus areas of chapters:	career and professional development, civic service, leadership skills
Competitive program levels:	local, state, regional, national
Future national conferences:	Louisville, KY April 29-May 2, 2000 Anaheim, CA April 29-May 2, 2001 Salt Lake City, UT April 20-23, 2002 Orlando, FL April 26-29, 2003 Nashville, TN May 1-4, 2004 Anaheim, CA April 27-30, 2005
Conference participants:	1,100
Mission statement/goals:	

The mission of this organization is to enhance the co-curricular education of students who have an interest in marketing, management, and entrepreneurship. DECA seeks to help students develop skills and competence for marketing careers; build self-esteem; experience leadership; and practice community service. DECA is committed to the advocacy of marketing education and the growth of business and education partnerships.

The organization's ties to curricula:

DECA supports and contributes to classroom learning through its co-curricular materials and chapter activities such as mentor training, structured work plans, and competitive events (including classroom projects that simulate real-life business situations). DECA provides educators with a means to measure student growth and the attainment of identifiable career skill competencies. DECA rewards and recognizes its student members, thus increasing their motivation and self-esteem. Marketing education under the DECA program meets the requirements of a School-to-Work system by law. DECA is a viable link between business and education.

Executive Director:

Dr. Ed Davis

Address information:

DECA
1908 Association Drive
Reston, VA 20191-1594
Telephone: (703) 860-5000
FAX: (703) 860-4013
E-mail: decainc@aol.com
Web Site URL: www.deca.org

Future Business Leaders of America (FBLA) - Phi Beta Lambda

Year organization founded:	1942
Membership divisions:	FBLA middle level, FBLA grades nine through 12, Phi Beta Lambda (post-secondary), professional
Total annual membership:	255,000
States with chapters:	48, plus the District of Columbia, U.S. Virgin Islands, Puerto Rico, DoDDs - Europe and Ontario, Canada
Local chapters:	6,117
International chapters:	Germany, Bahrain, Belgium, Japan
Applicable course work:	business and technical education
Focus areas of chapters:	American enterprise, community service, business plans, partnerships with business
Competitive program levels:	local, regional, state, national
Future national conferences:	Chicago, IL June 28-July 7, 1999 Long Beach, CA July 7-15, 2000
Leadership conferences:	Wichita, KS and Salt Lake City, UT November 5-6, 1999 Greensboro, NC November 12-13, 1999
Conference participants:	7,000
Mission statement/goals:	

The mission of this organization is to bring business and education together in a positive working relationship through innovative leadership and career development programs.

The organization's ties to curricula:

The activities, programs, and competitions endorsed by FBLA-PBL, Inc., correspond to and are co-curricular with the approved business syllabi of state departments of education and are therefore in conformance with the National Standards for Business Education as put forth by the National Business Education Association (NBEA).

President and CEO:

Jean M. Buckley

Address information:

FBLA

1912 Association Drive

Reston, VA 20191-1591

Telephone: (703) 860-3334 or (800) 325-2946

FAX: (703) 758-0749

E-mail: general@fbla.org

Web Site URL: www.fbla-pbl.org

Future Homemakers of America (FHA/HERO)

Year organization founded:	1942
Membership divisions:	FHA (family and consumer sciences education), HERO (family and consumer sciences related education), and combined FHA/HERO chapters, all secondary; alumni and associates
Total annual membership:	228,025
States with chapters:	50, plus the District of Columbia, U.S. Virgin Islands, and Puerto Rico
Local chapters:	8,246
Applicable course work:	classes for careers in food production services; early childhood education and services; textiles and apparel; housing, interiors and furnishings; hospitality; and tourism and recreation
Focus area of chapters:	community service, career exploration and management, family issues, nutrition and fitness, financial management, traffic safety
Competitive program levels:	regional, state, national
Future national conferences:	Boston, MA July 4-8, 1999
Cluster meetings:	Des Moines, IA October 29-31, 1999 Salt Lake City, UT November 5-7, 1999 Fort Worth, TX November 12-14, 1999 Louisville, KY November 19-21, 1999
Conference participants:	5,500 (national leadership meeting); 11,000 (cluster meetings)
Mission statement/goals:	

This mission of this organization is o promote personal growth and leadership development through family and consumer sciences education. Focusing on the multiple roles of family member, wage earner, and community leader, members develop skills for life through: character development, creative and critical thinking, interpersonal communications,

practical knowledge, and vocational preparation.

The organization's ties to curricula:

FHA/HERO students plan, evaluate, and carry out projects and activities that create ideal opportunities for them to develop and apply family and consumer sciences skills while demonstrating mastery of the national FACS standards. The "end product"—portfolios, project reports, skill demonstrations and more—offer relevant, authentic means to assess student learning. FHA/HERO students sort out thoughts, analyze situations, set goals, interact with others, apply classroom knowledge, and prepare for the responsibilities of careers, and family and community life. They encounter situations in which they: apply skills in family and consumer sciences, academics, and communication; accept responsibility; experience leadership; learn to plan, implement, and evaluate individual and group action; build relationships; develop appreciation for diversity; analyze and solve problems; adapt to change; explore careers; and establish positive career-related attitudes and habits.

FHA/HERO is an integral part of the family and consumer sciences education program. In the local school, chapter projects and activities stem from and enhance family and consumer sciences programs of study. FHA/HERO chapters give students extended opportunities for knowledge application, leadership training, community involvement, and personal growth. FHA offers a variety of national programs to guide and motivate students as they develop projects related to the family and consumer sciences curricula.

Executive Director:

Alan T. Rains Jr.

Address information:

FHA/HERO
1910 Association Drive
Reston, VA 20191
Telephone: (703) 476-4900
FAX: (703) 860-2713
E-mail: natlhdqtrs@fhahero.org
Web Site URL: www.fhahero.org

Health Occupations Students of America (HOSA)

Year organization founded:	1978
Membership divisions:	secondary, post-secondary/collegiate, professional, alumni, associate, honorary
Total annual membership:	62,347
States with chapters:	38, plus Puerto Rico
Local chapters:	1,901
Applicable course work:	health occupations education
Focus areas of local chapters:	community-oriented, career-related, and leadership development activities. (HOSA's national service project is a partnership with Make-A-Wish Foundation. With this project, HOSA members gain understanding and feel the satisfaction of making a difference in the life of a child with a terminal illness. HOSA gives national recognition to individuals and chapters involved in volunteer work in their community. HOSA also sponsors a community awareness project and career health display.)
Competitive program levels:	local, district, state, national
Future national conferences:	Nashville, TN June 23-26, 1999
Conference participants:	4,654
Mission statement/goals:	

The mission of this organization is to enhance the delivery of compassionate, quality health care by providing opportunities for knowledge, skill, and leadership development to all health occupations education students, therefore, helping students meet the needs of the health care community.

The organization's ties to curricula:

The HOSA competitive events program consists of simulated activities (health procedures) that require students to develop, practice, and refine their technical and leadership skills.

Ratings sheets— developed by a national technical advisory committee—are integral to the events because they help students identify the elements of a successful procedure and judge their performance against fixed standards. All competitive events include references to classroom curricula. HOSA provides new health care instructors with *A Guide for Integrating HOSA into the HOE Classroom*.

Executive Director:

Jim Koeninger, Ph.D.

Address information:

HOSA
Morriss Road, Suite 111
Flower Mound, TX 75028
Telephone: (972) 874-0062
FAX: (972) 874-0063
E-mail: hosa@hosa.org
Web Site URL: www.hosa.org

National Future Farmers of America (FFA) Organization

Year organization founded:	1928
Membership divisions:	secondary (grades 7-12), collegiate (secondary institutions), alumni (former members, and supporters), honorary (those who support and help advance agricultural education)
Total annual membership:	447,880 (active, including collegiate); 44,212 (alumni)
States with chapters:	50, plus Puerto Rico (active, including collegiate); 1,112 (alumni)
Local chapters:	7,503 (active including collegiate); 1,112 (alumni)
International chapters:	non, however affiliated with Thailand and Japan; also, connections with 25 countries for work experience placements
Applicable course work:	agriculture, food, fiber, and natural resources education
Focus areas of chapters:	student, chapter, and community development
Competitive program levels:	local, state, and national
Future national conferences:	Louisville, KY October 28-30, 1999
Conference participants:	49,000 plus

Mission statement/goals:

The mission of this organization is to make a positive difference in the lives of students by developing their potential for premier leadership, personal growth, and career success through agriculture education.

The organization's ties to curricula:

Agriculture education focuses on local program success and concentrates on six key areas. Three of these areas—instruction, FFA, and SAE supervised work experience—are

considered components of agriculture education, and three—partnerships, marketing, and professional growth—are considered strategies. These elements combine to make a unified program that promotes student achievement.

