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ABSTRACT

The Tech Prep/Associate Degree concept offers an answer to the nationwide mandate to improve the U.S. educational system and thus to enable the country to remain competitive in the world market. Tech Prep is a sequence of study beginning in high school and continuing through at least 2 years of postsecondary occupational education. The Tech Prep program integrates academic and occupational subjects, placing heavy emphasis on articulation between high schools and two-year colleges from secondary to postsecondary education. The curricula currently being designed for Tech Prep/Associate Degree programs will prepare better educated workers with advanced skills and the ability to transfer skills as technology changes. Students, employers, high schools, and postsecondary institutions all benefit from Tech Prep programs. Major features basic to the design and development of Tech Prep programs include the following: applied academics, local partnerships, articulation, career exploration and counseling, associate and/or baccalaureate degree potential, and elevated postsecondary curriculum. Business/labor and government cooperate with education in a successful program. Teachers, principals, and counselors, as well as college faculty and administrators, must be included in all phases of planning and implementation, since they facilitate systemic change at the foundation. Although the federal government has devoted significant funds to the support of Tech Prep through the Carl D. Perkins Vocational and Applied Technology Education Act of 1990, local resources must be reallocated to support the needs of the established programs. (YLB)

November, 1992

NATIONAL TechPrep NETWORK

Tech Prep/Associate Degree* Concept Paper

The United States is engaged in a major education reform movement aimed at providing continuity of learning and quality educational opportunities for all students. The Tech Prep/Associate Degree program, a significant element of this movement, focuses on providing meaningful educational and career preparation for the majority of high school students who do not complete baccalaureate degrees. In 1992, nearly one-half million young people were enrolled in Tech Prep/Associate Degree programs designed and developed through collaborative support and encouragement from communities, educators, and employers. Tech Prep programs challenge students and effectively prepare them to live and work in a highly technological society. These programs will provide the type of workforce our nation needs to compete once again in a global economy.

Combining secondary and postsecondary education programs through a formal articulation agreement, Tech Prep provides students with a nonduplicative sequence of progressive achievement leading to associate degrees in any of a number of technical and service careers. After completion of the strong academic and technical program in high school, Tech Prep students should be well prepared to continue their technical education at a two-year college to acquire an associate degree, enter full time employment in their chosen field, or pursue a baccalaureate degree at a four-year college.

Why is Tech Prep needed?

At a time when employers are demanding high performance in the American workforce, "more than half our young people leave school without the knowledge or foundation required to find and hold a job," according to a 1991 report from the U.S. Department of Labor. Today's workplace requires advanced technical skills and an ability to understand complex theories and processes in rapidly changing and emerging technologies. Most jobs that offer growth, challenge, and earning potential require a working knowledge of math, science, technical principles, and information/communications skills. Students well educated in the rigorous applied academics as well as technical skills can transfer their knowledge of principles, concepts, and technologies to practical applications in a variety of technical jobs.

> ***"More than half our young people leave school without the knowledge or foundation required to find and hold a job."***

What is Tech Prep?

Tech Prep is a sequence of study beginning in high school and continuing through at least two years of

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postsecondary occupational education. The program parallels the college prep course of study and presents an alternative to the "minimum-requirement diploma." It prepares students for high-skill technical occupations and allows either direct entry into the workplace after high school graduation or continuation of study which leads to an associate degree in a two-year college.

The Tech Prep program integrates academic and occupational subjects, placing heavy emphasis on articulation from secondary to postsecondary education. Articulation between high schools and two-year colleges embodies a competency-based, technical curriculum, designed jointly by business/labor and secondary/postsecondary schools, which teaches essential competencies without duplication or repetition. The advanced skills required to complete an associate degree at the postsecondary level in a chosen career build on the strong academic and technical foundation at the secondary level. The curricula currently being designed for Tech Prep/Associate Degree programs will prepare better educated workers with advanced skills and the ability to transfer skills as technology changes.

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Who benefits from Tech Prep programs?

American society and the economy will certainly benefit by the development of a world-class workforce which will enable American business to compete effectively in the world market. The cooperation at different levels of education will eliminate program duplication and provide greater efficiency in the development of human resources in our nation.

