DOCUMENT RESUME

ED 408 476 CE 074 277

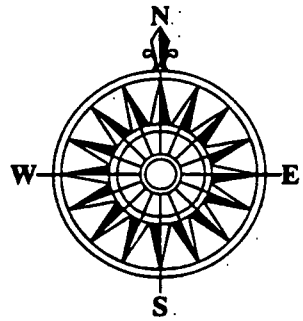
TITLE	Navigating the Transition from School to Work: A Briefing Paper.
INSTITUTION	Michigan State Council on Vocational Education, Lansing.
PUB DATE	Dec 95
NOTE	109p.
AVAILABLE FROM	Michigan Center for Career and Technical Education, 230 Erickson Hall, Michigan State University, East Lansing, MI 48824 (order no. PP-6).
PUB TYPE	Reports - Research (143)
EDRS PRICE	MF01/PC05 Plus Postage.
DESCRIPTORS	Cooperative Planning; *Coordination; *Education Work Relationship; *Educational Legislation; *Educational Planning; Federal Legislation; Federal State Relationship; Secondary Education; State Legislation; State Programs; *Statewide Planning; *Vocational Education
IDENTIFIERS	*Michigan

ABSTRACT

This briefing paper offers information to continue the process of creating linkages among the many stakeholders interested in helping adolescents successfully move into adult work roles. An introduction discusses some broad policy issues such as creating seamlessness through reducing the confusion caused by a lack of coordination and strengthening the linkages with employers. Chapter 1 reviews current initiatives at state and federal levels to develop school-to-work (STW) projects: quality amendments to Public Act 25; School-to-Work Opportunities Act (STWOA) 1994; Goals 2000: Educate America Act; Perkins Vocational and Applied Technology Act; Elementary and Secondary Education Act; and Michigan's STW initiative. Chapter 2 discusses program options in STW according to their functional area: school-based, work-based, or connecting activities. Chapter 3 focuses on evaluating the new roles to be played by the involved parties under the evolving STW regime. Chapter 4 discusses the issues of accountability and access, the general program requirements for which the STWOA describes while leaving the specifics of development and integration with other programs up to the individual states. It covers access for special populations, standards, skills certificates, assessment, and funding. Chapter 5 offers suggestions for integration of STW with other efforts, STW programming, accountability, and funding. Appendixes include models for Michigan, online resources, and 62 references. (YLB)

Navigating The Transition From School To Work:

A Briefing Paper



Michigan COVE

Council on Vocational Education
PO Box 30008
Lansing, MI 48909
(517) 373-6407
December, 1995

Michigan State Board of Education

Clark Durant, President

Marilyn F. Lundy, Vice President

Dorothy Beardmore, Secretary

Barbara Roberts Mason, Treasurer

Kathleen Straus, NASBE Delegate

Ruth Braun

Sharon Wise

Gary L. Wolfram

Ex Officio Members

John Engler, Governor

Arthur E. Ellis, Superintendent of Public Instruction

MICHIGAN STATE BOARD OF EDUCATION STATEMENT OF ASSURANCE OF COMPLIANCE WITH FEDERAL LAW

The Michigan State Board of Education complies with all Federal laws and regulations prohibiting discrimination and with all requirements and regulations of the U.S. Department of Education.

MICHIGAN COUNCIL ON VOCATIONAL EDUCATION (MCOVE) 1994-95

Mr. Richard Karas
Chairperson
Detroit

Assistant Director, UAW
Skilled Trades Department

Mr. Bradley A. Dyer
Vice Chairperson
Lansing

Deputy Director
MI State AFL-CIO
Human Resources Division

Mr. Loren E. Anderson
Mt. Pleasant

Vocational Counselor
Mt. Pleasant Area
Vocational Technical Center

Ms. Annlee Decent
Tustin

Retired Assistant Superintendent
of Special Education
Kalamazoo Valley ISD

Ms. Angela M. Reeves
Flint

Executive Director of Admissions
and Records
Mott Community College

Mr. James E. Robinette
Grand Rapids

Owner
Robinette's Apple Haus
& Gift Barn

Mr. Richard E. Turco
Rochester

Retired Director
Vocational Technical Education
Rochester Community Schools

Mr. P. Robert Vanderson
Grand Rapids

President
Jacobson Heating and
Colling Company, Inc.

Ms. Mercedes Perez
Saginaw

Special Populations
Coordinator/Counselor
Averill Career Opportunities
Center

Mr. Charles W. McCallum
East Lansing

Workforce Commission
and Venture Catalyst Network

Mr. Lewis E. Driskell
Flint

President & CEO
Union Printing Company

Ms. Patricia Hall
Benton Harbor

Dean of Occupational Studies
Lake Michigan College

Mr. Ozie Smith
Grand Rapids

Owner
Blockout Pest Control Business

Ms. Mary Miller
Executive Director

Ms. Virginia Yoder
Secretary

Ms. Suzanne Branoff
Support Staff

MICHIGAN COUNCIL ON VOCATIONAL EDUCATION (MCOVE) 1995-96

Mr. Lewis Driskell
Chairperson
Flint

President & CEO
Union Printing Company

Mr. Robert Vanderson
Vice Chairperson
Grand Rapids

President
Jacobson Heating and Cooling Company, Inc.

Mr. Mark Alexander
Lansing

Administrative Assistant
MI State AFL-CIO

Dr. Felix Chow
Battle Creek

Director
Calhoun Area Technology Center

Mr. James Dittmer
Ludington

Owner
Sunniside Fruit Farm

Ms. Patricia Hall
Benton Harbor

Dean of Occupational Studies
Lake Michigan College

Ms. Audrey Mayfield
Grand Rapids

Special Populations Coordinator
Grand Rapids Community College

Mr. Ron Morley
Clare

Administrative Assistant/Director
Clare-Gladwin ISD

Mr. Charles W. McCallum
East Lansing

Workforce Commission and Venture Catalyst Network

Ms. Shirlee Musick
Ferndale

Counseling and Career-Technical Education
Ferndale Schools

Mr.Gerald Ojibway
Marquette

Professor/Counselor
Northern Michigan University

Mr. William Peterson
Detroit

International Representative
UAW Skilled Trades Department

Mr. Ozie Smith
Grand Rapids

Owner
Blockout Pest Control Business

Ms. Mary Miller
Executive Director

Mr. John L. Williams
Administrative Support

Navigating The Transition From School To Work: A Briefing Paper

Preface

The Carl D. Perkins Vocational and Applied Technology Education Act Amendments of 1990 (Public Law 101-392) require the Michigan Council on Vocational Education to recommend policies the State should pursue to strengthen Vocational Education . . . ; and to recommend initiatives and methods the private sector could undertake to assist in modernizing Vocational Education programs.

The paper is presented in partial fulfillment of the requirements as stated in the Carl D. Perkins Vocational and Applied Technology Education Act Amendments of 1990.

This report discusses both the school-to-work activities as part of a school-to-work process and activities subsumed under the School-To-Work legislation.

The following are the Council's recommendations as submitted to the State Board of Education on December 13, 1995:

1. Move away from seat time to measurable student achievement.
2. Re-define School-To-Work goals so they are more realistic and achievable.
3. Fund school district programs like Career Academies and Schools-within-a School.
4. Include present employment as part of a student's work experience.
5. Ensure that School-To-Work is an integral part in the school district--not merely a separate program.
6. Create state or industry-approved skill certificates.
7. Recommend that the State Board of Education disseminate "Navigating the Transition from School To Work" to the Michigan Jobs Commission upon receipt by the State Board of Education.

Table of Contents

Acknowledgments

The Michigan Council on Vocational Education (MCOVE) commissioned the study, "Navigating The Transition From School To Work," as an extension of the 1991 Council working paper, "Creating a Seamless Web for Educational Reform by Reducing the Confusion and Strengthening the Linkages among Educational Initiatives."

The Council acknowledges its gratitude to Dr. Phyllis T. H. Grummon, the major contributor to this school-to-work briefing paper. Dr. Grummon is an Assistant Professor at Michigan State University. She has worked on a number of national task forces related to the transition from school to work and was previously the Director of Michigan's Employability Skills Project. Dr. Grummon was assisted in the production of this paper by Martin Edwards and Carla Antico of *Public Policy Associates.*

A special thank you is also extended to both the 1994-95 and 1995-96 members of the Council on Vocational Education; in particular Committee Chairpersons responsible for the development of the study, Mr. Loren Anderson (1994-95 Council) and Dr. Felix Chow (1995-96 Council); and Council Chairpersons, Mr. Richard Karas (1994-95 Council) and Mr. Lewis Driskell (1995-96 Council).

Lastly, appreciation is extended to the MCOVE staff for assisting with the development of the report: Virginia Yoder, Suzanne Branoff, Janise Gardner, administrative support staff and Mary Miller, MCOVE Executive Director..

Executive Summary and Recommendations

The Michigan Council on Vocational Education (MCOVE) recognizes that the creation of a comprehensive system to prepare all students for work will require the close collaboration of many agencies and entities in Michigan. MCOVE is vitally interested in ensuring that the needs of all students are met. The vocational education and career/technical education community must actively participate in the development and implementation of the three components of a school-to-work system—school-based learning, work-based learning, and connecting activities. MCOVE and the state's educators have a long history of work on many of the issues confronting the creation of a school-to-work system. It is in that spirit that we offer the following recommendations and thinking points for consideration by the State Board of Education and the broader educational community:

1. In 1992, MCOVE helped to sponsor (with the Department of Education) a strategic planning process for vocational education in Michigan. The Council believes many of the recommendations and issues raised in that process have direct relevance for the development of a school-to-work system. We recommend that the plan developed through that process be brought to the fore, again, for consideration as school to work develops in Michigan. In particular, Michigan must be able to move from a system that focuses on seat time and Carnegie units to one that can accurately and reliably measure the products of our students' educational experiences in all areas of their lives.

2. MCOVE appreciates the comprehensive and far-reaching nature of the goals put forth in Michigan's School-to-Work plan. The Council has concerns about whether Michigan can realistically accomplish these goals and about the burdens they would place on local districts. MCOVE would hope that Michigan's School-to-Work Office would work directly with local partnerships and schools. In particular, we all need to concentrate on formulating more attainable goals. Goals that are perceived as unattainable are, unfortunately, often ignored. The Council would rather not see the intention of the goals lost in that process.

3. We believe that some innovative programs may be developed through the use of Charter Schools or other funds within existing schools and districts. We strongly encourage the Board to consider ways in which it can help districts and schools use such funds to help initiate programs like career academies, school-within-a-school, or other programs to help prepare students for work.

4. Employer involvement in school work is vital. We believe, however, that an opportunity is being missed by not developing means for students to use the jobs they presently have to enrich their understanding of the workplace. Students need a clearer understanding of how they learn at work and how learning at work and school connects. Schools, parents, and communities should be enlisted to help students understand those links. Equally important, workplaces need to understand that part of their role with adolescents is to serve as a learning environment; they must seek creative ways to integrate

production and learning to meet the needs of their workers. We recommend that the State Board of Education build systematically on the work already being done with the Employability Skills Portfolio and Educational/Employability Development Plans to ensure that students and their present job experiences are better connected.

5. School to work is not meant to be a separate program, but rather a means of integrating initiatives already in existence and assuring access for all students to the resources to prepare for work. The Council strongly believes that preparation for work is necessary for everyone. Counselors, teachers, parents, and students must all understand that whether or not a student is going first to community college, a four year institution, or the workforce, he/she must be ready to enter work. Special populations cannot be neglected in this effort. The Council recommends strongly that the State continue to monitor the use of school-to-work services by all populations to ensure that all of our students have the variety of skills needed to be successful at work.

6. Documenting readiness for work includes the development of specific and generic skills. Skill certificates are seen as a way to help students document their specific skills development in targeted occupational areas. The Council recommends that the State Board of Education move aggressively in the development of such certificates; they are a concrete way to convey to students what they need to know to be successful. Skill certificates can allow students to prove their readiness to employers without spending many years in lower-wage jobs.

Introduction

In 1991 the Michigan Council on Vocational Education (MCOVE) published a working paper entitled *Creating a Seamless Web for Educational Reform by Reducing the Confusion and Strengthening the Linkages among Educational Initiatives*. That paper provided a considerable amount of information on attempts to reform vocational and general education up to that point in time. MCOVE urges readers of this paper to read the *Seamless Web* as it contains an excellent review of vocational efforts from 1900 through 1990. The matrix of selected educational initiatives from the *Seamless Web* is included in this paper as Appendix A, and it has been extended to include more recent developments. The *Seamless Web* matrix looked at these initiatives in relationship to the seven key characteristics listed below:

- Introduction/Leadership for Initiative
- The Problem to be Addressed
- Basis of the Initiative/Purpose
- Components of the Initiative
- Controversies and Issues to Resolve
- Linkage with Other Initiatives
- Evolution/Genesis

MCOVE realizes that the educational reform movement has continued to blossom, and that an update of the *Seamless Web* is needed. In particular, the emergence of the idea of the transition from school to work has created new opportunities for those interested in helping adolescents successfully move into adult work roles. MCOVE has committed itself to providing a

variety of educators with an overview of programs and legislation related to the transition from school-to-work in the hopes that the information will aid them in their efforts. The purpose of this briefing paper is to offer information to continue the process of creating linkages among the many interested stakeholders.

This paper tries to fill in the gaps to enable programs to work together in the most efficient manner possible. It addresses the following questions:

- How does the variety of legislation, both federal and state, related to the transition from school to work and systemic reform fit together? How can these initiatives be integrated at the school or community college level?

- What does the School-to-Work Opportunities Act of 1994 require for involvement? What are the program options for schools and community colleges who are interested in school to work? What are some best practice examples of those programs? How can educators learn more about them?