National FFA Advisor and CEO:

Dr. Larry D. Case

Address information:

National FFA Headquarters
U.S. Department of Education
330 C St. SW
Washington, DC 20202-7322

or

National FFA Headquarters Operations
1410 King Street, Suite 400
Alexandria, VA 22314
Telephone: (202) 205-8425 or (800) 772-0939
FAX: (202) 205-5522 or (703) 838-5888
E-mail: larry-case@ed.gov or lcase@ffa.org
Web Site URL: www.teamaged.org

National Young Farmer Educational Association (NYFEA)

Year organization founded:	1982
Membership divisions:	none; members range in age from 18 years plus
Total annual membership:	3,800
States with chapters:	23
Local chapters:	500
Applicable course work:	American agriculture education
Focus areas of chapters:	leadership training, community service
Competitive program levels:	local, state, national
Future national conferences:	Hershey, PA
Conference participants:	700

Mission statement/goals:

The mission of this organization is to promote the personal and professional growth of all people involved in agriculture. NYFEA strives to develop and provide educational and leadership opportunities to its membership and others. It provides a national framework to inspire personal achievement and strengthen agricultural leadership, the result of which may foster economic growth.

Executive Vice President:	Gordon Stone
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Address information:	NYFEA P.O. Box 20326 Montgomery, AL 6120 Telephone: (334) 288-0097 FAX: (334) 288-0097 E-mail: gordonstone@www.nyfea.org
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SkillsUSA-VICA

Year organization founded:	1965 (formerly Vocational Industrial Clubs of America)
Membership divisions:	secondary (high school students), post secondary (college and technical students), professional (educators and administrators), alumni, honorary
Total annual membership:	240,000 plus
States with chapters:	50, plus Guam, Puerto Rico, and the U.S. Virgin Islands
Local chapters:	13,000 plus
Applicable course work:	technical, skilled and service occupations education (including health occupations)
Focus areas of chapters:	professional development, business partnerships, community service, public relations, and SkillsUSA Championships in occupational and leadership areas
Competitive program levels:	local, district, state, national, international (official U.S. representative to the World Skills Competition)
Future national conferences:	Kansas City, MO June 28-July 2, 1999 June 26-30, 2000 June 25-29, 2001 June 24-28, 2002 June 23-27, 2003 June 21-25, 2004 June 20-24, 2005
Conference participants:	9,000

Mission statement/goals:

The mission of this organization is to develop employability, participation, and quality management skills that complement the occupational skills of students as they strive to become world-class workers and responsible citizens.

The organization's ties to curricula:

Through integrated curricula, competitive events, and leadership training activities, SkillsUSA-VICA ensures that the education of America's skilled workers meets the demands of the ever-evolving workplace. The organization builds partnerships and opens communication between educators and employers. Its local chapter program promotes occupational, academic, and employability skill development. In particular, the award-winning Professional Development Program emphasizes the essential workplace skills identified by employers and the U.S. Secretary of Labor's Commission on Achieving Necessary Skills (SCANS).

Executive Director:

Stephen Denby

Address information:

SkillsUSA-VICA
P.O. Box 3000
Leesburg, VA 20177-0300
Telephone: (703) 777-8810
FAX: (703) 777-8999
E-mail: anyinfo@skillsusa.org
Web Site URL: www.skillsusa.org

Technology Student Association (TSA)

Year organization founded:	1978 (formerly AIASA)
Membership divisions:	high school, middle school, elementary school
Total annual membership:	100,000
States with chapters:	45, plus the District of Columbia
International chapters:	Scotland
Local chapters:	1,500
Applicable course work:	technology education
Focus areas of chapters:	technological literacy and excellence, leadership, academic excellence, and community service
Competitive program levels:	high school, middle school, elementary school
Future national conferences:	Tulsa, OK June 24-28, 1999 Atlanta, GA June 21-25, 2000
Conference participants:	2,500

Mission statement/goals:

The mission of the organization is to prepare the membership for the challenges of a dynamic world by promoting technological literacy, leadership, and problem solving, resulting in personal growth and opportunities.

The organization's ties to curricula:

The Technology Student Association identifies, promotes, and offers activities and programs that directly support technology education programs.

Executive Director:	Dr. Rosanne T. White
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Address information:

TSA
1914 Association Drive
Reston, VA 20191-1540
Telephone: (703) 860-9000
FAX: (703) 758-4852
E-mail: general@tsaweb.org
Web Site URL: www.tsawww.org

STATUS OF SECONDARY VOCATIONAL EDUCATION

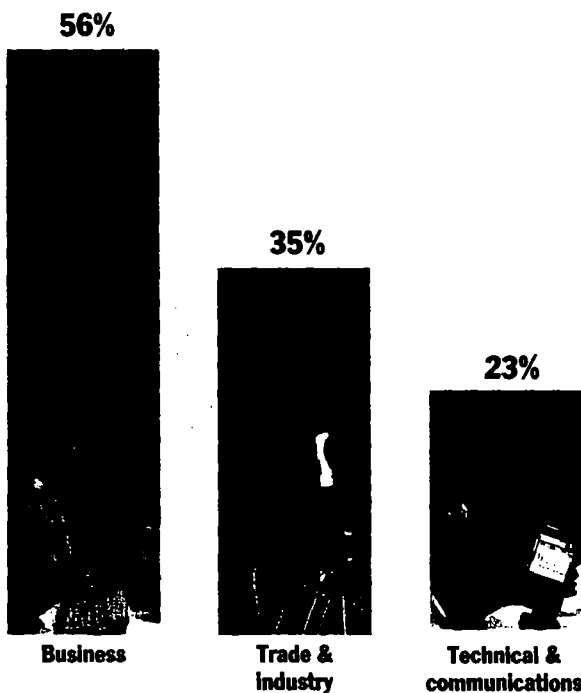
*The National Center for Education Statistics (NCES) and MPR Associates, Inc. (MPR) will soon publish an update to the report **Vocational Education in the United States: 1969-1990**, which will contain the most*

recent national data on issues related to vocational education. These two pages highlight findings for secondary vocational education from some of the data to be included in the new publication.

OCCUPATIONAL PROGRAMS WITH THE HIGHEST PARTICIPATION

Business was the most popular occupational program, with more than half of 1992 public high school graduates completing at least one business course. The next most popular program was trade and industry, followed closely by technical and communications.

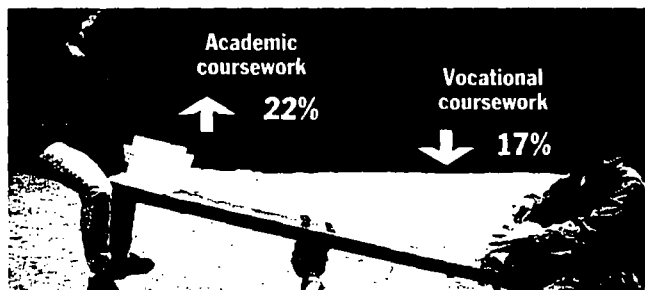
Percent of Graduates Completing One or More Courses in Selected Occupational Areas



► COURSEWORK TRENDS: 1982-1992

Between 1982 and 1992, the average number of credits public high school graduates earned in academic subjects rose, while the average number of credits earned in vocational education fell. During this period, academic coursetaking was up by 22 percent and vocational coursetaking was down by 17 percent.

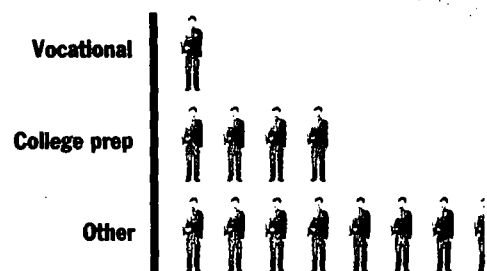
Percent Change in Academic and Vocational Coursetaking



► CURRICULUM SPECIALIZATION

Only a few 1992 public high school graduates (8 percent) were vocational "specialists."* In contrast, about one-third (32 percent) specialized in the college prep curriculum. A majority of graduates (60 percent) failed to meet the criteria for either the college prep or vocational specializations.

Proportion of Graduates by Curriculum Specialization

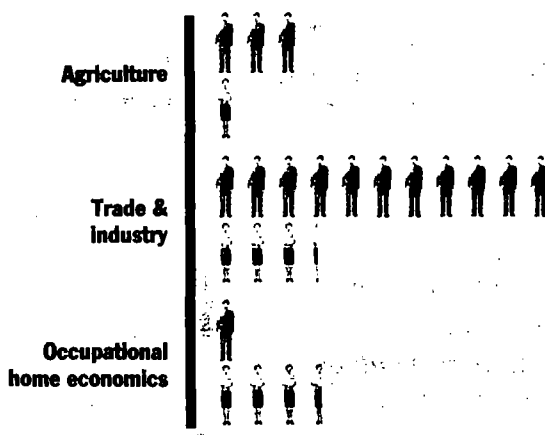


*Vocational specialists completed 4 or more credits in a single occupational program area, with at least 2 of these credits beyond the introductory level.