• Students enrolled in the programs are the big winners in Tech Prep. They develop strong academic competencies while obtaining a quality technical education. Even more important, they develop the competence and confidence to succeed in a fast-changing high-tech society.

• Employers benefit from the availability of better educated workers. The skilled worker shortages should be alleviated as Tech Prep programs become widely operational across the country.

• High schools benefit from implementing Tech Prep programs because more students have a reason to complete their education. The tone and morale of high schools will improve as more students engage in a purposeful and substantial educational program.

• Postsecondary institutions can raise the level of their programs to provide advanced skills because students will be better prepared for college-level courses. Spending less time and fewer resources on remedial or fundamental education programs, two-year colleges will be able to spend more on increasingly sophisticated technical programs, providing a foundation for continued learning and career development.

What characteristics do successful programs manifest?

A primary goal of Tech Prep focuses on learning outcomes achieved through

multiple learning environments and teaching strategies which involve secondary and postsecondary institutions, business and labor, and government. Major features basic to the design and development of Tech Prep programs include:

• **Applied Academics.** The context in which learning takes place includes not only the physical environment, but also the social/cultural (values, relationships, etc.) environment as well as the internal perspective (learning styles, various intelligences, etc.) of the learners. The learning environment should be carefully designed and structured to enhance the meaning and usefulness of desired learner outcomes. Instruction must go beyond the presentation of theories and abstractions. The "whys" and "what fors" should be clear in the environment and examples in which students explore, discover, and incorporate the meaning and value of what is being learned into their own cognitive world.

The Tech Prep curriculum runs parallel to the college prep program in high schools, presenting a rigorous body of knowledge in a contextual setting.

The Tech Prep curriculum runs parallel to the college prep program in high schools, presenting a rigorous body of knowledge in a contextual setting and relating it to personal or social situations relevant to the workplace. Applied academics in mathematics, science, and communications form the strong academic foundation for the Tech Prep program which will enable students to understand complex technologies and new skill requirements in work environments. The program tolerates no "watered-down" courses but maintains the same academic integrity as the college prep curriculum, expanding occupational education to include academic development.

Applied academics courses address fundamental principles of productivity, teamwork, and flexibility needed in the workplace. Inclusion of applied academics in the Tech Prep curriculum provides the opportunity to build a solid foundation in fundamental courses in the early part of the high school program and to introduce the concepts of technology on that strong base. Because of the sound academic base, the student can advance to a specialty in the associate degree plan at a two-year college or seek a baccalaureate degree at a four-year college.

• **Local Partnerships.** Employers, labor representatives, parents, and community organizations have equal representation with secondary and postsecondary sectors on Tech Prep councils or steering committees during program planning and implementation. The business/labor community identifies student outcomes required for future as well as current jobs; reviews curricula and course content for job relevance; and participates with educators to develop and provide work-based learning experiences such as shadowing, mentoring, cooperative learning, internships, apprenticeships, etc. Comprehensive and intensive partnerships must be developed and maintained between academic and occupational/technical education, secondary and postsecondary education, education and business/labor, and education and state/local government.

• **Articulation.** Articulation is a process for coordinating the linking of two or more educational systems within a community to help students make a smooth transition from one level to another without experiencing delay, duplication of courses, or loss of credit. Educators from elementary, secondary,

and postsecondary institutions will work together to design and deliver curricula with a continuity that facilitates steady progress from one level to the next.

• **Career Exploration and Counseling.** Career awareness activities are essential for promoting Tech Prep/Associate Degree programs and recruiting students for the programs. This function involves a comprehensive, coordinated career counseling network of the facilities, programs, and skills of junior high/middle school, secondary, and postsecondary counseling professionals. To increase intelligent career choices, programs in career awareness, career exploration, and career/educational planning should begin at the elementary school level and continue throughout the college experience. The effort includes familiarizing students with many different job/career options, providing information on what is required to be successful in the positions, and leading students to discover and explore their own interests and aptitudes.

Students may articulate into an associate degree program at a two-year college, seek a baccalaureate degree from a four-year college, or enter the workforce well prepared for an entry-level position in a chosen field, retaining the option to reenter career training later.