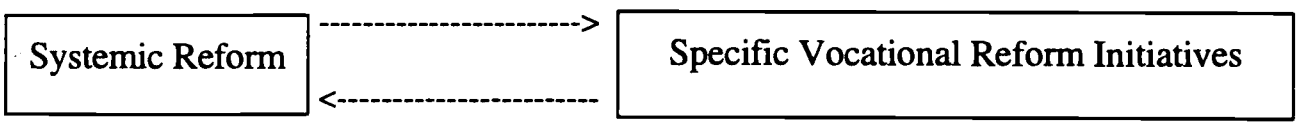
- How is the issue of accountability handled in the Act? How does it differ for students, schools, community colleges, and businesses? What must school-to-work programs include in their accountability efforts?

- What funding is available for encouraging the transition from school to work, and for integrating it with other reform efforts?

Creating Seamlessness: Reducing the Confusion

As the authors of the *Seamless Web* point out, a major problem with developing school-to-work programs has been a lack of coordination. Coordination problems exist on several levels. Programs such as Technology Education have emerged from the vocational education community, while programs such as Tech Prep have been framed as an essential component of overall school reform. The manner in which reform should be best undertaken is a philosophical question. However, two broad patterns have emerged. In one, these reforms are treated as parallel developments; and, in the other, changes in vocational/technical/career education are "nested" under systemic reform issues. These two patterns are illustrated graphically in Figures One and Two.

Figure One



One of the dangers of developing parallel programs is the potential for duplication of efforts. One example is the confusion that exists between the Educational/Employability Development Plan (E/EDP); the Employability Skills Portfolio; the student portfolios required under Section 104a of the State School Aid Act; the four year plan for high school students in P.A. 25; and the

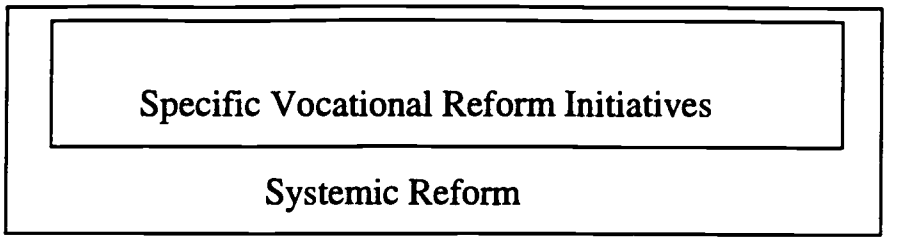
portfolios in P.A. 335 (Quality Amendments to P.A. 25). Both the E/EDP and the student portfolio are written documents designed to record the individual's skills and aptitudes. The E/EDP was originally designed to help students develop and explore career options, and the student portfolio is intended to be a record of academic and extracurricular activities. At the same time, the Michigan Department of Education has developed an Employability Skills Portfolio as a means to measure employability skills. These include teamwork and personal management skills in addition to academics. It appears that many school districts will be using the Employability Skills (ES) Portfolio to comply with the Section 104a requirements.[1] What exists, then, are a number of options schools can use to fulfill the intent of each of these laws; namely, helping students document their workplace readiness. Schools must now choose which one, or ones, to implement and decide how closely each accomplishes the actual requirements of the law.

The development of the E/EDP and the Employability Skills Portfolio produces a series of difficulties. First, districts are not sure about the practices for preparing both types of portfolios. While the ES Portfolio is student-driven, the district is supposed to assume responsibility for the portfolios under section 104a. Rules mandating exactly *what materials* go in each document, as well as how each of these differ from traditional records (such as the CA-60), do not yet exist. Thus, the issue of compliance with the legislation remains to be fleshed out. In any event, the emphasis on portfolios as an assessment tool masks a greater problem—how are they to be used by job applicants? There are issues of confidentiality that still need to be addressed. Are students supposed to turn over their files to a prospective employer?

---

[1] Phyllis T.H. Grummon, "Assessing Educational Outcomes: Trends and Opportunities" in Bynum, Timothy S., et.al., Policy Choices: Framing the Debate for Michigan's Future (East Lansing: Michigan State University Press, 1993).

Figure Two



This "nested" development of programs can pose problems for school districts if the connection between educational reform and vocational/technical reform is not clearly delineated. For example, the National Educational Goals Report, which was published in 1993 through the National Governor's Association, notes under Goal #6, Objective #2 that:

> All workers will have the opportunity to acquire the knowledge and skills, from basic to highly technical, needed to adapt to emerging new technologies, work methods, and markets through public and private educational, vocational, technical, workplace, or other programs.

Benchmarks for this goal, however, do not exist. This complicates attempts to measure and assess improvements in this area. Other systemic reform activities such as Michigan's Public Act 25 (P.A. 25) or the Michigan Systemic Science Initiative (MSSI) promote many of the same changes in instruction that the Carl D. Perkins Act encouraged. Whether or not schools and districts combine these efforts, or even understand how they overlap, can vary greatly. This creates problems for teachers who are often the focus of reforms. They can feel overburdened and confused.

Creating Seamlessness: Strengthening the Linkages

Districts face problems not only in coping with either fragmented or consolidated programs, but they also face difficulties in improving student access to programs. Given MCOVE's mandate to evaluate the delivery system for vocational education, this is a key concern. All the funding

and programs in the world will not generate broad improvements in workforce competencies if they are not accessible by Michigan students.

One of the key difficulties is the relatively small impact of existing programs. Many programs suffer from low participation. Co-op programs serve five to ten percents of students in high schools and two-year colleges; and apprenticeships serve about two percent of high school graduates. This finding is perhaps symptomatic of a larger problem—an inability to effectively link with employers. Nearly 80 percent of high-school students are employed part-time, but there have been few attempts to integrate school-to-work initiatives into existing jobs. A related problem stems from the firms themselves; too many programs target large firms for participation, yet job growth is more prevalent in smaller firms, which demand a more well-rounded employee.[2] To be fair, 100% participation is an unrealistic goal. Even the German model of apprenticeship education, which has long been cited as a strong policy model, now faces increasing pressure to bring new employers on board and increase the number of available worksites.[3]

Having discussed some broad policy issues, current initiatives will be examined next, along with their impact on the public school system.

---

[2] Kenneth Gray, "Firm Size: The Overlooked Variable in School-to-Employment Transition," in Albert J. Pautler, Jr., ed., High School to Employment Transition: Contemporary Issues (Ann Arbor: Prakken Publishers, 1994).

[3] Phyllis T.H. Grummon, "The Transition from School-to-Work" in Phyllis T.H. Grummon and Brendan P. Mullan, eds., Policy Choices: Creating Michigan's Future (East Lansing: Michigan State University Press, 1995).

Chapter One: Review of Significant Legislation

As suggested previously, several initiatives have been forwarded at both the state and federal levels to further develop STW projects. These initiatives cannot be considered in isolation from other relevant developments related to K-12 reform. The pages below detail a number of relevant programs.

Quality Amendments to P.A. 25 (1993)

State-level initiatives to reform the K-12 system are a necessary focus of this analysis. The revolution in school financing caused by the adoption of Proposal A is just a part of these changes. Public Act 25, which became law in March, 1990, addressed the procedural aspects of school reform by drawing the links tighter between individual school districts and the intermediate school districts (ISDs). School districts are now required to submit an annual educational report. This annual report, which is available to the public, includes information on accreditation, the core curriculum, student achievement scores, retention rates, and the percentage of parents who participate in parent-teacher conferences. Districts are also required to adopt a three-to-five-year school improvement plan. Progress in implementing the improvement plan is another item required in the annual report. Under the law, ISDs can provide technical assistance to school districts in the development of both a core curriculum and a school improvement plan.

These changes were further addressed in two subsequent acts: P.A. 335 and 339 of 1993. Both are known as the "Quality Amendments" because they refine the changes in the earlier law. P.A. 335 contains one relevant provision related to school-to-work issues. Section 1279d of the

law mandates that school districts develop student portfolios for each pupil in grades eight or higher. The portfolio is a document that is given to the student upon transfer or graduation. It records academic achievements and accomplishments, as well as . . .

> a record of career preparation that includes at least records of vocational-technical training under school auspices that may help prepare the pupil for a job or career, career exploration, postsecondary education exploration, job-seeking preparation, job experience, problem-solving experience, and lifelong learning preparation.

This provision allows for the portfolio to become an additional record of student competency that details skills that can be evaluated by the prospective employer. In this manner, the portfolio system represents a proactive attempt to genuinely address the concerns of business owners who are often suspicious of the skill proficiencies of high school graduates.

P.A. 339 changed the focus of the School Improvement Plan to better link it with STW reforms. Besides the previous requirements, school districts were also required to include the following in their improvement plans:

a. Identification of the adult roles for which graduates need to be prepared.

b. Identification of the education and skills that are needed to allow graduates to fulfill those adult roles.

c. A determination of whether or not the existing school curriculum is providing pupils with the education and skills needed to fulfill those adult roles.

d. Identification of changes that must be made in order to provide graduates with the necessary education and skills and specific recommendations for implementing those changes.

e. Development of alternative measures of assessment that will provide authentic assessment of pupils' achievements, skills, and competencies.

f. Methods for effective use of technology as a way of improving learning and delivery of services and for integration of evolving technology in the curriculum.

g. Ways to make available, in as many fields as practicable, opportunities for structured on-the-job learning, such as apprenticeships and internships, combined with classroom instruction.

These additional reporting requirements lead to self-evaluation of the school district's internal capacity to address the school-to-work transition. The law further requires that the ISDs produce a similar set of appendices to their improvement plan. Of particular interest is another addition—"Coordination of services and service delivery with other existing state and local human services agencies." This could, in principle, allow the intermediate school district to link a STW program with a program for disadvantaged youth, thus ensuring that the benefits of these programs are more equitably distributed.

School to Work Opportunities Act (1994)

The School-to-Work Opportunities Act (STWOA) is a federal law intended to address the "skill deficit" by ensuring that new generations of high school graduates have the skills necessary to compete in a changing workplace. Employers have long been concerned that today's high school graduates do not have the new skills necessary to compete in a global economy. One example of such skills is the ability to work in teams and solve problems[4] independently—a hallmark of the new manufacturing system known as "flexible production." Section 3 of the Act

[4] See the discussion of the "New Economy" in Public Policy Associates, *Survey of Michigan Workers,* (Michigan Jobs Commission: September 1994).

explains the purpose and intent behind the Act, the most important purpose of which is the following:

> . . . to establish a national framework within which all states can create statewide School-to-Work Opportunities systems that are integrated with the systems developed under the Goals 2000: Educate America Act and that offer young Americans access to a performance-based education and training program that will enable them to earn portable credentials, prepare them for a first job in a high-skill, high-wage career, and increase their opportunities for further education.

The STWOA is intended to produce a system of education encompassing the entire K-12 spectrum. Elementary school students are to be exposed to career awareness, and middle school students will receive training in career exploration. High school students are exposed to several activities. Career preparation is taught in grades 9 and 10, while grades 11 and 12 receive career training. Postsecondary students are eligible for career enhancement.

To better facilitate synergy between the school and workplace, the STWOA contains three components: school-based learning, work-based learning, and "connecting activities" designed to link in-class learning and on-the-job practice. The school-based component of a School-to-Work Opportunities Program consists of career exploration and counseling and the development of a program of study that prepares a student for a first job. Significantly, postsecondary education is viewed as a key component of STW projects. This follows the 2+2 formula advocated by the Tech Prep community in which students supplement their two years of work-based training in high school with two years of coursework in a community vocational/technical school. Consistent with the goal of creating measurable outcomes, the state STW programs are intended to develop "skill certificates" which are portable, industry-certified credentials that indicate a level of skill proficiency.

The work-based component of a School-to-Work Opportunities Program is a very ambitious endeavor, consisting of "a planned program of job training and experiences . . . that are relevant to a student's career major and lead to the award of a skill certificate." This program is intended to include paid work experience, workplace mentoring, and instruction in general workplace competencies. These school and work-based initiatives will not be fully successful without the third component, connecting activities. These entail building the infrastructures necessary to develop a School-to-Work program through both training the staff and guidance counselors and developing reliable methods for measuring student outcomes. Connecting activities also place the school district in a liaison role, matching students with employers, and providing assistance to those employers to maximize student value.

Goals 2000: Educate America Act (1994)

Another important piece of legislation that needs to be considered in a discussion of the development of school-to-work initiatives is Goals 2000. Goals 2000 was signed into law in March 1994. Among other things, it established eight national education goals. It allows the federal government to create a national framework to change the way education is delivered in America.

Title I of the Act establishes eight national education goals. Most applicable for our discussion is Goal Six, which states:

> By the year 2000, every adult American will be literate and will possess the knowledge and skills necessary to compete in a global economy and exercise the rights and responsibilities of citizenship.

Included in the objectives for this goal is the involvement of every major American business in the connection between school and work, and the ability to reskill workers to adapt to emerging technologies through existing public and private education systems.

Skill Standards

Skill standards are another feature of the Goals 2000 Act. Title V of the legislation authorizes the creation of a National Skill Standards Board which will work with industry to develop common skill standards. These standards are intended to assume the form of proficiencies that students and workers should possess, such as the ability to interpret charts and graphs.

In 1992, the Departments of Education and Labor funded 22 projects to determine the kind of skills needed by workers in specific occupational areas (see Resources). The creation of these standards is widely perceived as a winning idea for all involved parties. For example, creating industry standards involves the industry in determining types of skills essential on the job. Employers will be able to judge prospective workers on the basis of their skill proficiencies. At the same time, workers will benefit from having a repertoire of skills that are recognized as industry standards, which could help in finding a job in the same way that licenses and certifications do. Developing this skill portability better protects workers against job loss and helps to ease their entry into the workforce. Most importantly, government benefits from these new standards because they can be linked to spending on training programs. Ensuring that proficiencies are met or exceeded allows the government to invest in successful programs and steer resources away from those that do not perform as well.