► OCCUPATIONAL PROGRAMS WITH THE LARGEST GENDER GAPS

Among 1992 public high school graduates, men were more than twice as likely as women to have completed at least one course in agriculture (14 percent compared with 5 percent) and trade and industry (54 percent compared with 16 percent). On the other hand, women were more than three times as likely as men to have completed at least one course in occupational home economics (17 percent compared with 5 percent). Women were also twice as likely as men to complete courses in health.

Proportion of Male and Female Graduates Completing One or More Courses in Selected Areas



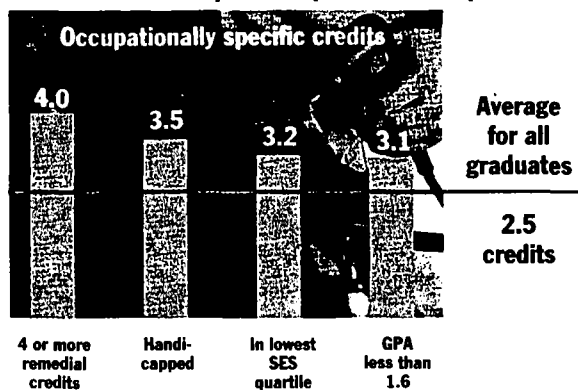
QUICK FACTS

Although only about 8 percent of 1992 public high school graduates were vocational "specialists," about 24 percent of graduates were vocational "concentrators," completing 3 or more credits in a single occupational program. Graduates were more likely to concentrate in trade and industry programs than in other programs, and were least likely to concentrate in technical and communications and health programs.

► SPECIAL POPULATIONS PARTICIPATING IN OCCUPATIONALLY SPECIFIC COURSES

Among 1992 public high school graduates, members of special populations generally completed more occupationally specific courses than did other graduates. Students who had accumulated more remedial credits, were disabled, came from lower socioeconomic backgrounds, and had lower grade point averages earned greater numbers of occupationally specific credits than did other students.

Average Occupational Credits Earned by Selected Special Populations Groups



1992 public high school graduates who took large numbers of vocational courses did not necessarily complete advanced occupational courses. In fact, 20 percent of graduates who earned 8 or more vocational credits and about 25 percent of those who earned 4 or more occupationally specific credits did not take any occupational courses above the introductory level.

► COMPARING THE COURSEWORK OF "HEAVY" AND "LIGHT" VOCATIONAL COURSETAKERS

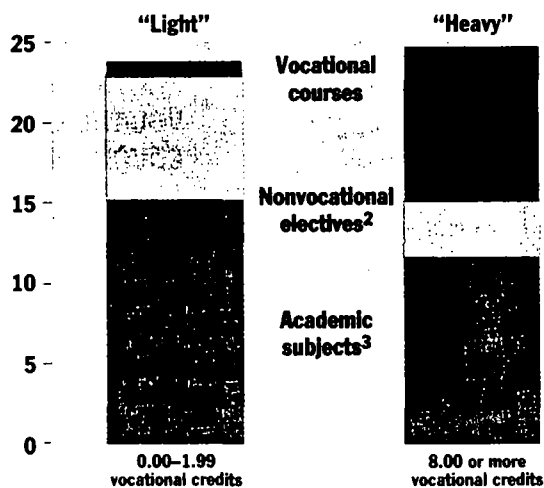
1992 public high school graduates who were "heavy" vocational coursetakers earned more credits overall than did "light" vocational coursetakers.¹ However, "heavy" vocational coursetakers earned fewer credits than "light" coursetakers in all nonvocational electives and academic subject areas.

¹"Heavy" vocational coursetakers accumulated 8 or more credits in vocational education, while "light" vocational coursetakers accumulated fewer than 2 vocational credits.

²Nonvocational electives include foreign language, fine arts, and personal use courses, such as personal health and physical education courses.

³Academic subjects include English, mathematics, science, and social studies.

Average Credits Earned by "Heavy" and "Light" Vocational Coursetakers



On average, 1992 public high school graduates accumulated only 0.15 credits in cooperative education and work experience courses—equivalent to about one in seven graduates completing a yearlong course. College prep graduates and graduates with no curriculum specialization earned few such credits (0.04 and 0.09, respectively). In contrast, vocational "specialists" earned about 1 credit in cooperative education and work experience—equivalent to a full-year course.

STATUS OF POSTSECONDARY VOCATIONAL EDUCATION

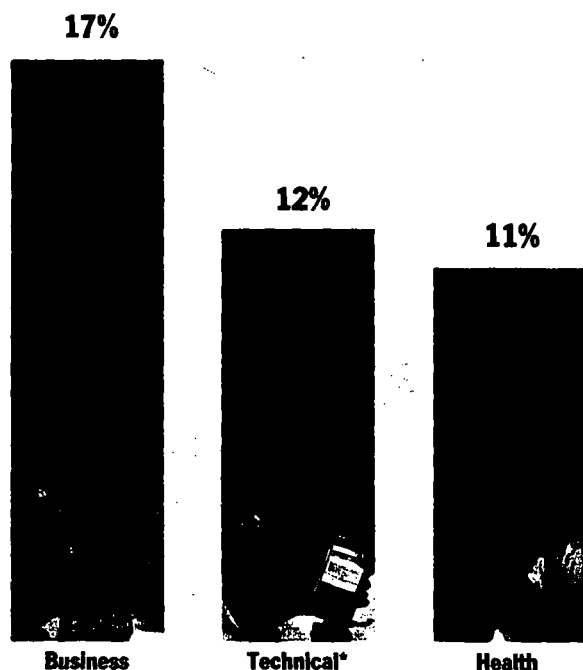
The NCES and MPR update of Vocational Education in the United States: 1969-1990 also will contain national data on postsecondary vocational education. These

two pages highlight the postsecondary findings from some of the data to be included in the new publication.

OCCUPATIONAL PROGRAMS WITH THE LARGEST ENROLLMENT

Of 1990 nonbaccalaureate students, 46 percent declared vocational majors. As in secondary schools, business was the most popular postsecondary vocational program, with about 17 percent declaring a major in this area. Next in popularity were the combined technical fields,* followed closely by health programs. The remaining 6 percent declared majors in other vocational areas.

Percent of Students Declaring a Major in Selected Occupational Areas

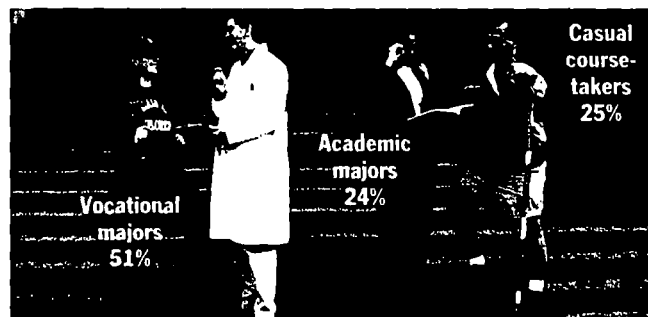


*The combined technical fields included computers and data processing, engineering and science technologies, protective services and communications technologies.

► PARTICIPATION IN VOCATIONAL EDUCATION

In 1990, nonbaccalaureate postsecondary students were twice as likely to report majoring in a vocational program area as they were to report either majoring in an academic area or taking personal or avocational courses.* About half of the students reported vocational majors, whereas one in four either had an academic major or were regarded as "casual coursetakers."

Percent of Students by Declared Major

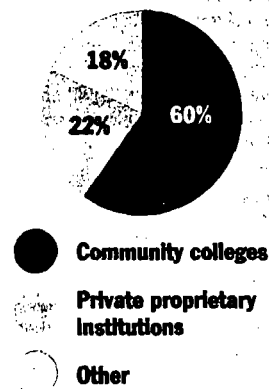


*For example, basic skills or leisure and recreational activities courses.