• **Associate and/or Baccalaureate Degree Potential.** The fundamental courses prepare students thoroughly and proficiently for a variety of options after graduation from high school. Students may articulate into an associate degree program at a two-year college, seek a baccalaureate degree from a four-year college, or enter the workforce well prepared for an entry-level position in a chosen field, retaining the option to reenter career training later. The Tech Prep curriculum incorporates a series of exit/reentry points, each of which leads to a specific but progressively higher job classification.

• **Elevated Postsecondary Curriculum.** The curricula of postsecondary institutions can be revised to an academic level consistent with expectations for college courses. Students entering college from a Tech Prep course of study in high school will be prepared to master advanced courses.

It may be several years before significant numbers of students will be graduating from secondary Tech Prep programs. Eighty percent of the people who will make up America's workforce in the year 2000 are already adults. Recent high school graduates as well as older adults in the community who desire to acquire associate degrees—the desired degree in many career fields in the future—may need preliminary academic assistance. A one-semester program, a "bridge program," includes academic foundation courses and some technical courses necessary to succeed in advanced associate degree programs. This program provides the essential elements contained in a high school Tech Prep program. A "bridge program" allows postsecondary schools to maintain or even raise the level of their course content to provide increasingly advanced skills.

What ensures a successful Tech Prep program?

Business/labor and government cooperate with education in a successful program. Employers who play an active role in the program can pique students' interest, help them form practical and realistic ideas about the world of work, and motivate them through awareness of career possibilities and expectations.

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Providing work-based learning opportunities that take students beyond the classroom will correct preconceived notions, erase misconceptions, and instill appropriate ideas about what is expected of them when they finish school.

In educational reform movements, teachers and principals are the ones who facilitate systemic changes at the foundation, thereby determining the degree of success of innovative programs. Teachers, principals, and counselors, as well as college faculty and administrators, must be included in all phases of planning and implementation of new Tech Prep programs. Appropriate inservice training and adequate resources will accommodate the achievement of Tech Prep goals effectively and efficiently.

The federal government has devoted significant funds to the support of Tech Prep through the Carl D. Perkins Vocational and Applied Technology Education Act of 1990. This support is accompanied by increased expectations for documenting the successful integration of occupational and academic learning. For continuing and long-term success, however, local resources must be reallocated to support the needs of the established Tech Prep programs.

The Tech Prep/Associate Degree concept offers an answer to America's mandate to improve our educational system and to remain competitive in the world market. A successful program promises to upgrade front line workers, improve the productive capacity of entry-level workers, and provide quality education for all students. With the cooperation, participation, and commitment from secondary and postsecondary educational establishments, local employers, teachers, parents, and students, the program will serve as an agent of positive change for the American workforce as well as the country's educational system.

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About the expression "Tech Prep/Associate Degree"

The inclusive term "Tech Prep/Associate Degree" has been used throughout the Concept Paper to refer to technical educational programs which lead to a two-year associate degree or certificate. Such programs consist of at least two years of secondary school preceding graduation and two years of higher education, or an apprenticeship training program of at least two years following secondary instruction. The curricula for these programs feature a common core of required proficiency in mathematics, science, communications, and technologies designed to lead to an associate degree or two-year certificate in a specific career field.

About the Tech Prep/Associate Degree Concept Paper

After months of discussion and deliberation, the National Tech Prep Network Organizational Affiliates have completed development work on the Tech Prep/Associate Degree (TPAD) Concept Paper. The Affiliates have agreed that the paper should be distributed to educators, employers, community leaders, and legislators to facilitate widespread understanding of the Tech Prep concept.

The paper defines Tech Prep while identifying the need, audience, and characteristics of successful TPAD programs. With the support of the Organizational Affiliate representatives, this paper has the potential to be a very influential document.

This edition of the TPAD Concept Paper represents the contributions of a large number of leading Tech Prep practitioners and advocates. It is being reviewed currently by many other researchers and educators, and will be edited further in the coming months in response to their additional insights. The National Tech Prep Network is grateful to all contributors to this important document, including:

Judy Kass, **American Association for the Advancement of Science**
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