One such project is the National Skills Standards Project for Advanced High Performance Manufacturing. It is designed to create a set of workforce competencies—things that manufacturing workers need to know and be able to do. Subsequent phases of the project will use the selected skills and develop standards by specifying how the skill should be measured and performed, as well as a definition of what constitutes mastery of the skill. An example of this would be the following:

> Working alone with a calculator, add ten three-digit numbers five times in three minutes with 100 percent accuracy, in order to perform necessary calculations for Statistical Process Control (SPC) during the manufacturing process. To be documented by third party or performance assessment.[5]

As this example demonstrates, specific rationales for *why* the skill is important are essential.

Links To Other Legislation

Goals 2000 contains several mechanisms that interface with previously discussed legislation. One of the most immediate similarities is the requirement for State Improvement Plans. Michigan, as previously noted, has already begun the process of developing improvement plans both at the school district and ISD level. Title III of the legislation contains a funding mechanism for states to administer local grants for district-level improvement plans.

Other mechanisms in the legislation connect directly with other federal programs. For example, Section 306(j) of the law deals directly with coordination with School-to-Work programs. If a state has received federal assistance for planning, expanding, or establishing a STW program, the state is required to document in the state improvement plan how the program ties into the

[5] National Coalition for Advanced Manufacturing, "National Skills Project for Advanced High Performance Manufacturing" (June 8, 1995).

school reform efforts required by Goals 2000. Another linkage is in Section 306(l). It mandates that each state plan include a section on "strategies for integration . . . pursuant to the Carl D. Perkins Vocational and Applied Technology Education Act Ammendments of 1990." On paper, at least, these bridges mark an attempt to reduce the confusion caused by a maze of educational reform and STW programs.

Content, Performance, and Opportunity To Learn Standards

The Goals 2000: Educate America Act included sections on the creation of voluntary skills standards. These were divided into three subtypes: Those that focus on content, performance, and opportunity to learn. Content and Performance standards are designed to measure "what all students should know and be able to do." Opportunity-to-Learn standards are designed to "establish a basis for providing all students a fair opportunity to achieve the knowledge and skills set out in the voluntary national content standards certified by the Council." Thus, these are designed to address equity issues in educational delivery systems. These include the quality and availability of curricula and technology; the level of resources allocated for professional development for teachers and administrators; and the level of safety and security in the schools.

It must be said that, in the wake of the November 1994 election, some of the Goals 2000 legislation has come under attack from Republicans who allege that the reforms constitute interference in state autonomy. One argument contends that the development of a board designed to oversee voluntary state standards constitutes federal-level interference in the development of curricula. Fears that a broad federal mandate to oversee "content" may become a mandate for endorsing an avowedly secular, multicultural curriculum have led many local politicians to distance themselves from the program. New York and Montana have sought to limit their participation in

Goals 2000 for just this reason. Governor Pataki has refused to name members of the New York State School Improvement Plan committee, and the Montana state legislature recently voted to remove the state from Goals 2000 participation.[6]

At the same time, the fate of the Goals 2000 program is up in the air at the federal level. Attempts by Republicans to increase state-level autonomy over education have assumed the form of calls to abolish the Departments of Education and Labor. Thus, it remains to be seen what provisions of this legislation will remain in place.

Perkins Vocational and Applied Technology Act (1995-1996)

The Perkins Act is up for renewal in the Congress in 1995. The 1990 version of the bill included five elements that made it a force for voc-ed reform:[7]

1. Promoting integrated academic and vocational curricula and instruction
2. Developing Tech Prep education programs
3. Promoting participation of special populations, especially the economically disadvantaged
4. Developing state systems of performance standards and measures
5. Incorporating "all aspects of the industry" into curricula and instruction

Many of these elements appear in subsequent federal legislation, as discussed below:

The idea of the "integrated curriculum" focuses on tying together academic and vocational instruction so that applied and theoretical learning are stressed both in the classroom and on the

---

[6] Mark Pitsch, "Goals 2000 Fails to Gain Firm Foothold" *Education Week*, June 7, 1995, p. 19.

[7] The following is from "Building a School-to-Work System: The United States Experience" presented by Winifred I. Warnat, U.S. Department of Education, at the international conference "Directions: Education and Training for 15-24 Year Olds."

job. These elements are reflected in the work-based, school-based, and connecting components of the School-to-Work Opportunities Act.

Included in the legislation is funding for all states to develop Tech Prep programs. Tech Prep is viewed as an important component of systemic reform. The "2+2" education system advocated under Tech Prep consists of two years of secondary occupational training and two years of postsecondary instruction geared toward a specific occupation that culminates in an associate's degree or a certificate.

Perkins contains provisions designed to ensure program efficiency by requiring all districts to develop measures of performance standards. These benchmarks include mandatory measures of learning and competency gains. States are also required to select a measure of program outcomes through selecting the following: Occupational competency attainment, job or work skill attainment, retention in school and/or placement in further education, the military, or employment. Through this system, each district can measure the impact of their programs and track their success over time.

The final element in the Perkins Act is the concept of integrating "all aspects of the industry." Students who participate in an on-the-job or school-to-work experience in a specific workplace should be exposed to all phases of the enterprise, from marketing and sales to production and distribution. In this manner, students will develop a richer appreciation of jobs in a given firm and use these experiences in planning their own careers. This approach tightens the linkage between the pupil and the value of the work experience.

Elementary and Secondary Education Act (1995)

The Elementary and Secondary Education Act (ESEA), passed in 1965, was reauthorized in 1995. Changes in Title I of the legislation required systemic reforms resembling those of Goals 2000. It requires states to develop content and performance standards in the core academic subjects and to provide for student assessments for these standards.

These changes are significant because they represent a streamlining of the reform process for school districts. The reauthorization allows states to submit a single set of standards for both ESEA and Goals 2000, thus uniting both traditional reporting requirements and those for new systemic reform initiatives. It is important to remember, however, that the development of content standards under Goals 2000 has not yet been enacted. Title I, however, will require assessment of student progress as the former Chapter I did, but states and localities will have more flexibility in what assessment methods/instruments they use.

Michigan's School-to-Work Initiative

In June of 1994, Michigan was awarded a national School-to-Work implementation grant. The grant lasts for five years and totals $49 million. The great majority of the funds will be distributed to local community partnerships (70% year one, 80% year two, and 90% years three to five) for use in their school-based, work-based, and connecting activities. The State's School-to-Work implementation grant is administered by the Michigan Jobs Commission. Representatives from the Department of Education, the Jobs Commission, and the private sector all help to decide the direction and focus of the State's school-to-work efforts.

Michigan's successful STWOA grant included nine goal areas. These goal areas are to be achieved across the state and within the local partnerships. The goals are framed as listed below.

By the time the high school class of 2000 graduates:

1. 100% will have at least one job shadowing experience during grades 8-10.
2. 100% will have an E/EDP (Education/Employment Development Plan).
3. 90% will have an endorsed high school diploma.
4. 50% will have participated in a structured, paid, work-based learning experience.
5. 40% will have completed a career major linked to the community college associate degree program or registered apprenticeship.
6. 30% will have earned a skill certificate in a career field.

Also in 2000:

7. 100% of Michigan's citizens will understand the goals and elements of the School-to-Work initiative.
8. 50% of the high schools will offer interdisciplinary career majors.
9. 25% of Michigan employers will be actively participating in work-based learning options.

Local community school-to-work partnerships have been formally recognized and established in all labor market areas of the state. Presently, there are forty-four partnerships. These partnerships are designed to assess current school-to-work activities and to develop five-year implementation plans. These plans must help the state achieve its five-year implementation goals. Local partnerships include representation from employers, organized labor, local educational agencies, post-secondary schools, community groups, local government, Service Delivery Areas (SDA) associated with the Job Training Partnership Act (JTPA), parents, students, and other key partners. The state requires that the majority of the governing authority for these partnerships be

composed of private sector representatives that are reflective of employment within the partnership's labor market areas and that a private employer serve as the chair of the governing body.

Presently, local partnerships are eligible to apply for either planning grants or implementation grants. Eligibility for an implementation grant depends on whether a local partnership has previously received a planning grant and has made progress in its implementation efforts. The Michigan Jobs Commission is responsible for reviewing applications for these grants.

Chapter Two: Program Options in School-to-Work

In addition to the state and federal initiatives, there have been a host of local programs that can play a key role in creating a structure of STW programs that are open to all students. In this section, the goal is not to discuss various aspects of the enabling legislation, but rather to address a more practical question—what types of activities can be part of a school-to-work initiative? These program options will be discussed according to their functional area: School-based, work-based, or connecting activities.

It is important to note that many of these programs will contain multiple elements. Some of the school-based programs discussed below will have strong linkages to the workplace through job mentoring or shadowing programs. These programs are discussed below precisely for this reason—because they exemplify constructive attempts to transcend the narrow thinking that has hampered STW reforms in the past. Rather than focus on one perspective such as creating applied courses, these programs view workforce preparation as a whole. They embody the seamlessness that we seek to construct throughout the state and nation.

School-Based Learning

Six relevant examples of school-based learning programs will be discussed here. They are: Academies, Integrated Vocational/Academic Instruction, Applied Academics, Career Education, Tech Prep, and Community Service and Service Learning.

Academies

Each career academy is a "school-within-a-school" designed to provide academic and technical instruction related to a specific occupational cluster, such as business or health care. The curriculum is often a three- to four-year program that integrates academic learning with applied technical coursework. Instructional techniques often depart from the standard "top-down" model by including hands-on learning and team projects. Many of these academies target specific student populations, such as minorities or at-risk students.

A consortium of employers often take the lead in the design of a curriculum and evaluation system, and they often provide support with equipment, consulting personnel, and instructional materials. Most importantly, they provide work-based assistance through job shadowing, mentoring, internships, and field trips. This is, of course, a win-win program for the employers, who benefit from improving the human capital of their potential workforce. One example of this is the Manufacturing Technology Partnership (MTP) in Genesee County.[8] The MTP has been recently recognized by the Clinton Administration as one of the country's best STW programs. MTP is a cooperative venture between General Motors, the UAW, the Genesee County high schools, Baker College, Mott Community College, the GASC (Genesee Area Skills Center) Technology Center, and Jobs Central. New manufacturers are becoming involved in the program, which includes skilled trades such as welding, drafting, machining, sheet metal, electronics, and metal repair.[9]

---

[8] More examples of programs outside of Michigan can be found in Edward Pauly, Hilary Kopp, and Joshua Haimson, Home-Grown Lessons: Innovative Programs Linking Work and High School (New York: Manpower Demonstration Research Corporation, January 1994).

[9] Michigan Center for Career and Technical Education, *MCCTE Newsletter*, Spring 1994.

MTP is a two year program that begins in the eleventh grade. A typical day for an MTP student consists of a general education curriculum; specialized courses such as Principles of Automation; and two hours of paid work in a participating facility, such as a General Motors machine shop. In the summer, students continue their paid worksite experience for at least 24 hours per week for six weeks. At the conclusion of the training period, students take an industry-created standardized test.

Integrated Vocational and Academic Instruction

As the above points out, curriculum reform is an essential component of addressing the STW transition. This is an area in which the two streams of vocational education reform and general education reform have effectively joined forces to support a common interest in change. First, increasing emphasis on curriculum reform has resulted from a change in perceptions of the link between education and the economy. Works such as The Forgotten Half have drawn attention to the plight of the high school graduate who does not go on to college and the resulting need for usable workplace skills. In the words of Doug Weir, principal of the GASC Technology Center, "The real customer of high schools is not college. The real customer of high schools is the employer."[10]

At the same time, attempts to change the core high school curriculum have been proposed by those seeking overall K-12 reform. Works such as The Closing of the American Mind have suggested that the traditional system of rote learning is ill-suited for an age of high-technology that stresses critical thinking skills over the wholesale regurgitation of facts that lack both context and relevance.

---

[10] David Everett, "The Workplace Class" *Detroit Free Press,* April 29, 1994.

Thus, many districts are striving to connect vocational and academic instruction so that each contains elements of the other. The concept is known as "alignment" or "integration" and means that academic courses contain vocationally-relevant material, and vocational courses include more basic or academic content. For example, a mathematics course could use story problems drawn from an engineering or design context to best point out practical applications. At the same time, a vocational course on agriculture could include a unit on disease and genetics to incorporate insights from biology.

As the authors of the *Seamless Web* point out, alignment or integration should be best conceived as part of effective teaching practice.[11] High school and college students often need to be won over—convinced that a specific course has an intrinsic value that will remain usable long after the semester is over. In this respect, the art of effective teaching should be best conceived as training rather than solely imparting knowledge. Creating a team-teaching environment would serve to integrate vocational and academic instruction by breaking down the barriers between the fields. Developing resources for workshops will help teachers at all levels make an effective transition.

Applied Academics

A closely-related initiative is that of applied academics, which stresses infusing the school-based curriculum with practical content. Hull and Parnell define applied academics as "the presentation of subject matter in a way that integrates a particular academic discipline (such as mathematics, science, or English) with personal workforce applications (hands-on laboratories

[11] *Web*, op. cit., p. 13.

dealing with practical equipment and devices)."[12] For example, English classes would place discussions of poetry side-by-side with training in how to write a business letter or press release. Applied academic courses have been widely adopted in schools. There has been some concern about the willingness of colleges and universities to accept them as a demonstration of readiness for college-level courses. This point is still under discussion in Michigan.

The most widely known and used series in applied academics is that produced by the Center for Occupational Research and Development (CORD). CORD has materials on applied mathematics, principles of technology, applied communications, and applied biology. The CORD materials vary in their price and usefulness to teachers. Applied mathematics is probably the most widely used of their applied academic courses.

Career Education

If curricular reform is perceived to be an essential component of a strong STW program, then career education must be seen as a logical precursor of it. In districts that have academies, it is essential to educate younger students about their choices so that they will be in a better position to make a decision about selecting the academy track.