► INSTITUTIONS PROVIDING VOCATIONAL EDUCATION

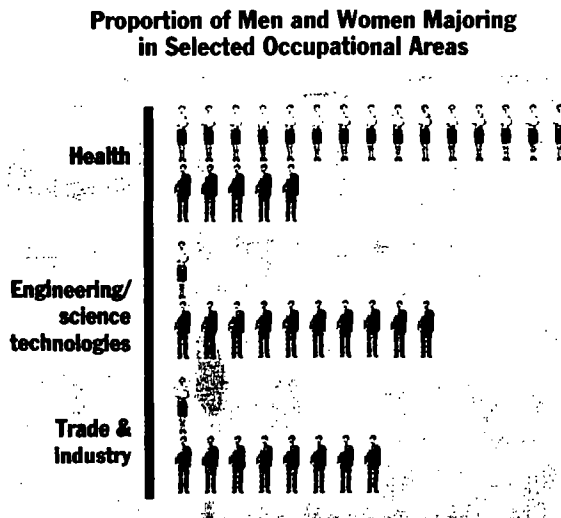
In 1990, community colleges served the majority of nonbaccalaureate postsecondary students reporting a vocational major. Private proprietary institutions were the second largest vocational education provider. The rest of the students were served by other types of postsecondary institutions, including public 4-year; public vocational-technical; private, nonprofit 4-year; and private, nonprofit less-than-4-year institutions.

Percent of Vocational Majors Served by Different Institutions



► COMMUNITY COLLEGE OCCUPATIONAL PROGRAMS WITH THE LARGEST GENDER GAPS

Among 1990 community college students, women were more than twice as likely as men to report majoring in health (15 percent compared with 5 percent). On the other hand, men were more than twice as likely as women to report majoring in engineering and science technologies (10 percent compared with 1 percent), and trade and industry (8 percent compared with 1 percent). Men were also more likely to major in protective services.



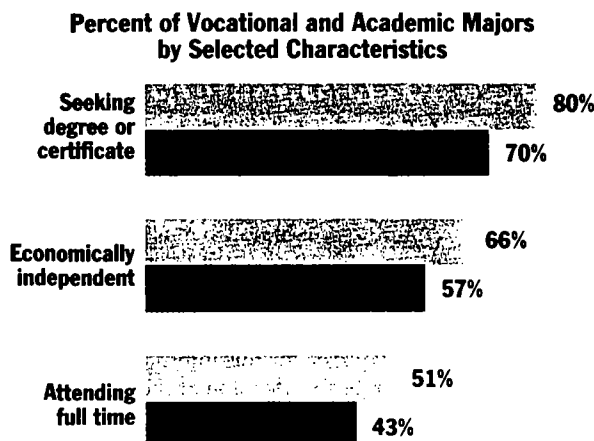
QUICK FACTS

Vocational program enrollment varied by institution type. In 1990, nonbaccalaureate postsecondary students at private proprietary; private, nonprofit 4-year; and public 2- to 3-year institutions (community colleges) were more likely to major in business than students at public 4-year institutions. In contrast, students at public vocational-technical institutes and private proprietary schools were much more likely to major in trade and industry than students at all other postsecondary institutions.

► COMPARISON OF ACADEMIC AND VOCATIONAL MAJORS

In 1990, nonbaccalaureate students with vocational majors were more likely than their peers with academic majors to be enrolled full time and to be seeking a formal degree or certificate rather than casually taking courses. Those with vocational majors were also more likely to be economically independent from their parents.

Vocational majors
 Academic majors



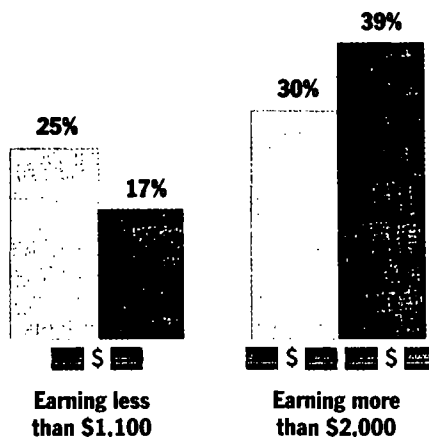
Three-quarters of community colleges reported offering cooperative education or work experience programs in 1991-92. In contrast, about half of public vocational-technical institutes and area vocational schools serving postsecondary students reported offering these programs.

► EARNINGS OUTCOMES

Postsecondary vocational completers who were employed in a field related to their training in summer 1990 earned higher salaries than their peers with unrelated employment. For instance, vocational completers who were employed in a related field were more likely to earn over \$2,000 per month than were those with unrelated employment. In contrast, vocational completers employed in an unrelated field were more likely to earn less than \$1,100 per month than those with related employment. The remaining employed graduates—roughly 45 percent—earned between \$1,100 and \$2,000.

Vocational completers in unrelated jobs
 Vocational completers in related jobs

Percent of Vocational Completers in Related and Unrelated Jobs by Earning Level



Among 1990 nonbaccalaureate postsecondary students, almost half of those who reported majoring in a vocational program received some sort of financial aid. Overall, aided vocational majors received about \$3,000 in federal aid, and about \$1,200 in each of state and institutional aid. Vocational majors were more likely to receive federal grants than federal loans. However, their average Pell grant was smaller than their average Stafford loan (\$1,400 compared with \$2,300).



Bethany Little
08/26/99 12:59:01 PM

Record Type: Record

To: Andy Rotherham/OPD/EOP@EOP
cc:
bcc:
Subject: Re: release for next week 

thanks for asking him, and for keeping me in the loop . FYI, the middle schools grants can be done next week, and they are going to get back to us with more information and an exact DAY that they can be ready. Also, they are recognizing 9 schools for having exemplary safe and drug free programs. The schools have been chosen, and they are ready to announce them at any time, so we could use this info too...just a thought. No word back from Rob yet. I'll keep you posted!
Andy Rotherham



Andy Rotherham
08/26/99 11:43:13 AM

Record Type: Record

To: Eric P. Liu/OPD/EOP@EOP
cc: Anna Richter/OPD/EOP@EOP, Bethany Little/OPD/EOP@EOP
Subject: release for next week

Eric:

Here is the deal right now. We have some middle school grants--school safety that we can do, although the radio address next week (9/4) is on a similar set, albeit larger, of safe school grants.

I'm checking with Brian Kennedy to see if we have anything related to school construction, i.e. new data, data on use of the Rangel QZAB school construction bonds we've been piloting, or something along those lines

I'm also checking in with Adult ED and Voc Ed to see if they have anything interesting.

My instinct is to be more creative than the middle school grants if at all possible.

What does communications want to get out of this anyway, what is our goal?

I'll keep you posted.

Andy



"Monosoff, Tamara" <Tamara_Monosoff@ed.gov>

08/26/99 06:26:06 PM

Record Type: Record

To: Andy Rotherham/OPD/EOP

cc:

Subject: Building Linkages

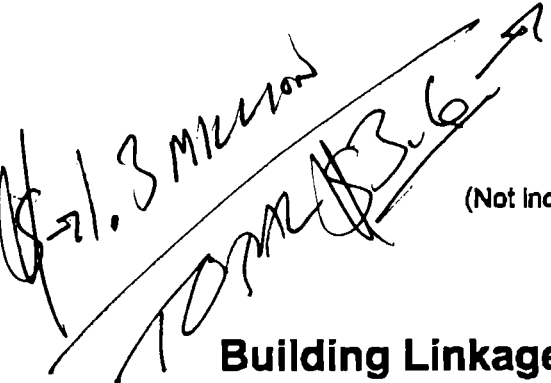
Vickie let me know that you received the materials.

Since you are making a decision on this tomorrow, I just wanted to emphasize that there is strong private sector involvement with thousands of employers nationwide as part of this project. For example, we have major national trade associations in addition to state and local employers. One example, is one of the primary national health care associations who represents 2500 not-for-profit hospitals nationwide.

We could illustrate these partnerships with many more examples if you would like including linkages to postsecondary education.

Thanks for considering this!

Tamara



Final Report

(Not including the extension granted until January 1999)

July 21, 1998

Building Linkages Among Academic and Skill Standards for Manufacturing Occupations

Executive Summary

The following summarizes the Final Report using the categories identified by the STW Opportunities Office. The detailed report that follows is based upon 2nd Year Funding Objectives.

Consortium Accomplishments towards Year Two Objectives:

The Manufacturing Linkages Consortium counts 23 states among its membership with interest from two additional states.

Members

Arizona
Hawaii
Illinois
Iowa
Maine
Michigan
New Jersey
North Carolina
Oregon
South Carolina
Vermont
Wisconsin

California
Idaho
Indiana
Kentucky
Maryland
Nebraska
New York
Oklahoma
Pennsylvania
South Dakota
Virginia

Current Interest

Minnesota

West Virginia

The collaboration between the Linkages Consortium and the Voluntary Partnership continues to provide unique opportunities to achieve project objectives and to continuously improve the process.

Participating State Accomplishments:

The Manufacturing Linkages Consortium Implementation Sites are at the center of state accomplishments and there are activities within additional states that are just beginning and too numerous to mention including taking "next steps" such as forming the state Partnership in South Dakota and Vermont. In each state, activities towards state formation of Partnership Councils have begun with communications to help stakeholders chose to phase in the Indiana Model, understand the concept, and support it.

Pilot Site Activities:

Nebraska has formed a local Partnership and is undergoing PROFLINK and Wisconsin Instructional Design (WIDS) training prior to fall start-up activities. PROF is a software package developed by the state of Indiana which permits the development of scenarios as defined in a total quality management protocol and also accommodates the development of a report for the student, based on the scenarios, that identifies what the student knows and is able to do in the context of a real world situation. WIDS is a software package developed by a Foundation of all Wisconsin's Technical Colleges and provides a template for the consistent development of curriculum to teach to the PROFLINK scenarios. The curriculum developed using the WIDS software can be shared with other Implementation Sites.

Kentucky is working towards Implementation of NACFAM Standards for Advanced Manufacturing. Michigan has one site that will participate in summer, 1998, PROF training prior to fall start-up. In this Michigan site the UAW is an active partner along with the Bureau of Apprenticeship and Training. Hawaii has developed scenarios for the manufacture of mushrooms and recycled bicycles. A multi-school consortium has been initiated to implement the process in printing with a planning meeting scheduled for July 1998. Pennsylvania has a site that has agreed to participate, actually has been doing some work for the past year, and is gearing up for PROF training during the summer, 1998. Maryland has agreed to participate as an Implementation Site and will go through PROF training, summer 1998. Indiana has two sites, one post-high school and the other a cooperative that involves a consortium organized by the Indiana NIST organization called the Bureau of Modernization and Technology in Indiana. The Indiana sites are incorporating their Indiana Proficiencies and NIMS Proficiencies into the Building Linkages for Manufacturing process.

Challenges/Strategies:

The Manufacturing Linkages Consortium greatest challenge has been to satisfy the needs of the participating states given the uncertainty of a no-cost extension coupled with the phasing in of the states that have joined at various points in time. Original states are much maturer in their needs than newer ones. With the no-cost extension, concrete plans can be implemented to continue with the initial Implementation Sites and add sites, as they are ready. Current activities include:

- Pennsylvania has been working for the past year and has produced three notebooks that link to the standards.
- Nebraska has used the NACFAM Standards for Advanced Manufacturing to prepare a matrix for the Core Responsibilities and has written scenarios for the Core Responsibilities.
- Maryland has performed occupational analysis for Industrial Maintenance and has shared those materials with the Consortium where proprietary considerations did not prohibit such distribution.
- Indiana has complete scenarios in the Concentration for review in three manufacturing sectors, i.e., printing, plastics, and metalworking.

A second challenge has been to try and integrate implementation activities into existing schedules, existing curriculum, etc. The Linkages Consortium in Manufacturing is not developing curriculum and must provide a process to integrate existing curriculum into the Core so that a standardized Certificate can be issued. There are numerous curriculum projects underway in manufacturing including those at Johns Hopkins University under the leadership of Arnold Packer and ones financed by the National Science Foundation. In addition, Wisconsin has developed manufacturing DACUMs that complement the Core

Responsibilities. Several states, including Maryland, have produced excellent materials in manufacturing. Implementation Sites will be developing models to integrate appropriate curriculum into the credentialing process.

A third challenge is to develop a way to encourage a high-ranking person who has credibility to sign the Certificates. A Certificate signed off by a local school or post-high school institution will not have the credibility to ensure the true portability defined by the Initiative. Our goal is to work with each state to have the governor sign the certificate. Our states understand this and, with more time, we are hoping to get signatures at the appropriate level for the Certificate. Our efforts won't preclude the NSSB and/or the STWO office from signing the certificate. Arnold Packer envisions a Johns Hopkins University Certificate and time will tell how that plays into our model.

Products/Deliverables:

The Manufacturing Linkages Consortium products and deliverables at this point include the Web Site and the technology to develop and use it as an effective communication tool and to provide a method for continuous quality improvement. In addition, the Framework with Core Responsibilities defined is a model that can be replicated in other Linkages projects as well as in other clusters in the Voluntary Partnership. The Consortium has also produced a protocol and list of academic skills for use by states to link state academic standards to the academic skills identified by business and industry and contained in the scenarios. These are available from the Webmanager (www.mfglinks.org) or on the Website under the Bulletin Board, Report 34.



UNITED STATES DEPARTMENT OF EDUCATION

OFFICE OF VOCATIONAL AND ADULT EDUCATION

THE ASSISTANT SECRETARY

***BUILDING LINKAGES THROUGH CAREER CLUSTERS IN
HIGH TECHNOLOGY INDUSTRIES******The Department of Education plans to support the following activities with
FY 1999 Resources******High-Tech Career Clusters - \$1,500,000***

The development of career clusters, or pathways, that incorporate rigorous math, science, communication and technology standards, learning scenarios, assessments and skill certificates is a core strategy for meeting the goals of the Act and our overall GPRA objectives. The development of career clusters is also a key part of our efforts to meet our GPRA objectives for vocational education; and has been identified by STWO state directors and instructors as the top customer priority for technical assistance. Collaboration across states of educators and employers and with the NSSB, NSF and DOL is designed to ensure widespread acceptance and portability to postsecondary education and jobs throughout the country.

Career preparation in our rapidly changing economy requires a broad-based approach that includes academic rigor and technical skills that are portable and have currency. Career preparation that focuses on occupational-specific skill training rapidly becomes obsolete, and limits students' options for career entry, progression and lifelong learning. In response to previous and new legislation, vocational education continues to broaden and strengthen occupationally specific program areas into career clusters that address all aspects of the industry. By providing courses of study in broad industry clusters, technical education programs find a context in which a range of challenging math, science, communications, analysis, and technology skills can be taught. Broader clusters as the basis of study at the secondary level also provide better connections with postsecondary education. Additionally, the programs promoted by States and local educational agencies are emphasizing problem solving, communication and team work which are the skills so often articulated by industry and higher education. In a framework of lifelong learning, each student will be able to continue to gather both the education and training needed, as well as the specific industry skill standards, both in secondary and postsecondary settings.

This initiative supports the formation of partnerships between secondary and postsecondary, industry, labor organizations, academic and vocational education and community and local partnerships to create career clusters in high technology industries. These partnerships identify and coordinate existing national, State, and regional efforts as the basis for development of curricular models that support states and local communities

in their efforts to improve vocational and technical education and sustain school-to-work opportunities systems for the 21st century. Clusters are currently being developed in the following areas:

- Health Technology
- Advanced Manufacturing
- Business and Management
- Transportation, Distribution & Logistics
- Information Technology
- Audio-visual/Communications Technology

Career Clusters are broad industry areas, which include all occupations front-line through management and professional/technical. Career Clusters defined within this scope provide the foundation for the integration of high level State academic standards and technical skills and knowledge. The Career Clusters consist of the skill-sets required for both entry into competitive work environments and postsecondary education, and that lead to high-skill, high-wage career.

Using career clusters as a means to reform education and improve student performance is based in large part on the rapidly changing skill and knowledge requirements in the new economy.

- It is projected that by the year 2010 six out of ten jobs have not yet been defined. Therefore, we cannot focus on specific occupational preparation but rather on broad career cluster as a means to provide the academic and technical foundation for career progression and mobility.
- Industries are now clustering for competitiveness and workers must understand all aspects of a broad industry/career cluster to help their companies remain competitive.
- Employers have been pulled between education improvement and workforce development initiatives (i.e. STW, WTW, WIA, Goals 2000). Career clusters provide common ground for collaboration in secondary and postsecondary between employers who emphasize high academics for all students and those that are concerned with workforce preparation.

The 1998 Carl D. Perkins Vocational and Technical Education Act now challenges states to demonstrate that students are achieving high levels of both academic and technical competency. By providing courses of study in broad industry clusters, vocational and technical education programs find a context in which a range of challenging math, science, communications, analysis, and technology skills can be taught. Broad career clusters, as the basis of study at the secondary level, also make for better connections with postsecondary education and career preparation, entry and mobility.

Furthermore, the School-to-Work National Evaluation conducted in 1996, found that career majors and curricular changes such as the integration of rigorous academic standards with skill standards continue to pose a significant challenge to most States,

compared to other aspects of the STWOA. The need for models and technical assistance in this area have been supported by findings that show only a handful of States have been successful in connecting academic content standards into the career frameworks that provide a context and relevance as a strategy to promote higher learner achievement. The products of these projects are not limited to curriculum guidelines. They include career pathways for which there is multi-state consensus; integrated instructional strategies, learning scenarios and projects, and authentic assessments. This package of products, which we call career clusters is especially in demand by states and local sites.