Career education started in the 1970s as an attempt for schools to incorporate more job awareness into the curriculum. More recently, initiatives such as the Educational/ Employability Plan (E/EDP) have sought to bring career education to the broadest possible student population. The E/EDP serves as a formal plan for building a desired career by choosing courses and work experiences. The process of creating an E/EDP, which is student-driven, will require students to

---

[12] Dan Hull and Dale Parnell, Tech Prep Associate Degree: A win/win experience (Waco, TX: Center for Occupational Research and Development, 1991).

assess their interests and aptitudes and select a career that best fits their needs.[13] As noted at the beginning, however, the E/EDP is not without problems, given the existence of competing documentation standards for districts, all of which lack guidelines.

E/EDP models have been developed in a number of districts in the state. Two of the most commonly used models were created in Van Buren and St. Joseph Counties. Both ISDs have developed extensive materials for use by teachers in guiding the career development process associated with E/EDPs. Some districts have experimented with electronic portfolios, but these are not yet widely available.

Tech Prep

Tech Prep is considered a newer development in STW reforms. Dale Parnell first introduced the idea in 1985. The focus of Tech Prep is the concept of the articulated curriculum. The Tech Prep Education Act of 1990, which was part of the 1990 Perkins Act, defined Tech Prep as:

> *a combined secondary and post-secondary program which. . .*
>
> a) leads to a two-year associate's degree or a two-year certificate.
> b) provides technical preparation in at least one field of engineering technology, applied science, mechanical, industrial, or practical art, or trade, agriculture, health, or business.
> c) builds student competence in mathematics, science, and communications (through applied academics) through a sequential course of study, and
> d) leads to placement in employment.[14]

Again, the key emphasis is on a "combined" program. This is accomplished not only through curriculum alignment but through the wholesale development of new courses through collaboration between business, high school instructors and administrators, and community college instructors

---

[13] Michigan Council on Vocational Education, Biennial Evaluation Report: 1991 and 1992, pp. 3-4.

[14] The Tech Prep Education Act of 1990, p. 40.

and administrators. This teamwork produces agreements that allow for the transfer of credits between programs by developing articulation agreements between secondary and post-secondary institutions.

The above implies that development of effective Tech Prep consortia requires a substantial amount of planning and coordination. This is precisely the rationale for developing the implementation grant program through the auspices of the Act. A recent survey of 390 local Tech Prep coordinators found that most consortia had completed implementation of the following components:

- consortium building (including recruiting schools, college, employers, and other organizations).
- formal signed articulation agreements between secondary and postsecondary schools.
- joint in-service of secondary and postsecondary personnel (e.g., faculty, counselors, and administrators).
- team building to facilitate Tech Prep planning and implementation.
- equal access for all students.[15]

Several components remain under development in many consortia. These elements include apprenticeships, job-placement services, work-based learning, and the development of an advanced technical curriculum.

At present, there are thirty-nine Tech Prep consortia up and running in Michigan, each involving these articulated linkages between school districts, ISDs, and local community colleges. Some of these consortia are moving to develop formal marketing materials to address recruitment

---

[15] D.D. Bragg, J. Layton, and F. Hammons, (forthcoming) Local Tech Prep Implementation: Findings From a National Survey (Berkeley, CA: National Center for Research in Vocational Education).

by answering parents' and students' questions. This aggressive marketing is essential in order to encourage buy-in and overcome the rather elitist perceptions that some high school students hold toward career/technical education in general.

It is clear from the above that Tech Prep is an umbrella vehicle for bridging the gap between school and work. The overlap between other STW programs and Tech Prep makes it clear that the era of discrete programs is over, and that programs such as apprenticeships may be developed under the auspices of a general Tech Prep curriculum, rather than as a separate component.

Community Service and Service Learning

"School-to-Work Transition Models for Michigan" was a paper produced by the Youth Apprenticeship Working Group (a collaboration between the Michigan Departments of Labor and Education) in April, 1993. It addresses the need for a multitude of structures and programs to meet the needs of new STW programs. Community Service and Service Learning (hereafter CS/SL) is one of the initiatives addressed in the paper.

Just as programs such as Goals 2000 sought to integrate STW with the needs for overall K-12 reform, CS/SL seeks to tie together STW programs with the new impetus for community service as a part of the core curriculum. Recent works, such as William F. Buckley's Gratitude, have made the case for some form of community service as an essential requirement of citizenship. This philosophical approach has been addressed in recent public policy, specifically the Clinton Administration's Americorps program. Envisioned as a domestic analogue to the Peace Corps, Americorps is intended to give youths volunteer experience, as well as some reimbursement for college expenses.

The Youth Apprenticeship Working Group defines service learning as:

> The integration of service experiences with academic learning by incorporating lessons from work into the classroom curriculum, i.e., cleaning up a local stream while studying ecology and pollution. Service learning "can provide exposure to private and public sector career opportunities and real world experiences," and allow students to be actively involved prior to reaching the "employment age."

These service projects can be either coordinated through the principal's office or developed by a particular group of students. In either case, community service is a "win-win" for both the student and the community. As the working paper points out, "voluntary service projects undertaken by groups of students and individual volunteers give students worker roles at a degree of complexity and level of responsibility that they could not ordinarily find in paid employment."[16] In the case of the stream cleanup noted above, accomplishing this task includes completing a number of subsidiary goals, such as coordinating personnel and equipment, getting permission from neighboring landowners, and working to ensure safety. Developing the means to delegate and work as a team in a volunteer capacity can be more rewarding than repeatedly performing the same mundane task at a worksite. Given the previous discussion of the types of employee attributes necessary in a flexible production manufacturing facility, it is not difficult to understand the working group's conclusions.

Community Service and Service Learning also address a barrier noted by Pauly, Kopp, and Haimson—securing employer participation in STW programs[17]. Volunteer experiences offer a potential means to boost student involvement in STW programs because they circumvent the need for employer involvement. The river cleanup project may necessitate obtaining donations of

---

[16] "School-to-Work Transition Models for Michigan," op. cit., p. 3.

[17] Pauly, Kopp, and Haimson, Home-Grown Lessons, xxxiv-xxxv.

equipment from local businesses, but business involvement in that type of experience is far less than required by sponsoring a STW experience.

At the same time, community service and service learning can play a constructive role in the community. Michigan's P.A. 339 allows for community service and service learning as part of the ISD improvement plans mandated under the law. The requirement for "coordination of services and service delivery with other existing state and local human services agencies" can serve to link a STW program with a volunteer initiative, such as a homeless shelter or a literacy program.

Work-Based Learning

Examples of successful STW programs emerge from the workplace as well as the classroom. Just as in the school-based cases noted above, each of these approaches embodies differing roles for schools, participants, and the private sector. Eight examples will be discussed in the following section simulations, and distance learning:

Apprenticeships

Discussions of the need for an apprenticeship system in the U.S. often emerge by way of comparison. Noting the demand that a global economy places on a workforce, experts compare the U.S. school-to-work system with a more holistic approach, such as the apprenticeship system found in Germany.[18] A recent work that has made this comparison notes that the German system is more carefully planned, more selectively targeted, and occurs at an earlier age than in the U.S.[19]

---

[18] Robert Reich, *The Work of Nations* (New York: Knopf, 1991); Grummon, "The Transition from School to Work," *op cit.*

[19] Stephen F. Hamilton, Apprenticeship for Adulthood, (New York: Free Press, 1990), p. 119.

Hamilton's work goes on to discuss the elements of a successful American work apprenticeship system. These will be discussed in turn.

High School Apprenticeship

High school apprenticeship has gone by a number of different names in Michigan. Recently, MCOVE suggested that the term "high school apprenticeship" be used to denote those programs that allow high school students to participate in a registered apprenticeship program while completing graduation requirements. Previous terms have included pre-apprenticeship, youth apprenticeship, and early apprenticeship. High school apprenticeship requires the development of a formal agreement between the business, the school, and the U.S. Bureau of Apprenticeship and Training (BAT).

An example of a high school apprenticeship program is in place in Calhoun County. The program is offered in health-related professions, service trades, industrial machine trades, and construction/building trades. It begins in the sophomore year, with the students' time divided between the high school and the Calhoun Area Technology Center. In the junior year, students participate in mentorship and shadowing activities for the first semester. In the second semester, the students are placed in their respective apprenticeships. As seniors, the apprentices complete their coursework, work on-site, and receive Related Trade Instruction (RTI). RTI is a technical sequence of courses such as Applied Physics and Blueprint Reading tailored to a specific occupation. Upon graduation, they continue their apprenticeships toward the 4 year/8000 hour requirement.[20]

---

[20] Michigan Occupational Information Coordinating Committee, Work-Based Learning: Bridging the Gap from School-to-Work, September 1992, p. 13.

Registered Apprenticeship

The Youth Apprenticeship Work Group defines a registered apprenticeship as:

> Training programs operated by employers, employer associations, or jointly by management and labor, designed to provide workers entering the workforce with comprehensive training by exposing them to the practical and theoretical aspects of the work required by the occupational area.[21]

A registered apprenticeship contains the following elements:

1. Sponsored by employers and others that have the ability to hire and train in a work environment.

2. Needs of business and industry dictate content and length of training.

3. Has specific legal status and is regulated by state and federal laws/rules.

4. Leads to formal, official credentials (certification of completion and official journeyperson status).

5. Involves a significant investment of time and money from the employer or other sponsor.

6. Provides wages to apprentices during training according to a predefined wage progression scale.

7. Participants learn by working directly under the supervision of masters in the craft, trade, or occupation and attend 156 hours of classroom-related instruction.

8. Written agreements detail the roles and responsibilities of the sponsor and the apprentice. Implicit expectations include the right of the sponsor to employ the apprentice and the right of the apprentice to expect employment.

9. Apprentices earn a Certificate of Completion that documents the achievement of industry-defined skills at industry-defined standards.[22]

---

[21] "School-to-Work Transition Models for Michigan," op.cit.

[22] "School-to-Work Transition Models for Michigan," op.cit.

The search for "Best Practice" examples of apprenticeship is complicated by the fact that many of them differ programmatically. Some programs are designed along the European model, while others embody more school-based elements and classroom time. These more closely resemble programs such as Tech Prep. These programmatic differences stem from divergent foci. Stone, Madzar, Cagampang, and Smith note that apprenticeship programs can be classified on a continuum ranging from the traditional conception of the apprenticeship as a program centered in the workplace to a new conception of apprenticeship as pedagogy. This approach is more learner-centered.[23]

Co-operative (Co-op) Education

Co-op Education is a program that is similar to the idea of an apprenticeship, though the linkage to a trade or skill is (or can be) less apparent. The Youth Apprenticeship Working Group defines co-op education as:

> School-sponsored plans that help students gain competitive occupational skills at industry standards by linking the school's occupational program/ course of study with carefully supervised on-the-job training and performance.[24]

Just as apprenticeships require written commitments by the partners, co-op programs require similar agreements. During the term of the training plan, the student will receive credit for paid employment at a part-time job. Just as in the case of apprenticeships, co-op programs are available at several levels, from high school to four-year college.

---

[23] See the review in James R. Stone III, Svjetlana Madzar, Helen Cagampang, and Clifton Smith, Continuous Improvement in Programs Connecting School-to-Work (Berkeley, CA: National Center for Research in Vocational Education, 1995) Draft Manuscript, pp. 23-24. The continuum discussion is on page 31.

[24] "School-to-Work Transition Models for Michigan", op.cit.

An example of a high-school co-op program is in place in Fort Collins, Colorado.[25] It requires students to complete a one-semester career development course that focuses on employability skills and career preparation. Students in this course visit workplaces and volunteer for at least four hours at a community agency. In addition, they study two or more careers, have at least one job shadowing experience, and prepare a personal portfolio.

Case studies for co-op programs at the college level include the College of Business and the College of Technology and Education at Ferris State University. The College of Business offers several plans designed to accommodate a student's schedule and preferences, ranging from choosing full-time work and classroom work on alternating terms, to working part-time while taking classes.[26]

Observers are in universal agreement that co-operative education is, as presently constituted, not an effective vehicle to lead STW reform. This is because it is grossly under-delivered. A 1991 study by the General Accounting Office found that only eight percent of high school juniors and seniors participate in co-op programs. Co-op programs only reach three percent of community college students.[27]

School-Based Enterprises

If encouraging employer involvement is a barrier to expanding STW programs that incorporate work-based learning, one solution is to make the school a jobsite. This is done through the creation

---

[25] Pauly, Kopp, and Haimson, op.cit., p. 87.

[26] Work-Based Learning: Bridging the Gap from School to Work, op.cit., p. 11.

[27] Transition from School-to-Work: Linking Education and Worksite Training (Washington, D.C.: General Accounting Office, 1991).

of School-Based Enterprises (SBEs). SBEs are not an entirely new phenomenon, as they are often part of programs at a vocational center. Programs in retail management address the business aspect of work-based learning directly, through operating a school store. Similarly, programs in the building trades, electrical, and plumbing, heating, and cooling often collaborate on building a house that is sold on the market. An example of this is the Branch Area Career Center in Coldwater, which has built almost an entire subdivision over the years.

A 1992 survey for the National Association of Vocational Education found that 19% of U.S. secondary schools operated some form of SBE.[28] One attempt to develop an action plan to facilitate SBEs uncovered the existence of several barriers, including shortages of funding and teacher training, promoting student involvement, and achieving recognition by both the schools and the community at large.[29]

Job Shadowing

As previously noted, job shadowing is a STW component that is often subsumed under other initiatives. It consists of workplace observation. Students are matched up with an employee and follow him or her around for part of the day while the employee explains what is happening and what they are doing. Job shadowing experiences are expected to be a part of every students' school-to-work experience and are required of those schools participating in local partnerships.

The effectiveness of job shadowing experiences is influenced by a number of factors. Preparation for the experience can greatly enhance its usefulness to the student. Teachers can help

---

[28] D. Stern, School-to-Work Programs and Services in Secondary Schools and Two-Year Public Postsecondary Institutions (Berkeley: National Assessment of Vocational Education, 1992).