The Westchester Institute was contracted to conduct a third party evaluation to determine demand for technical assistance and career cluster products. In a reaction survey of over 200 participants, who represented over 25 states and multiple constituents, responses to a number of key areas included:

1. **Relevance, Importance and Value of Career Clusters** – When asked to make a judgement about the importance and priority of career clusters related to other education reform activities (i.e. Title I, Goals 2000) over 1/3 of the respondents prioritized career clusters as ranking high to very high.
2. **Judgement as to the Status of Career Cluster in their State** – Participants were asked to rate their states status on design and implementation of career clusters on a range from planning to institutionalizing career clusters.
 - 33% of respondents judged their State to be at early planning;
 - Almost 50% see their state as either developing or pilot testing career clusters in their State that is, work is underway to develop policies, materials, professional development, resources, schools and communities around their states are pilot testing;
 - 15% of the respondents judged their State to be in the implementation phase
3. **Commitment** – On a scale 1-4 with 1 being the lowest, what level of commitment do key groups give to the development of career clusters:
 - Business/Industry ranked 3.1- considerably committed
 - State leadership ranked 3.2 - considerably committed
 - highest respondents were asked from your perspective what do you feel the level of commitment Teachers and School Administrators ranked 2.5

There is growing demand from States and locals for career clusters models. For example, our program evaluators have completed their site visits to local educational agencies that are piloting the Health Science Career Cluster. They found consistent enthusiasm of the teachers for the products. They report that the pilot project teachers were getting requests from other teachers in their schools for the materials. Participating teachers are now asking the consortium for more materials as well as additional states asking to participate in the consortium.

To date, the Career Clusters initiative has resulted in the following activities and outcomes:

Consortium Partnerships

Consortium partnerships have facilitated the coordination of disparate efforts at the national, State, and regional efforts. These partnerships include over 35 states, 25 national professional associations, 30 national employers, and numerous local employers, administrators and educators at each of the local sites.

Career Cluster Products

The career cluster projects have developed, in partnership between education and industry, a number of instructional materials and assessment instruments. These include:

- Over 160 integrated learning activities that have been pilot tested with over 6,000 students nationwide.
- Assessment instruments and strategies that will predict student performance in either postsecondary education or career entry.
- System for cross-walking State academic and technical skills leading to State adoption and integration at the local level.
- Authentic assessments which include scenarios, projects, and performance based assessments
- Train the trainer model for professional development, which encourages implementation through state capacity building and training.

National Institute for Career Clusters

OVAE with the National STW office conducted a career cluster institute inviting State teams to participate in strategic planning and completion of a State action plan to design and implement career clusters. States were encouraged to bring together diverse representatives to use career clusters as a vehicle to develop comprehensive education reform and workforce development systems. Representatives included: Governor's Office, State Superintendents Office, business/industry, organized labor, state level agencies including academic and curriculum instruction, labor, postsecondary, employment services, vocational and technical education, STW, career counseling and guidance and local administrators and teachers. Space was initially limited to 15 State teams but was increased to 25 teams to accommodate the overwhelming response by the states. In addition, a second institute was held to provide the same opportunity to those states that were unable to participate in the first institute.

State-level Institutes

15 states have successfully competed for funds to conduct State level career cluster institutes. The State level institutes are modeled after the National Career Cluster Institute and will bring together teams of local partnerships to do strategic planning for the implementation of career clusters at the local level.

State adoption of models

State level adoption of the career cluster models is evidenced by the number of participating states who have allocated funds and dedicated staff to support implementation of the career cluster models. Of the 35 states participating over 23 states have contributed in-kind funds to support implementation. For example, Maryland has assigned a full time staff member from the Department of Education to be responsible for implementation activities. Virginia has dedicated state-level resources to support implementation in three regions in the State. The Governor of Vermont has budgeted funds to support the improvement of a vocational center in Springfield using the Building Linkages model.

Coordination of related federal investments

Using broad clusters as a foundation for building partnerships includes partnerships at the federal level. The focus on high tech high skill careers has created the opportunity for the Department to forge new partnerships with other federal agencies. The partnerships include the NSF, the Department of Commerce and the Department of Transportation.

FY 1999 resources will continue the development of the following three clusters initially funded in FY 1998:

***Audio Visual/Communications Technology-** the development, and operations of communication systems (hardware and software) for the recording, storage, processing and distribution of voice/video and data.

***Information Technology** – the design, development, and support of hardware, software and systems integration services.

***Transportation, Distribution, Logistics** – the planning, implementation and control of the physical movement of materials, products and people

The current expansion of this project into new high-tech career clusters is generating career major curriculum, instructional strategies, certificates, assessments, and broad-based partnerships in new communities and new industries. FY1999 resources will allow funded projects in cluster areas of Audio Visual/Communications Technology, Information Technology, and Transportation/Distributions and Logistics to continue. It is anticipated that with FY 2000 funds, the Department will develop additional clusters,

which may include agriculture bioscience and environmental science, and scientific research and technical services. School-to-Work continues to collaborate in this effort and is providing \$1,000,000 in FY 1999 national activity support towards this initiative.



UNITED STATES DEPARTMENT OF EDUCATION

OFFICE OF VOCATIONAL AND ADULT EDUCATION

THE ASSISTANT SECRETARY

**BUILDING LINKAGES THROUGH CAREER CLUSTERS IN
HIGH TECHNOLOGY INDUSTRIES****1.0 BACKGROUND AND PURPOSE****Background**

The Building Linkages through Career Clusters Initiative is a collaborative effort between the U.S. Department of Education, Office of Vocational and Adult Education and the National School-to-Work Office. The initiative was launched in FY 1996 to promote linkages between state academic standards and industry recognized skill standards through the creation of consortia in three broad career clusters. The original consortia addressed the areas of Manufacturing, Health Sciences, and Business and Management. They focused on the creation of curricular frameworks intended to prepare students both for college and career entry. Critical to this work was their collaboration with employers, organized labor, and vocational and academic education at the secondary and post-secondary levels.

The Building Linkages through Career Clusters Initiative is based on evaluation findings from early efforts. It was found that the creation of curricular models within the context of broad career clusters ensures that the system adequately prepares the learner to meet both the requirements of post-secondary education and the expectations of employers in increasingly global competitive work environments. Additionally, a consortium of state, national, and regional partners has the capacity to identify, coordinate, and leverage isolated efforts. This initiative will have a broader impact on the integration of academic and vocational education, the promotion of secondary and post-secondary linkages, and the engagement of employers.

State educators are constantly being challenged to demonstrate that their students are attaining high levels of academic and technical competency. By providing courses of study in broad industry clusters, technical education programs find a context in which a range of challenging math, science, communications, analysis, and technology skills can be taught. Broad career clusters as the basis of study at the secondary level also make for better connections with post-secondary education and career preparation, entry, and mobility.

Specifically through this contract ED will identify and continue the Career Clusters Initiative by focusing on three High Technology Industries. The project shall use existing standards-based curriculum development efforts in career cluster areas and analyze the findings as the basis for development of the career cluster curricular framework. The framework shall be pilot tested, refined, and disseminated at a national institute conducted through this project.

Purpose

The U.S. Department of Education, Office of Vocational and Adult Education and the National School-to-Work Office require the services of **THREE SEPARATE CONTRACTORS** to create career cluster curricular frameworks for each of the following industry areas:

I. Audio Visual/Communications Technology - development and operations of communication systems (hardware and software) for the recording, storage, processing, and distribution of voice/video and data.

II. Information Technology - design, develop, and support hardware, software, and systems integration services.

III. Transportation, Distribution, Logistics - planning, implementing, and controlling the physical movement of materials, products, and people.

(See definitions section for more information on the above.)

These career clusters are characterized by the following:

- *High growth industry areas that offer high-tech, high-wage career opportunities,
- *Technical skills and knowledge within the field require high levels of mathematics and science,
- *Career path includes post-secondary education/training,
- *Significant development work is underway or completed,
- *Industry skill standards are available, and
- *Aligns with coordinates with other vocational education and School to Work investments.

Five key activities must be completed by the contractor in order to gain support and create demand for curricular models based on broad career clusters, and which provide students

with the opportunity to learn about all aspects of an industry, and provide a context and relevance for academic learning. These activities are:

1. Form consortia of states, education secondary and post-secondary, academic and vocational, coalitions of employers and trade associations, and incumbent workers;
2. Develop a curricular framework in a career cluster area that is based on existing industry/state academic standards and encompasses the academic and technical knowledge and skills required for career entry, progression, and further education;
3. Use the curricular model as the foundation, develop curriculum at the pilot sites that include instructional strategies and materials that teach and assess competency in the academic and technical knowledge and skills needed for the cluster;
4. Develop effective methods for ensuring, measuring, and documenting student progress through a variety of flexible educational and assessment strategies; and
5. Provide technical assistance and professional development to local sites for the pilot testing of model, materials, assessment strategies, and systems of documenting student achievement.

1.1 AUTHORIZATION

The authority for this contract is the School-to-Work Opportunities Act of 1994 (Public Law 103-239). Section 403 of the School-to-Work Opportunities Act authorizes the Secretary to work in cooperation with secondary schools, among others, to increase their capacity to develop and implement effective School-to-Work Opportunities programs and to improve the quality of services provided to individuals served under the Act.

2.0 OBJECTIVES

This initiative will promote the coordination of existing national, State, and regional efforts and create models that will support states and local communities in their efforts to move from occupational-specific programs to broad career clusters. The contractor will be responsible for developing curricular models in specific high-tech career clusters.

Definitions

Building Linkages through Career Clusters in High Technology Industries

All Aspects of Industry refers to "all aspects of the industry or industry sector a learner is preparing to enter, including planning, management, finances, technical and production skills, the underlying principles of technology, labor and community issues, health and safety issues, and environmental issues related to such industry or industry sector." All aspects of industry also include the array of occupations and careers that comprise an industry, from the most basic to the most advanced.

Career Cluster is a grouping of occupations and broad industries based on a common core of competencies. The National Skill Standards Board has identified 15 clusters, which are a compromise between industry and occupational clustering schema. The National Occupational Information Coordinating Committee (NOICC) has completed a crosswalk between labor market information and the educational system identifying 15 super clusters.

Career Cluster Framework is created after the identification of career clusters, and provides a roadmap for career entry, progression and educational requirements at all levels. The career cluster framework defines the scope of the occupation/industry cluster and should include all occupations - entry through professional/management. At a state level career cluster frameworks can provide a bridge meeting the needs of industry and requirements of education. The framework can serve as an organizer for state agencies to promote coordination and alignment of efforts.

Career Major as defined by the National School-to-Work Opportunities Act is a broad field of study that: 1) integrates academic and occupational learning, and establishes linkages between secondary schools and post-secondary institutions; 2) prepares the student for employment in a broad occupational cluster or industry sector; 3) typically includes at least 2 years of secondary education and 1-2 years of post-secondary education; 4) provides the student, to the extent practicable, with strong experience in and understanding of all aspects of the industry the student is planning to enter; 5) results in the award of a high school diploma or its equivalent; a certificate or diploma recognizing successful completion of 1 or 2 years of post-secondary education; and a skill certificate, and 6) may lead to further education and training, such as entry into a registered apprenticeship program or admission to a 2 or 4 year college or university.

Career Pathway is identified by industry and includes all occupations within a career cluster. Progression in a career pathway may be vertical as well as horizontal. The career pathway can be aligned with educational pathways as the basis for life long learning.

High Technology Career Clusters

Information Technology - This career cluster involves the design, development, and support of hardware, software and systems integration services. The information technology industry is growing at an incredible rate. It is projected that between 1996 and 2006, America will require more than 1.3 million new systems analysts, computer scientists, engineers, and programmers.

Communications/AV - This career cluster involves the development and operation of communication systems (hardware and software) for the recording, storage, processing and distribution of voice/video and data. Careers in communications and audiovisual include areas such as multi-media production, customer service, information systems, and telecommunication network installation and maintenance.

Transportation - This career cluster involves the planning, implementation, and control of the physical movement of materials, products, and people. This area includes logistics and distribution planning and all modes of transportation: land, sea, air, and rail. Almost 10 million people, or about 7 percent of U.S. workers, are employed in the many careers in transportation. Careers in transportation include: Vehicle Operators, Safety and the Environment, Planning and Engineering, and Passenger Assistance.

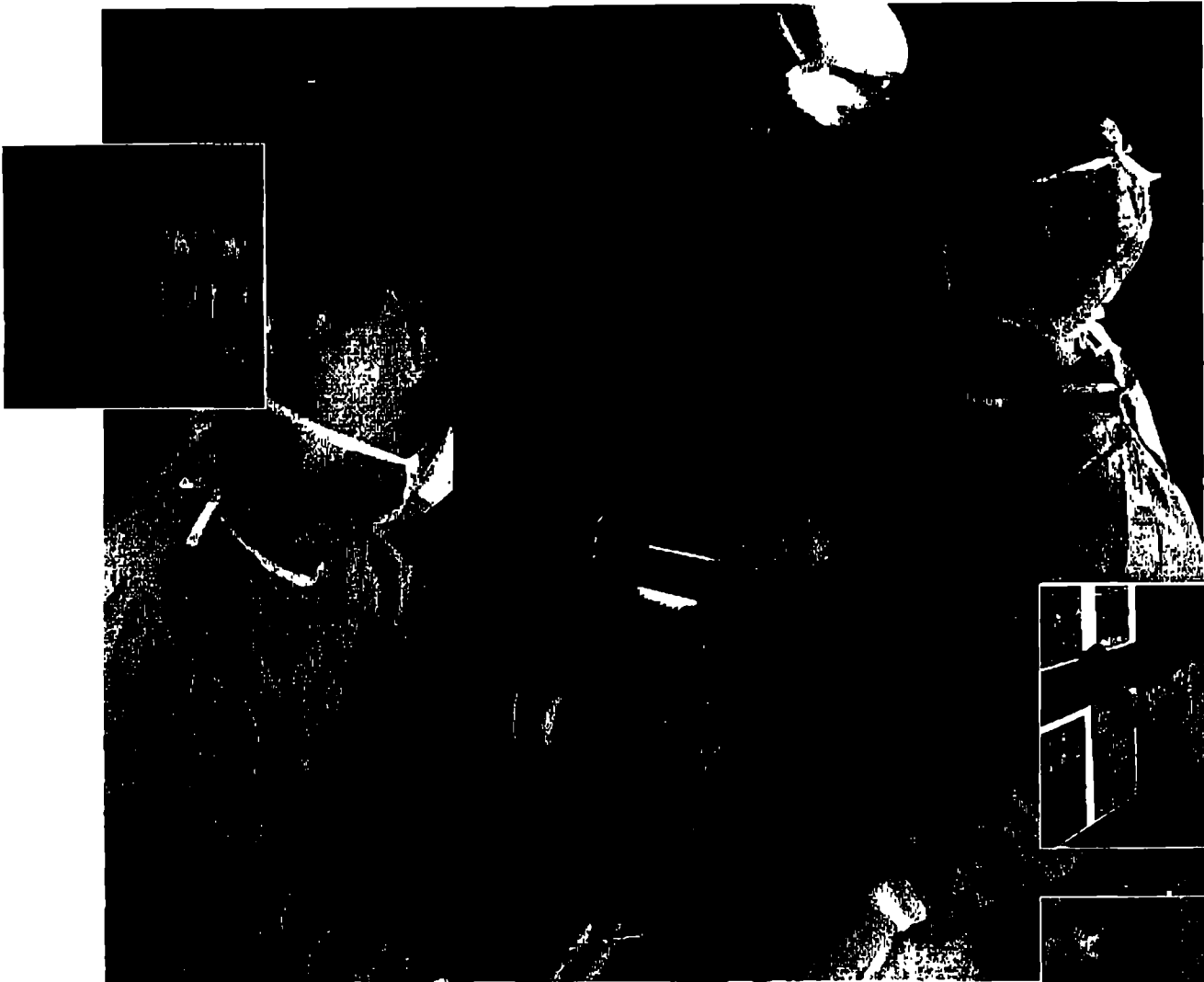


How to Get from Here...



NATIONAL CONSORTIUM ON HEALTH SCIENCE AND TECHNOLOGY EDUCATION

*Building Linkages to Develop
The National Health Science Career Path Model*



...to There!

The National Consortium on
Health Science and Technology
Education (N.C.H.S.T.E.) is

keenly aware of the need for Education Reform. In today's global economy, more education is required by the health-care industry than ever before. In future decades even more demand will be made of education to provide skilled health-care professionals.