[29] Stone, et. al., op. cit., p. 89.

to get students ready for these experiences by instructing them to think about specific questions they might like to ask at the work site, specific skills and knowledge they might look for at work, and appropriate workplace behaviors they should observe and emulate. When students return from a job shadowing experience, teachers should also ensure that students reflect on that experience. What answers did they find to their questions; how similar or different was the work site from what students expected; what careers or jobs did they learn about; and what skills and knowledge that students are using in school are also used at work? Work sites also need to be prepared to help students undergo the most positive experience possible. They need to make sure that anyone involved in showing students around is able to answer questions and has time to interact with the student. A major problem that schools face in ensuring job shadowing experiences for all students is securing employer participation and making sure that employers do not get overused. Schools will need to be creative in how they define and create job shadowing experiences for students.

The greatest strength of job shadowing is that it is relatively cost-free. In contrast to arranging apprenticeships, job shadowing is less administratively intensive. At the same time, if spread across a sufficient number of employers, it does not place an undue burden on businesses. This means that job shadowing can play a key role in incorporating small business into STW programs. Given that small business represents one of the fastest growing employment sectors, this could be a major advantage to students and schools.

Mentoring

Mentoring is generally defined as a relationship in which an adult offers support and encouragement to a younger person. The concept of mentoring is traditionally used in programs

such as Big Brothers/Big Sisters, or other community efforts dealing with at-risk students and potential dropouts. In STW contexts, mentoring entails providing support on the worksite or in career development and exploration.

Mentoring is often a component of other all-encompassing STW efforts, such as Boston's Project ProTech.[30] Adult mentors help students understand the expectation of employers as well as the value that education about work can bring to one's later life. Just as in the case of job shadowing, mentoring is relatively low cost. Though there has been little empirical research on the subject, the flexibility of mentoring and the need of many students for an adult role model make it a practical component of many STW programs.

Simulations and Distance Education

While they have not yet been used extensively, computer-aided learning and distance education may play a role in providing students with one form of work-based learning. States with large rural populations, or areas with limited employment opportunities, are investigating ways in which students can learn about careers and experience work-based problems via computer programs or distance learning. For example, a workplace simulation on a computer relating to health care decision making may help students prepare for that aspect of a job in a health care setting. Business education classrooms in Michigan presently use simulations to teach students about various aspects of the business environment. As more and more information becomes available on CD-ROM, teachers will be able to use it to help students develop specific job related skills, as well as to gain an understanding of the nature of the workplace.

---

[30] Bob Filipczak, "Bridging the Gap Between School and Work," Training, December 1993.

Distance education may also offer promise as a way to provide students with some work-based learning experiences. Using teleconferencing, students may be able to view work sites and work-in-progress and to ask questions about what they see. Distance education may also allow them to attend postsecondary or technical education classes that are not offered in their local school district or community college. Clearly, students eventually need real workplace experience, but distance education and simulations of all kinds allow students to become acquainted with a broader array of workplaces than may exist in their local community.

Connecting Activities

School-to-Work programs cannot be developed overnight. If one central fact about these programs emerges from the previous discussion, it is that the new emphasis on STW requires a great amount of foresight and planning on the part of school districts. Most importantly, this administrative work needs to include the full range of "connecting activities" addressed in the School-to-Work Opportunities Act. This refers to building the necessary administrative and organizational structures to make a STW program work effectively. The following section covers a number of these activities, with a mind to the roles that many of those involved play:

Joint Professional Development

There is a clear recognition in the STWOA that both teachers and worksite mentors will need to be provided with training in order to implement the concepts embodied in the Act. The type of training that will be useful to teachers and worksite mentors should have some overlap. Both sets of professionals need to understand the constraints under which they operate. Teachers need to become more aware of how they can incorporate workplace examples and skills into their regular

curriculum. Worksite mentors need to understand the ways in which the workplace operates as a learning environment for students. Both need to recognize the skills that students learn in one place that are relevant to the other. Joint professional development can help to meet these needs. By including worksite mentors and teachers in the design and implementation of school-to-work programs, they learn more about one another and are more likely to create student-focused programs. Conducting a needs assessment for professional development/training with both groups can help to identify common areas of need. These identified needs can then serve as the basis for training and interactions, along with program development.

Job Finding Services

Services that link students in STW programs to employment are generally common only in well-established programs. This is because it takes a substantial amount of effort on the part of local coordinators to develop specific evaluation and outcome measures, and then convince local businesses that students have practical skills that will enable them to succeed in the workplace.

Programs designed to help students in STW programs find jobs may be classified on a continuum. Some programs can be subsumed under the general title of career education— offering students help with writing a resume or exploring career options. Other institutions have established more aggressive programs. One such example is Duncan Polytechnical High School in Fresno, CA.[31] This four-year vocational magnet school has created a "Job Developer" position that is responsible for calling on local businesses and informing students of job opportunities. The job placement activities run concurrently with training in traditional job finding skills such as resume

[31] Stern, Finkelstein, Stone, Latting, and Dornsife, op. cit., p. 55.

writing and interviewing techniques. Programs designed to help students locate jobs are often in place for special populations, such as minorities, women, at-risk students, and Limited English Proficiency (LEP) students.

Liaison among Parents, Schools, and Employers

A key requirement of a seamless system is the development of a strong local capacity for oversight and review. As previously alluded to, schools and employers need to work together to ensure that STW programs reflect the needs of hiring firms. This will entail developing technical skills that will be valuable in the workplace, as well as the personal management and teamwork skills that employers desire.

An often overlooked partner in these efforts is the parent. As Pease and Copa point out, including input from parents and families is important, because they are "consistently identified by young people as primary sources of information and insight about becoming a worker."[32]

The question of exactly *how* to best institutionalize this feedback is an important one. Creating a citizen advisory council is a sensible approach, but two caveats are in order. First, the council should have a common mission that will guide its efforts. Its function should be clearly delineated as one of oversight, not direct administration. The council should be responsible for making sure that the needs of the "customers" are directly met, and that the program is working to address the concerns of students and businesses. Second, established goals need to be in place to prevent in-fighting. Teachers and administrators need to be aware that the goal of the council is to fine-tune rather than micro-manage. At the same time, citizens and businesses should remain cognizant of

[32] Virginia H. Pease and George H. Copa, "Partnerships in the School-to-Work Transition" in Pautler, ed., High School to Employment Transition: Contemporary Issues, op. cit., p. 252.

the mission of schools to provide an education for active citizenship, as well as for a career. Courses such as Civics and Literature teach things that often do not have a directly observable market value, but contribute to the society and the growth and development of individuals.

Local Partnerships

Several related examples of successful collaboration already exist on a regional scale. Regional arrangements exist in the City of Boston and the State of New York.[33] The Boston Compact was signed in 1982, and it brought business and education representatives together to solve common problems. The Boston PIC (Private Industry Council) was placed in charge of implementing the arrangement. The involvement of local health care providers in the PIC led to the creation of ProTech, a youth apprenticeship program.[34]

New York's "A New Compact for Learning" was recently promoted as a decentralized approach to systemic reform through encouraging the participants' efforts to "make the specific improvements *they* deem appropriate and developing the ideas and programs *they* think will succeed."[35] The compact encourages parents and other non-educators to get more involved in program development. All districts were directed to develop and adopt a plan for "school-based planning and shared decision making" by February 1994.[36]

---

[33] This list is not necessarily conclusive.

[34] Filipczak, op. cit.

[35] Phillip J. Marron, "New York State's Compact for Learning and Its Role in the School-to-Employment Transition," in Pautler, op. cit., p. 258.

[36] Marron, op. cit., p. 259.

Chapter Three: Roles and Responsibilities of Stakeholders

The rise to prominence of STW as an issue in the U.S. education system has produced a number of significant repercussions. First, these new programs place a number of demands on all involved parties. The days in which students could graduate from high school and then be hired the following day at a local factory are far behind us. As the system is forced to adapt to the new requirements of a global economy, we must strengthen our commitment to change. At the same time, these reforms have created new problems that must be confronted. Foremost among these are issues relating to accountability and access. These two issues will be addressed in Chapter Four. Chapter Five presents conclusions and recommendations.

Under the evolving STW regime, each group of stakeholders has an expanded set of obligations. Attempts to increase involvement in the twin processes of STW and systemic reform are geared toward encouraging greater "voice." The mechanisms for accomplishing these tasks have been previously addressed. This chapter focuses on evaluating the new roles to be played by the involved parties.

Teachers

Teachers must form the backbone of any school-to-work effort. They will be the ones developing and delivering the school-based learning component. They should also be used to help employers understand how to create learning opportunities in the workplace and to link that learning back to the classroom. Teachers are an important influence on students and their career decisions. By talking about work in the classroom and giving students the opportunity to apply

learning to work-based problems, teachers can encourage students to actively link their school and work experiences. Teachers are also front line "marketers" of school-to-work activities. They help to keep students and parents informed of their options. A teacher who is positive about school-to-work experiences can increase student participation in such activities. Teachers are also likely to be the ones doing most of the assessment of students' skill and knowledge development related to workplace readiness.

The reality, as described by teachers, is that they must "change the wheel on the car while it's going 65 miles an hour down the highway." Teachers are the key to creating a successful school-to-work initiative, but they cannot perform their roles if they do not have adequate support. Mostly that means having time to plan with other teachers, meet with businesses, and create new resources for their classrooms. Local partnerships that can find ways to provide teachers with the time they need will be rewarded with increased teacher participation and more rapid change.

Counselors

The role of counselors has changed over the years. In the past, counselors were often concerned with scheduling issues and helping students interested in postsecondary education. Over the past decade, counselors have had to spend much more time dealing with new sets of problems; drug addiction, teenage pregnancy, etc. As their "caseloads" have increased, including a higher number of problematic cases, this has meant that their role as a resource for career guidance information has correspondingly diminished.

The STW transition similarly entails a transformation of the manner in which students are counseled. The three traditional foci of counselors have been stimulating career development,

providing treatment, and aiding in placement. These tasks have grown progressively more complex as duties such as finding job shadowing placements have been added to the list of existing counselor responsibilities. Both the extreme workload and perceived ineffectiveness of the existing counseling system have led to criticism.[37] This, in turn, has facilitated innovation by using existing state-level offices to help schools build counseling capacity. For example, the State of Missouri's employment service has assigned a full-time career counselor to each vocational-technical high school. This counselor provides instruction in pre-employment skills and job search help. The Rhode Island Job Service operates a statewide program for high school seniors that provides instruction in career exploration, job skills, and job searching.[38]

Administrators

The role of administrators in the new environment of STW reform has changed as well. Their role of defending the status quo has diminished, as their role as a change agent has grown. This, of course, can place them in a unique position vis-a-vis the faculty. The push for innovative techniques can be seen by the teachers as either facilitative or alienating. This is why a necessary prerequisite for successful change is the ability to build a team around a shared vision of K-12 transformation. This includes the "why" behind reform and how it should best be achieved.

Administrators' capacity as team builders extends to the public as well. It is important to bring the public into the process, rather than to neglect or alienate them. Parents and non-parents alike want to know both why school programs are changing and how these changes will affect children.

---

[37] W. John Kozinski, "The Role of Guidance Counselors in Improving School-to-Work Transition Experiences" in Paulter, op. cit.

[38] P.E. Barton, From School to Work, (Princeton: Educational Testing Service, Policy Information Center, 1990).

Proposal A aside, voters still possess a democratic measure of control over the school district in the form of millage elections. More can be gained from making STW reform a public endeavor than by making it the province of a privileged few.

It may also be helpful for school-to-work efforts to build teams of administrators across a district or in a region. Some potential school-to-work programs work better when they can draw on the resources and students of several schools. For example, a career academy may not be able to draw enough students from one school, but could exist if it could attract students from a number of schools. How to best structure schedules, including transportation schedules, to accommodate work-based learning options may need to be considered on a district-wide basis. School-to-work programs need to extend into elementary and middle schools and this requires collaboration across schools. Finally, it is likely that administrators will face similar problems in their development and implementation of school-to-work programs. Sharing these problems across schools can help administrators learn what other schools are doing and lead to more creative solutions.

Intermediate School Districts

ISDs were given an expanded role in curriculum reform under Public Act 25, which gave them the capacity to serve as a resource for school district reform efforts. They were given this assistance function precisely because of their *intermediate* position between the school districts and the Michigan Department of Education. ISDs can fill a function as a resource for STW programs by serving as a clearinghouse for the "how-to" issues related to program development and implementation. By providing information on "best practices" in the form of case studies, they can help districts seeking to create innovative and viable STW programs.

Parents

The role of parents remains largely unchanged in the new STW milieu. However, parents should be made aware of the fact that a high school diploma is no guarantee of full-time employment. They need to play a constructive role in the career choices of their children. In fact, they can help their children understand the world of work by taking their children to work and providing them with job shadowing experiences. Similarly, parents can participate in school-based learning by sharing their career and job experiences with students at all levels. Parents should be part of each local STW partnership.

Employers

As suggested previously, the expansion of apprenticeship and Tech Prep programs has placed greater demands on employers. In addition to running their firms, business owners are now asked to work with the school district in sponsoring apprenticeships, internships, or other programs. Keeping employers involved can be difficult, since there is an inherent tension between the student's need to learn on a job and the business' need to produce. Some school districts may need to experiment with incentives to promote business involvement. One idea could be to include free P.R. for participating businesses.

Tax credits and financial incentives are also possibilities, but one study of employer involvement reported that, of 270 businesses surveyed, no employer reported receiving a wage subsidy.[39] This same study looked at the attitudes surrounding employer participation, and found

[39] Irene Lynn and Joan Willis, "School Lessons, Work Lessons: Recruiting and Sustaining Employer Involvement in School-to-Work Programs" *EQW Working Paper* (Philadelphia: National Center on the Educational Quality of the Workforce, 1994).

that employers participated in STW programs to perform a community service or to recruit entry-level workers. Nonparticipants remained uninvolved in STW programs because of their extremely negative views about young people, both in terms of their attitudes and basic skills, and about high schools, in general. These findings suggest that once businesses try sponsoring a work-based learning program, they will be satisfied. Districts will have to push hard, however, to overcome resistance based on stereotypes. Dissemination of local "success stories" will help address this problem.