National Health Science Career Path

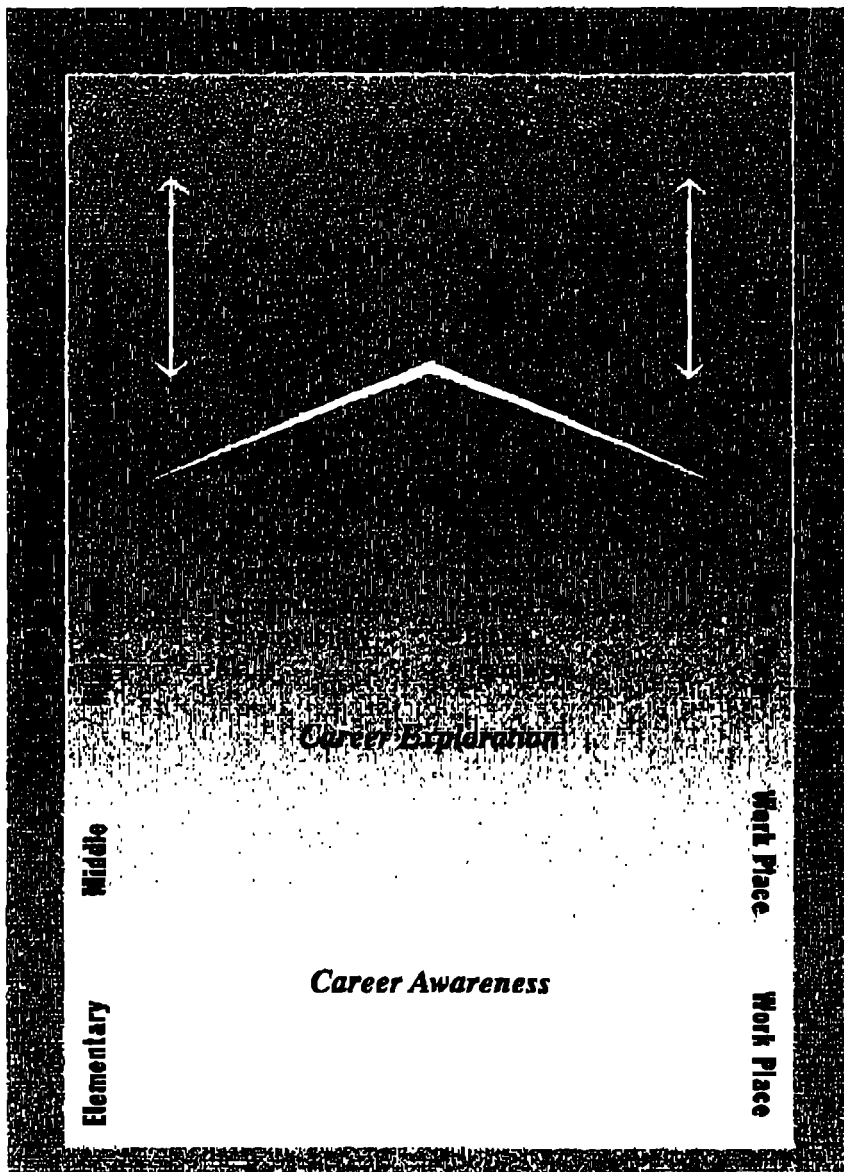
The flow chart suggests how awareness activities in elementary school, exploration and orientation during middle school years and continued orientation and preparation in high school create a bridge to post-secondary education and/or employment in the health-care industry. The path also provides current health-care employees opportunities to return to educational institutions for further training, allowing for lifelong learning.

Elementary School Level – Career Awareness

The career path model provides awareness activities that can be integrated into the curriculum at the early elementary and elementary school levels. Students are exposed to various health-care related activities to heighten their awareness of health-care careers, and reinforce the importance of health and wellness and its impact on the quality of life.



The Components of the National Health Science Career Path Model



Middle School Level – Career Exploration/Orientation

At the middle school level, the career path model provides for students to be introduced, through integrated academics, to various health-related career opportunities. Examples of integration include:

- field studies to a variety of health science related facilities,
- job shadowing experiences where a student works directly with a health-care professional,
- inviting a health-care professional to a classroom to demonstrate health care connections to math, science, and other subjects.





High School – Career Orientation/Preparation

In addition to integrated academics and specific health science courses, a variety of work-based learning activities are part of the orientation/preparation process. These may include:

- job shadowing, where a student observes and learns from a professional the types of activities involved in health-care careers.
- internships, where a student spends several hours a day actually working in a health-care setting.

Skill Certificates – National Health Care Skill Standards

The career path model utilizes national health care standards which are the basis for health science curriculum across the country. Portable skill certificates will attest that students have met national competencies that prepare them for post-secondary programs

- *Systems*
- *Legal Responsibilities*
- *Safety Practices*

and/or initial employment in the health-care industry. Skill certificates are awarded for meeting nationally accepted standards in:

- *Academic Foundations*
- *Communications*
- *Employability Skills*
- *Ethics*
- *Teamwork*

Other skill certificates currently in development are designed around the following Health Science Career Concentrations:

- *Diagnostic Services*
- *Therapeutic Services*
- *Information Services*
- *Environmental Services*

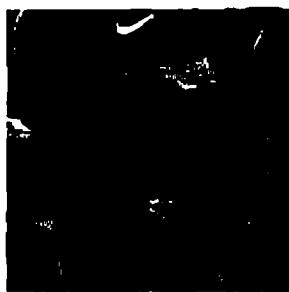
These skill certificates are being developed with partnerships of employers, professional organizations, and health science educators.



NATIONAL CONSORTIUM ON HEALTH SCIENCE
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Why Education Reform?

A major component of education reform is to provide relevance in the curriculum. Students who grasp the relevance of what they are learning become motivated to work harder and enroll in more rigorous courses. Students who work harder, prepare themselves better for further education and/or employment. Better-prepared students exiting high school will be able to meet the challenges of the ever-increasing demands of a challenging career in health care.



A Solution...The National Health Science Career Path Model

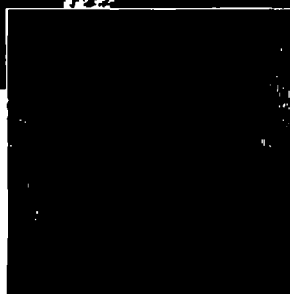
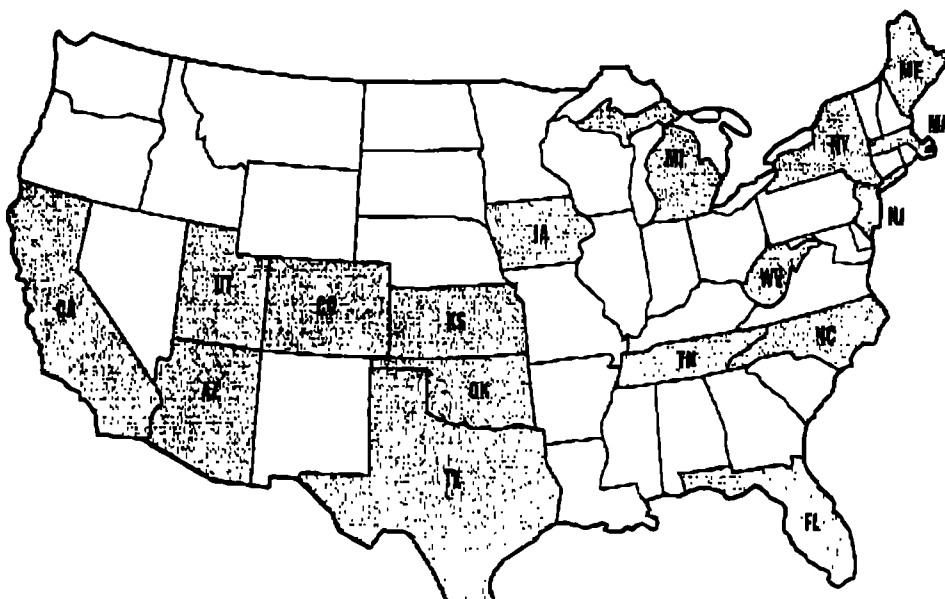
N.C.H.S.T.E. has developed a National Health Science Career Path Model with funding from the U.S. Department of Education, the National Skills Standards Board, and the National School to Work Office.

This project has partnered educators, health-care employers and professional organizations to develop and refine a health-care career path model that will result in students leaving high school better prepared for immediate employment and/or further education in the health-care field.

This will be accomplished by:

- Providing a structure to develop awareness, exploration, orientation, and preparation opportunities for students in health care.
- Organizing student goals and linking them with post secondary education and employment opportunities (a career path).
- Establishing partnerships with health-care employers, public and post-secondary education and professional organizations to develop and maintain the career path.

The 17 states shown on the map below have been involved in the development of the National Health Science Career Path Model.





Strategies for Implementation of the National Health Science Career Path Model

N.C.H.S.T.E. has devoted considerable time and resources developing time-tested strategies for the roll out of the National Health Science Career Path Model.

Train-the-Trainer Programs

A series of comprehensive Train-the-Trainer programs has been developed to assist every state organization in the implementation of the National Health Science Career Path Model. The N.C.H.S.T.E. can help create employer partnerships and provide appropriate curriculum and training at all educational

levels. The ultimate goal of the Train-the-Trainer program is to develop your own qualified facilitators to establish and maintain a career path in your schools.

Start Planning Your Career Path Model Now!

For more information about how to establish the National Health Science Career Path Model, contact:



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C/O Michigan Health Council • 2410 Woodlake Drive, Suite 440 • Okemos, MI 48864-3997

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