Students

Students can play a significant role in the development of school-to-work programs. They can participate in local partnerships and help design effective school-based and work-based learning experiences. In fact, all students should come to understand their role in their own learning process. Teachers and employers can ask students what skills and knowledge they are learning in one setting that are useful/needed in the other. Students should see their role as linking work-based and school-based learning. Local partnerships that include student input in the design and development of school-to-work programs are likely to see increased buy-in by students and better programs.

Local Partnerships

Presently there are forty-four local partnerships in Michigan. They represent local labor market areas and are designed to help the state create a state-wide school-to-work system. A majority (51% or more) of the governing authority for a local partnership must come from the

private sector. Other participants include educational agencies, organized labor, parents, students, SDAs, local government, post-secondary schools, community groups, and other key local partners. Local partnerships apply for planning and implementation funds from the state and provide guidance in the development of local school-to-work efforts. Funding for STW is competitive and the state anticipates that ". . . grant awards will be incentive-driven based on local partnership performance, with funding levels dependent on the capacity of the partnership to deliver on all components of the system for all youth within the established timeframe."[40] Thus, local partnerships are responsible for ensuring that all youth have access to a high quality school-to-work program that includes school-based, work-based, and connecting activities.

[40] Michigan School-to-Work Initiative Request for Proposals, 1995, Michigan Jobs Commission, School-to-Work Office.

Chapter Four: Accountability and Access

The issues of accountability and access are as important for school-to-work programs as for any program funded with public monies. By-and-large, the School-to-Work Opportunities Act focuses most of these efforts at the state level. It describes general program requirements, but leaves the specifics of development and integration with other programs up to the individual states. States are not required to apply for funds and so have no mandate to even participate in school-to-work activities. As described below, the STWOA attempts, through integration with Goals 2000, to include rigorous academic content standards along with skills requirements. However, since such standards have not been adopted under the *Goals 2000* legislation, and it is uncertain whether they will be, there is essentially no clear standard for academic achievement. The STWOA does require that states who apply for funding include:

> . . . regularly scheduled evaluations involving ongoing consultation and problem solving with students and school dropouts to identify their academic strengths and weaknesses, academic progress, workplace knowledge, goals, and the need for additional learning opportunities to master core academic and vocational skills.

The Act, however, does not define what form or content such evaluations might include. Clearly, there is considerable room for interpretation at the state and local level.

The School-to-Work Opportunities Act does require that the school-based learning component include a course of study that meets the "requirements necessary to prepare a student for postsecondary education and the requirements necessary for a student to earn a skill certificate." The certification process will be described in more detail below, but the Act anticipates that states

will create a variety of certificates that set standards at least as challenging as those endorsed by the National Skill Standards Board, once those become available. At this point, no nationally-adopted standards or certification processes exist. States can submit their own process for certifying students in specific occupational areas with their state plans.

What is found, then, in the STWOA and in school-to-work programs in general, are very loosely defined methods for accountability and assessment. Eventually it is envisioned that a series of skill certificates accepted by an industry throughout the nation, will be created. At this point, some national skills standards have been developed. But there is no process for either certifying students in those skills or for ensuring that all employers in that industry accept such certificates as proof of skill attainment. There are also no requirements in the Act that programs either develop or use academic assessments.

Program personnel that are interested in ensuring that their graduates have demonstrable academic and occupational skills will have to turn to either other program initiatives for guidance, such as Tech Prep, or to the variety of workplace readiness assessments that have been developed in other contexts.

Access for Special Populations

The School-to-Work Opportunities Act requires that states submitting plans for funding describe their strategies for including a variety of special populations in their STW efforts. The specific populations included in the Act are: (1) young women—to ensure opportunities for them to participate in STW programs in a manner that leads to employment in high-performance, high-paying jobs, including nontraditional employment; (2) low achieving students, students with

disabilities, school dropouts, and academically talented students; and (3) rural students. The emphasis in the Act is on ensuring access by all students to a meaningful school-to-work experience.

School-to-work programs are likely to face challenges to inclusion similar to those faced by career/technical education. Two challenges, in particular, are likely to be significant. Some critics allege that career/technical education programs become "dumping grounds" for special populations, including the Limited English Proficient (LEP). Concerns over the skill proficiencies of these students lead some counselors to place them in occupational programs rather than in a college-prep curriculum. At the same time, concerns exist that vocational programs are not adequately delivered to special populations. These populations are proportionately under represented in specific vocational fields. If school-to-work programs are to truly serve all students, they must be prepared to demonstrate that they are used by all students and are not simply another name for "tracking."

Under the Perkins Act, state-level vocational councils are empowered to evaluate the extent to which special populations are provided equal access. This is actually a methodological issue because the Perkins Act does not specify what constitutes equal access. The most recent report by the Michigan Council on Vocational Education employed the following measure for determining accessibility. MCOVE contrasted the enrollment data of vocational programs between special needs students and non-special needs students.[41] This study found that significant disparities existed in program enrollments. For example, SNP (Special Needs Projects) students were over represented in areas such as trades and industry, but under represented in areas such as business and marketing.

[41] Accessibility of Vocational Technical Education for Special Needs Students in Michigan (Michigan Council on Vocational Education, 1993).

The composition of vocational courses by handicappers poses a different sort of problem. The MCOVE study also found that many sections of courses contained 50 percent or more handicapper students. Vocational education courses do not have a cap on the number of disabled students. Vocational instructors often do not have the same training as special educators do. Such training helps instructors to effectively deal with disabled students. The lack of such training raises another issue unrelated to access—quality. As inclusion of all students becomes a reality, school-to-work programs must ensure that quality and access go hand-in-hand. The lessons learned from special education, such as the need for focused in-service education and the use of instructional/teacher aides in classrooms and at worksites, should be incorporated into program planning for school to work.

Access for all students may be compromised by the competitive nature of grants to local partnerships. The Michigan Jobs Commission has decided that funds will be available to local partnerships based upon their responses to requests for proposals and their plans for implementing school-to-work systems in their areas. While eventually the Commission anticipates funding all of the partnerships, the partnerships have not been funded for equal amounts of time. This funding differential may produce differences in accessibility for students and may also result in differences in program availability based on student characteristics related to gender, race, or special population status.

Standards

Like all federal programs, there are requirements in the School-to-Work Opportunities Act that the States be accountable for the progress of their school-to-work efforts and for ensuring access to all students. Through its integration with Goals 2000, the STWOA encourages the adoption of academically-rigorous content standards. At this writing, there is still considerable discussion about how, and whether, such academic content standards will be developed for Goals 2000. At present, there are no specific assessment requirements related to academic achievement in the STW system, except as they occur in industry skill standards.

Goals 2000 established a National Skills Standard Board charged with encouraging the development and adoption of national academic and skill standards that can be used by industry, employers, labor organizations, training providers, and other stakeholders for a variety of purposes. Skills standards are defined as competency units which include: (1) a description of the segment of work for which the standard applies; (2) a listing of the essential knowledge and skills that are critical to the work segment; (3) a listing of the essential tools and equipment critical to the work segment (if applicable); and (4) the criteria used to measure competency in performing the work segment.[42] Twenty-two skills standards projects were funded by the US Departments of Education and Labor during 1992 and 1993. These projects were supposed to produce prototype industry standards in such areas as advanced manufacturing, electronics, printing, health care, and hospitality and tourism. A list of the projects is included in the "Resources" section of this paper.

[42] National Skills Standards Board, 1995.

The projects have produced skills standards lists that vary in their specificity and level of detail. Not all projects have published their work. Needless to say, there are also many more occupational areas where skills standards would be useful.

Skill Certificates

Skill certificates are supposed to provide students with a means of conveying to employers their preparation in specific occupational areas. The National Governor's Association (1994) described skills standards as needing the following elements:[43]

- written in a language commonly understood and used by employers, workers, students and educational institutions
- providing a series of benchmarks as signaling devices for individuals, parents, and those teachers, counselors, and mentors supporting their career development
- promoting adoption of contextual learning approaches
- integrating academic and vocational instruction
- functioning as the key components of quality assurance systems for public education and workforce development programs that shift focus from inputs to outcomes.

The STWOA defines a skill certificate as:

> a portable, industry-recognized credential issued by a School-to-Work Opportunities program under an approved State plan, that certifies that a student has mastered skills at levels that are at least as challenging as skill standards endorsed by the National Skill Standards Board established under the National Skill Standards Act of 1994, except that until such skill standards are developed, the term "skill certificate" means a credential issued under a process described in the approved State plan.

[43] National Governor's Association (1994). *Issues in Developing National Industry-Based Skill Standards: A Report on the March 23-24,1994 Meeting.* Washington, DC: National Governors' Association.

The need for skill certificates is not new. The Carl Perkins Act also encourages the development of certificates as a means for increasing the opportunities for Tech Prep program participants. It is helpful to think of skill certificates as a way to allow students to show their competence in occupations that do not have more traditional methods of assessing skills. Students in registered apprenticeships or in occupations that require licensing can use those means to document their skills. However, the vast majority of occupations do not have any formal method for employees to demonstrate their level of skills, beyond their employment history. For new entrants this is clearly problematic. The development of a national system of skill certification should help students, and others, to gain access to employment opportunities across the country. Unfortunately, such a system is many years from adoption.

Assessment

The assessment of academic and workplace knowledge and skills creates the base for determining if students are progressing in a school-to-work program. As described above, there is no explicit mandate for academic assessment in the School-to-Work Opportunities Act beyond the expectation that students meet the same academic content standards developed under Goals 2000. The creation of skill certificates represents a method for assessing occupational skills and selective academic skills and knowledge. As schools and programs decide how to help students document their skills and knowledge, there are a number of questions that need to be answered. These questions include:

1. How will the skills and knowledge that students should have be identified?
2. How should the academic knowledge and skills related to workplace readiness be assessed—separately or integrated with occupational skills?

3. What should be the balance between assessing specific and generic occupational skills and knowledge?

4. What will be included in the actual assessment process?

5. Who will be responsible for certifying knowledge and skill attainment?

6. How can assessments be used?

Identifying Skills and Knowledge

There are a number of national taxonomies that identify the generic skills and knowledge that students should have to be ready for work. The most well known was developed in 1991 by the Secretary's Commission on Achieving Necessary Skills (SCANS). This taxonomy identified what it called foundation skills (e.g., reading, writing, mathematics, problem solving) and general workplace competencies (e.g., managing resources, understanding systems). SCANS has served as the basis for the development of numerous workplace readiness programs, surveys, and curricula. Sometimes the SCANS taxonomy is adopted in total and sometimes local communities adapt it to their needs. The SCANS taxonomy has recently been the subject of a nation-wide survey to determine how valid it is as a set of generic workplace skills. The results of that survey should be available late in 1995.

A major influence on SCANS was the Michigan Employability Skills Profile. The profile was developed in 1987 and was validated on Michigan employers in 1988. There are three skill areas identified in the profile—academic, personal management, and teamwork. Over time, specific skill and knowledge benchmarks have been developed within each of these areas and are used in the Michigan Employability Skills Portfolio. A number of states, localities, and Canadian provinces have adapted the Michigan Employability Skills Profile for their own use.

A final example of a taxonomy of generic skills is one developed by the Council of Chief State School Officers (CCSSO). CCSSO sponsors a group of states in a Workplace Readiness Assessment Consortium. This consortium created a Framework for Assessing Workplace Readiness Skills. The Framework was originally developed in 1992 and was revised in 1995. It includes skill descriptions in the areas of personal management, career development, interpersonal, participation in work organizations, thinking/problem solving, communication, and workplace systems.

Clearly there are a number of sources for identifying generic workplace skills and knowledge. Local partnerships will want to decide which one, if any, of the available models best suits their needs. It is also possible to involve local partners in the development of a set of generic skills for the local labor market.

Assessing Academic Knowledge and Skills

It goes without saying that academic skills and knowledge are required on nearly every job today. Some jobs require students to complete skills tests before employment and others use educational attainment as a surrogate for specific skill testing. Any school-to-work program needs to decide how it wishes to assess those academic skills it believes are required for successful employment. The Michigan Educational Assessment Program (MEAP) was originally designed to provide schools with feedback on how well their students have met the content objectives developed by state-wide teacher committees in each subject area. This feedback was supposed to help inform curriculum decisions in individual schools. With the advent of the Graduation Proficiency Examination, the MEAP is now being used in high schools as a way to

determine if students are prepared for work and further education. While the MEAP has increasingly included items that require students to apply knowledge and skills, it was not developed to be a workplace readiness assessment.

As local partnerships consider how to assess academic proficiency, they need to decide if they want to administer separate academic assessments or integrate them into assessments of either specific or generic workplace skills. It appears easiest to simply administer a separate academic assessment, or to decide that an assessment presently in use will also determine academic workplace readiness. One goal of the STWOA, as well as Tech Prep, is to encourage the integration of academic and career/technical instruction. Such integration should also lead to integrated assessments. At the classroom level this can be accomplished more readily than at the district or state levels. The integration of academic skills and knowledge into occupational assessments may well create a stronger picture of the student's workplace readiness.

Generic and Specific Workplace Skills and Knowledge

There is considerable discussion in the field about whether generic workplace knowledge and skills can be developed separately from a specific occupational area. If they can, would such knowledge and skills transfer to other occupations? On one hand, employers tend to describe very general workplace skills when they are asked what is important in the people they hire. On the other hand, most people develop and use skills and knowledge best when they are focused in a specific occupational area. The compromise that is usually struck is to have those in occupational and academic instruction try to identify for students the generic skills and knowledge they are developing (i.e., attendance, reading for meaning, and performing arithmetic accurately). The

reality, however, is that to be effective on the job, a student must be able to read for meaning in that occupational area. This usually involves some level of technical vocabulary. Being able to understand instructions in a health care setting is not the same as understanding instructions in an automotive repair shop, even though both clearly involve reading. In some cases, for example, students may be very able to read for meaning in a specific occupational setting and less able to read for meaning elsewhere.

As local partnerships consider how to assess specific and generic workplace readiness skills, they need to think about the purpose of the assessment. For students seeking to enter a specific postsecondary program, apprenticeship, or defined occupation, assessing workplace readiness skills specific to that area will serve the student best. Instructors in those areas should develop methods for determining the specific knowledge and skills that students need to be successful. Students who are less focused in their career choices may benefit by being able to demonstrate a general level of readiness for work in academic, personal management, and teamwork knowledge and skills, for example. Whatever route a local partnership takes, eventually students will need to be able to demonstrate some specific skill attainment in order to advance in an occupational area or obtain a skill certificate.

The Assessment Process

Throughout this section, the word *assessment* has been used, rather than *testing*. Assessment implies a broader range of options for the demonstration of skill and knowledge attainment and application than testing does. Local partnerships should think as broadly as possible about how they can help students demonstrate and document their skills and knowledge, beyond formal

testing. Both the Michigan Employability Skills Portfolio and the E/EDP process offer ways for organizing information about workplace readiness. Local partnerships can use the Portfolio or E/EDP to guide students, teachers, and workplace mentors in deciding which demonstrations of competence make the most sense for the student. For example, a video tape of a student serving a customer may be a powerful tool for demonstrating the ability to meet customers' needs. A survey of customers served by the student during a given time period could also be an effective tool. A key to making workplace readiness assessment meaningful for students and employers is to focus on what would constitute evidence of the skill or knowledge in the workplace. Then, try to find ways for students to present similar evidence from their own experience.

There are some commercially-available assessments for workplace skills. ACT has developed a series of tests called WorkKeys that assess skills against specific benchmarks. WorkKeys tests include, among others, locating information, reading, writing, listening, and teamwork. In recent years, ACT has also begun to develop skill profiles of specific jobs that match their tests. For example, ACT might profile the job of a health care aid to determine level of skills commonly required and match those skills to performance on WorkKeys tests. ACT is continuing to develop new WorkKeys tests.

A variety of states and organizations have also been involved in developing generic and specific workplace readiness assessments. Oregon is developing standards and assessments as it creates Certificates of Initial and Advanced Mastery. The Council of Chief State School Officers has also developed a teamwork readiness assessment. The Michigan Department of Education has developed on-demand tasks for specific benchmarks in the Employability Skills Portfolio. Far West Laboratories in San Francisco, CA, has been instrumental in the development of assessments

for both career/technical education students and general education students. The assessments focus on both specific and general workplace skills. Such national organizations as NOCTI and V-TECS have developed tests for specific occupations.

Certifying

As local partnerships identify the skills and knowledge they believe students need, they should also consider who will certify students and how students will be certified. As described briefly above, there are a variety of ways to assess student skills. Assessment methods differ in their rigor—that is, the legal and other purposes for which they can be used. The portable skill certificates described in the STWOA will have to be developed with the highest levels of validity and reliability, since employers will count on them being accurate reports of students' actual skill attainment. The Graduation Proficiency Examination represents another type of rigorous assessment. Other methods for certifying knowledge and skill attainment at the local level may be less formal. For example, a recommendation from a teacher that helps a student get a job is a common, but informal, type of certification.

The key to determining who should certify a student lies in deciding the purpose of the certification. If it will be used for placement decisions, then who certifies the student and how the student is certified should meet explicit ethical and legal requirements. If the purpose is less formal, such as feedback on student progress or to guide career development decisions, then less rigor is required. In these cases, the student can participate in the assessment or certification process, as can those who know the student. It is still important that the assessment be accurate and reliable. An intermediate level of rigor may be represented by an articulation agreement

between a postsecondary institution and a local school, where students who have passed certain courses are assumed to have acquired the specific skills and knowledge needed to enter a program at the college. The only penalty likely if the student does not have the requisite skills is that he or she must acquire them to be successful (i.e., re-take a high school course, take a lower level course, etc.).

Using Assessments

Local partnerships are likely to be pressed to use assessments in ways that may not be appropriate. For example, employers are often eager for any information they believe will help them make better hiring decisions. Unless a specific assessment has been demonstrated to have a significant correlation with success on the job for which the person is being hired, employers should not use it to make a hiring decision. It is probably not an appropriate role for a local partnership to attempt to develop assessments that can be used by local employers for hiring. Even skill certificates should be developed at a broader level in order for them to have demonstrated portability.

Assessments should be developed and used that help students, teachers, and workplace mentors better understand where a student needs help and where a student has already demonstrated competence. Giving students assessments at the start of a school-based or work-based learning experience and again at the end can help the student see growth. Again, assessment should be thought of as broadly as possible. For example, students may wish to take simple check-lists to work with them to have supervisors rate their academic, personal management, and teamwork skills. Checklists should also include how often such skills are

needed on the job. By sharing that information in the classroom, students could begin to see how jobs differ in their skill requirements.

Funding

Funds for statewide school-to-work systems were authorized in the STWOA and came from both the Department of Education and the Department of Labor. The Act encourages states to coordinate and integrate school-to-work efforts with those of other federal and state programs. Those other programs include the Perkins Act, the Job Training Partnership Act, the Adult Education Act, the Elementary and Secondary Education Act, and Goals 2000. A key provision of the STWOA is the option of waiving certain mandated requirements established under a federal or state statute or regulation. A common example is that under the Perkins Act, states are not allowed to spend allocated funds for counseling activities below the ninth grade. A waiver could allow these funds to be legally spent on career counseling starting at the kindergarten level.

In order to receive a waiver, the Secretaries of Education and Labor must determine whether or not the requirement to be waived impedes the ability of a state or local partnership to carry out the purposes of the Act. A requirement can only be waived if it doesn't change the basic purpose of the associated statute. Some requirements may not be waived. These include:

- the basic purposes or goals of the act
- maintenance of effort
- comparability of services
- equitable participation

- student/parental participation
- distribution of funds
- individual eligibility
- public health or safety
- labor standards, civil rights, occupational safety and health, or environmental protection
- prohibitions or restrictions relating to the construction of buildings for facilities

The goal of providing waivers was to increase the ability of states to integrate the many different programs that are involved with the development of workplace skills. The Act has tried to encourage flexibility and responsiveness at the state and local levels so that each state can develop a school-to-work system that meets its needs and effectively uses its present resources.

Chapter Five: Conclusions

At the start of this paper, a series of questions related to the implementation of school-to-work programs were presented. This paper has attempted to answer those questions by presenting information about specific programming options, legislative initiatives, and general issues. This final chapter returns to those questions now and summarizes recent thinking on school to work and offers some suggestions for future action.

Integration of School to Work with Other Efforts

The efforts to help students move from secondary school to gainful employment are not new. The original vocational education legislation of the early 1900s had that objective as its focus, as have subsequent programs like Tech Prep. Similarly, such educational reform efforts as P.A. 25 and its Quality Amendments include provisions for ensuring that schools help prepare students for adult roles and that they use applied learning techniques and rigorous academic standards to prepare students. How then, is school to work different from existing efforts? Specifically, how has (or will) the School-to-Work Opportunities Act of 1994 change the face of those efforts? Unlike other legislation, one of the principal goals of the STWOA was to increase the integration of separate programs related to preparing youth for work. The funds to support school-to-work - system development at the national, state, and local level came from existing funds in the Departments of Education and Labor. Those departments also jointly administer STW programs for the federal government. The Act encourages the use of funds from existing programs to

support school-to-work efforts, and also provides the means for such commingling of funds to occur through explicit support of waivers. Perhaps most important is that school-to-work efforts supported by the Act are required to focus on preparing all students for work, not just those served by specific programs. The school-to-work movement, in general, has been consistent in its insistence that all students, even those planning to go to college first, be exposed to the skills and knowledge needed to succeed in the workplace.

As schools and community colleges review their existing workforce preparation programs, they need to consider how to apply what they have learned to a broader student population. Most of what is needed to make school-to-work succeed already exists in the current programs. Programs such as Tech Prep, core curriculum development, portfolios, apprenticeships, and integrated instruction have already created mechanisms for discussions across schools and disciplines. What is needed is a way to translate that learning so it is accepted across the curriculum. The importance of workforce preparation (for both specific occupations and general workforce success) must be conveyed to both faculty and students. The flexibility of funding provided by waivers offers a way to make a variety of resources available for these purposes. More difficult will be changing some of the ways in which instruction is delivered, and the content of that instruction, so that it better prepares students for the workplace.

Equally as challenging as changing school-based learning will be finding ways to make work-based learning a significant experience in all students' lives. Again, programs such as co-op education and career/technical education centers have learned how to integrate work-based learning with school-based instruction. If school to work is to accomplish its goal of including all students, then schools and workplaces must build on what they know works and find ways to bring the best

of it to many more students. Unfortunately, the reality is that there will not be significantly more resources to do this. This fact is likely to require a major shift in how workplaces think about their present youth workforce. Employers who presently have youth working for them may need to begin to make explicit the role of learning for such employees. Employers must be more broadly engaged in helping students to learn both general workplace skills (like teamwork and decision making) and specific skills associated with their industry. While employers are willing to train present employees, they have been more reluctant to take on that job with new hires. This will have to change if school to work is to truly address the work-based learning needs of all students.

Building a school-to-work program in a local partnership and across the state will be a gradual process. Local partners can build on existing agreements and working arrangements among schools and workplaces. However, they will have to go beyond those agreements to serve a broader population of students. This may be particularly true for special needs students of all types. The willingness of workplaces to accept students who may require special accommodations, or who will need extra support to meet even basic workplace skills like attendance, will place extra burdens on any system. Those communities that can mobilize their parents, students, educators, and employers and gain their understanding of the problem will be most likely to be able to build effective programs. These programs do not necessarily need to create new ideas. Rather, they need to find ways to allow all students to access the types of experiences that have been available to only some students in the past. Through the use of funds from a variety of sources, and an understanding of what has been learned from general and vocational education reform, local partnerships can integrate the activities of various educational program efforts.

School-to-Work Programming

The School-to-Work Opportunities Act is not prescriptive in its description of the types of activities that are acceptable to meet the requirements of the Act. Instead, it offers broad outcomes for school-to-work programs that focus on school-based activities, work-based activities, and connecting activities. Each program, within certain limits, can use existing activities (such as applied academics or career academies) to meet the outcome of readiness for work in high-skill, high-wage jobs. There is no requirement for any specific program initiatives to be developed. Instead, the Act encourages states and local partnerships to apply for funds to create school-to-work systems that build on their present activities.

The types of programs that can serve the needs of students are limited only by the creativity of local partnerships. Programming decisions should be driven by local resources and circumstances. In some areas, apprenticeships are most appropriate because there is a local employer who can work closely with students and the school. Factors that influence programming decisions include the availability of jobs in the local labor market, the skills and expertise of teachers, the technical and other resources available to schools for instruction, and the reality that creating and maintaining any program takes time. This paper has described the range of programming options usually associated with school-to-work efforts. There is nothing that says a local partnership could not create a new way to expose students to work. Most important will be ensuring a range of options for students and employers so that the best matches can be created and students can gain the skills and knowledge they need.

Accountability

School-to-work programs funded by the School-to-Work Opportunities Act must be able to demonstrate that they have provided equal access to all populations. There must be specific opportunities for women and other minorities to gain entrance to high-skill, high-wage jobs. Students in school-to-work programs should be able to meet the same rigorous academic content standards as other students, as defined by Goals 2000 legislation. As yet, those content standards have not been developed, and it is not clear if they will ever be developed. In addition to academic content standards, the STWOA describes the creation of skill certificates that are based on national skill standards—as defined by the National Skill Standards Board. There are no such standards presently in existence, so states are required to provide evidence of a process for certifying students in industry areas that do not have other forms of licensing or certification.

Even without explicit requirements for assessment, school-to-work programs should be concerned with how they will document students' skills and knowledge. There a variety of assessment tools already in use in Michigan that can help in this process. The Educational/Employability Development Plan and the Michigan Employability Skills Portfolio both offer students a method for identifying their career goals and documenting their progress toward those goals. The focus in the Portfolio is on students identifying their skills and knowledge and providing evidence of them. This evidence may come from school, work, or other life activities. There are also some commercially-available tests that focus on workplace skills like listening and locating information. States such as Oregon, Wisconsin, California, and Indiana have all developed

a variety of assessments for providing students with feedback on their skills. Most of these assessments, however, are not appropriate for job placement or for use as a skill certificate.

Funding

Michigan received a $49 million STW implementation grant under the auspices of the Act. This grant lasts five years and provides for most of the funds to be distributed to local partnerships. The goal is to develop a state-wide school-to-work system that meets the needs of students in Michigan and effectively integrates school-based and work-based learning. The Michigan Jobs Commission, through its School-to-Work Office, administers the grant and works with local partnerships to obtain waivers. Waivers for the use of funds from other programs, such as JTPA and Tech Prep, are encouraged by the STWOA. As with other portions of the Act, funding focuses on creating flexibility for state and local partnerships.

The Jobs Commission is also interested in allowing the flexible use of funds from state-initiated programs. Local partnerships can apply to the School-to-Work Office for waivers from state statutes when the waivers will advance their school-to-work efforts and are not contrary to the basic purposes of the statute. The Jobs Commission has also encouraged cross-departmental collaboration and integration of efforts, particularly those focused on special needs populations. It is hoped that the variety of reform efforts in the state—school improvement, Tech Prep, integrated academics, charter schools, and school-to-work—will be integrated at the local level to ensure that the needs of Michigan students are met completely.

Part of the reasoning behind encouraging the use of waivers and a variety of funding mechanisms is the understanding that there will be no new funds designated for school-to-work

programming after the five-year period. STW was not designed as an ongoing federal effort. Rather, the national government hopes that, by providing seed money and venture capital, states and localities can create effective linking mechanisms that will continue without federal support because they meet local and state needs. Thus, any local partnership designing its school-to-work activities must consider how it will integrate them into its ongoing revenue stream.

Closing Thoughts

This paper can only touch the surface of the ever-growing amount of information available on school-to-work programming. While the Michigan Council on Vocational Education hopes that it touches on the most salient points, MCOVE acknowledges much is not included and urges thoughtful school-to-work planning efforts culminating in worthwhile work experiences for all students.

New resources appear on a daily basis in such forums as VOCNET and the School-to-Work bulletin boards on the Internet. There are many conferences and publications that seek to help schools and businesses better understand how they can help students make a successful transition to work. MCOVE is encouraged by the amount of work already done in Michigan to create a school-to-work system. It is hoped that readers of this paper will spend time reviewing the resources presently available and will find ways to network with others to share ideas and solve problems collaboratively. That is the essence of building a school-to-work system.

Appendices

APPENDIX A

Selected Educational Initiatives from The *Seamless Web*

Selected Educational Initiatives from The *Seamless Web*

	Educational/ Employability Development Plan	Technology Education	Applied/ Integrated Academics	Tech Prep	Employability Skills Portfolio	School-to-Work Transition	P.A. 25/ Core Curriculum	Perkins Voc. and Applied Tech. Education Act	P.A. 335 and P.A. 339	School-to-Work Opportunities Act
Introduction/ Leadership for Initiative	The Michigan Youth Employment Council provided recommendations on youth employment. Wide support from state agencies, endorsed by Governor and State Board of Education	The concept was initiated within Jackson's Mill Industrial Arts Curriculum Theory. Became a national movement when defined by the International Technology Education Association.	Vocational leaders from 29 states invested 2 million dollars with AIT (Agency for Instructional Technology) and CORD (Center for Occupational Research & Development) to develop applied curricula. Became an integration concept under new Perkins II Act. Academic educators are also beginning to incorporate work-related applications into science, math, and English/ communications.	Proposed by Dale Parnell in 1985 as an alternative for the "neglected majority" or "general track" students who are not likely to complete a college baccalaureate degree program. Also included as a separate Title under new Perkins II Act.	Governors Commission on Jobs and Economic Development convened an Employability Skills Task Force to identify generic skills and behaviors employers believed important across a broad range of jobs. The Michigan legislature adopted provisions for an Employability Skills Assessment program.	The renewed interest in school-to-work comes from a number of national reports concerned with "The Forgotten Half" of non-college bound youth whose economic position is deteriorating.	Introduced by representatives in the Michigan legislature to reform Michigan education system and provide quality education in elementary and secondary schools.	Vocational education was first legislated in 1917 at the federal level. This most recent legislation was enacted in 1990.	Amendments to clarify P.A. 25, passed into law in 1990.	Federal law intended to address the training needs of the new economy.
Problem to be Addressed	Nebulous approach to Career Education. Skeptics not sure Career Education would impact youth.	Industrial Arts reflected the old industrial era. It was fast becoming outdated in terms of the information age.	Academics too abstract, unrelated to the workforce. Strong criticism of education by employers.	Most high schools prepare students with a traditional college-prep curriculum when 75% of them will not complete a baccalaureate degree.	Rapidly changing work environment. Good paying jobs requiring little or no skills are disappearing. High school graduates will change jobs many times. Little evidence of learner accomplishments when seeking employment.	High youth unemployment. Unlike other developed countries, the U.S. does little to smooth the transition from school to work for high school graduates, yet it spends huge sums on the college-bound. Education and work remain two separate worlds.	Michigan's response to the overall criticism of education in the 1980's.	Criticism is based on results of studies on Vocational Education commissioned by Congress. Primarily National Assessment of Vocational Education (NAVE).	Strengthening Quality Schools through development of strategic plans and continuing improvement.	Addressing the "skill deficit" in the context of Goals 2000 efforts.

	Educational/ Employability Development Plan	Technology Education	Applied/Integrated Academics	Tech Prep	Employability Skills Portfolio	School-to-Work Transition	P.A. 25/ Core Curriculum	Perkins Voc. and Applied Tech. Education Act	P.A. 335 and P.A. 339	School-to-Work Opportunities Act
Basis of Initiative/ Purpose	To make sure youths graduating from high school are prepared for any entry level job and continuing education to advance career.	To assist the learner to become more technologically literate and to comprehend impact of technology on the nature of work.	Makes abstract concepts more understandable by applying them to real-life situations. Integrates an academic discipline with a workforce application. Addresses learning style needs of many.	To prepare students in the "general education track" (2 middle school quartiles of high school students) to prepare for technical occupations requiring a two-year certificate or associate degree.	Need to prepare youth for emerging work environments with generic skills and behaviors across broad range of jobs. Also to coordinate a host of public employment and training programs into a unified "human investment system".	To smooth the transition of high school graduates from school to employment and quality adult life. Emphasizes work-based learning.	To raise the standards and improve the quality of education for each Michigan student.	Enables Congress to spend 1.6 billion dollars a year on state and local programs that make the U.S. more competitive by developing more fully the academic and occupational skills of all segments of the population.	To better link school improvement efforts with ISD resources and state-level initiatives.	To create the framework to encourage the development of STW opportunities for all students across the states.
Components of the Initiative	•Career Awareness •Basic Academic Skills •Positive Work Habits •Employability Skills (How to get a job) •Life Management Skills •Saleable Occupational Skills	Information Technology •Electronics Communication •Graphs •Information Processing Bio-Related Technology •Ergonomics •Agricultural •Medical •Food Processing •Environmental Issues Physical Technology •Manufacturing •Construction •Transportation •Energy/Power	Separate Courses: •Applied Physics (Principles of Technology) •Applied Math •Applied Communication •Applied Biology/Chemistry or Curriculum realignment modifying both academic and vocational courses •Horizontal Alignment-academic and vocational teachers work together to coordinate and develop curriculum. •Vertical Alignment-a coherent sequence of academic and vocational courses over time.	Continuity in learning Contextual teaching (applied academics/ sequential courses) Competency-based teaching Communication between high school and community college Michigan Model •E/EDP •Tech Ed •Applied Academics •Vocational Clusters/Occupational Preparation •P.A. 25/ Core Curriculum •Career Guidance •Partnership with Business-Industry-Labor	•Employability Skills Profile: -Academic Skills -Personal Management Skills -Teamwork Skills •Employability Skills/Profile (Assessment Program) -Assists students to discover, develop and document their employability skills. •Student Portfolio is a record of the pupil's: -Academic and non-academic plans. -Academic achievement transcript and test. -Career prep. -Recognitions and accomplishments.	Not a formal system. The following are from a range of approaches: •Work-based learning--co-op, apprenticeship, on-the-job training. •Better academic skills--applied/integrated. •Interpersonal skills (communication, problem-solving, teamwork). •Career guidance, placement and follow-up. •Collaboration with employers. •Effective uses of assessment and planning. •Mentors.	Expands technical assistance role of 57 ISD's to provide school improvement services. Requires annual education report. Allows hiring of non-certified individuals to teach certain subjects. Request 3-5 year school improvement plan. Establish Core Curriculum (world studies, technology, physical education, math, science, life management, language arts, cultural awareness, career and employability arts). Requests accreditation.	Targets special populations, particularly disadvantaged and handicapped. Requires more accountability performance measures/ standards. Emphasizes integration of academics and vocational education. Funds development of 2+2 Tech Prep programs. Encourages local leadership. Supports Technology Education.	Development of Student Portfolios. Addition of workforce concerns into School Improvement Plans	School-Based, (career exploration) Work-Based, (paid work experience and instruction) and Connecting Components (planning infrastructure and curriculum streamlining.)

	Educational/ Employability Development Plan	Technology Education	Applied/Integrated Academics	Tech Prep	Employability Skills Portfolio	School-to-Work Transition	P.A. 25/ Core Curriculum	Perkins Voc. and Applied Tech. Education Act	P.A. 335 and P.A. 339	School-to-Work Opportunities Act
Controversies and Issues to be Resolved	Grass roots initiative. No designated legislation or funding. Should all students have an E/EDP?	Does it replace Industrial Arts or is it a separate program? Is it for all students? Is it a prerequisite for career/vocational preparation? Who can teach Tech Ed? Teacher Certification?	How to do this? Is this for all students or just vocational students? Will it work? Can such courses be counted for academic credit/ graduation requirements/ accepted by colleges? Teacher certification requirements?	Is Tech Prep intended to replace vocational education? Is it another education tracking alternative? Other issues: turfism, ability to change the curriculum and truly articulate resources, leadership, etc.	Work out discrepancies between employability skills/portfolio and student portfolio in State Aid Act. Will the portfolios meet employers need? will the portfolio be a valid and reliable assessment tool?	Presently just ad hoc projects. Just getting this issue on the public policy agenda. Need the involvement of the nation's employers.	How will the components be measured in terms of improving quality? How will the Core Curriculum outcome be measured? How will the taxpayers know if P.A. 25 makes a difference?	Will vocational education be able to demonstrate effective performance in five year time span? Will vocational education be replaced by (German apprenticeship model or Dept. of Labor programs) if it doesn't measure up?	Function of Student Portfolios relative to other instruments (E/EDP, Employability Skills Portfolio, etc.)	Relationship to programs such as Tech Prep. Is it subordinate to, or part of these efforts?
Linkages with other Initiatives a. Formal b. Informal c. Compo-nent of the Initiative	b) Tech Ed c) MI Tech Prep a) Employ. Skills Portfolio b) STW Transition b) P.A. 25 Core Curriculum c) Career and Tech Ed	b) E/EDP b) Applied/ Integrated Acad a) MI Tech Prep b) P.A. 25 Core Curriculum a) Perkins Act a) Career and Tech Ed	b) Tech Ed a) Tech Prep a) School-to-Work transition a) Perkins Act b) Career & Tech Ed a) Workforce Readiness Act	a) E/EDP c) MI Tech Ed c) Applied/ Integrated Acad. b) P.A. 25/Core Curriculum c) School Improvement Plan c) Perkins Act b) Career & Tech Ed b) H.B. 4165 b) Workforce Readiness Act	a)E/EDP c)School-to-work Transition b)P.A. 25/Core Curriculum b)Career & Tech Ed c)Workforce Readiness Act	b)E/EDP C)Applied/Integrated Acad. b) Tech Prep c) Employability Skills b) Perkins Act b) Career & Tech Ed b) H.B. 4165 Workforce Readiness Act (same initiative)	b) E/EDP a) Tech Ed b) Tech Prep a) Employability Skills b) School-to-Work Transition b) Career & Tech Ed	c) Tech Ed c) Applied/ Integrated Acad c) Tech Prep a) Career & Tech Ed b) H.B. 4165 b) H.B. 4078	a) P.A. 25	a) Goals 2000 b) Tech Prep
Evolution/ Genesis	Career Education Special Education (IEP)	Industrial Arts Vocational Education	Vocational Education General Education A second wave or reform following a major reform of Education	Career Education Vocational Education General Education	Career Education	Voc Ed (cooperative education, work experience, school-based enterprise) Apprenticeship--school linkage	General response to need for educational reform and overall school improvement.	ALL previous federal vocational education legislation. Career Education	State-Level K-12 Systemic Reform Workforce Prep efforts of Michigan Jobs Commission	Clinton Administration focus on workforce readiness/skill proficiencies in the economy.

APPENDIX B

Models for Michigan

Models for Michigan

Career Awareness	Exploratory Apprenticeship			Youth Apprenticeship			Apprenticeship					
	Explore Careers	Service Learning	Community Service	Career Academies/ Magnet Schools	Work-Site Learning	Cooperative Education Plans- Work-Study	Employer Certified Program-- Internship	Pre-Apprenticeship	School-to-Apprenticeship	Registered Apprenticeship	Employment/ Learning- Life-Long Learning
Private Sector Roles (Business, Industry, Labor, and Assoc.)	Guest Speaker Field Trips Mentor Materials	Sponsor Mentor Resources	Sponsor Mentor Advisor	Sponsor	Curriculum Outcomes Supervise Resources	Industry Standards Paid Employment	Industry Standards Paid Employment	Sponsor	Industry Standards (National) Paid Employment (Progression) Guided Learning Work-Based	Industry Standards (National) Paid Employment (Progression) Guided Learning Work-Based	Upgrading Retraining
School Roles	Coordinate Integrate into curriculum Guidance/ Counseling	Supervise Coordinate	Supervise Coordinate Monitor	School-Based Articulated with Community College Integrated Instruction Post- Secondary Options	Monitor Integrate into Curriculum	School-Based Articulated with Community College Integrated Instruction Post- Secondary Options	School-Based Articulated with Community College Integrated Instruction Post- Secondary Options	Articulated with Community College Integrated Instruction Post- Secondary Options	Articulated with Community College Integrated Instruction Post- Secondary Options	Articulated with Community College Integrated Instruction Post- Secondary Options	Community College University
Participant Outcomes	Career Awareness EDPs (Career Plans)	Acquire Skills/ Knowledge Exposure to Community	Acquire Skills/ Knowledge Exposure to Community	Acquire Skills/ Knowledge Motivation Career Awareness	Admission to Apprenticeship Enhance Skills	Admission to Apprenticeship Specialized Occupational Training Enhance Skills	Admission to Apprentice-ship Specialized Occupational Training	Admission to Apprenticeship Specialized Occupational Training	Registered Apprentice Specialized Occupational Training	Registered Apprentice Specialized Occupational Training	Skills Updating
Credentials	Portfolio	Portfolio	Portfolio	Portfolio	Certificate High School Diploma	Certificate High School Diploma (Credit)	Industry Certification (Licensure) High School Diploma (Credit)		High School Diploma (Credit)	Certificate of Completion	Licensure
Grade Level	K-12	K-12	6-12	8-12	9-14+	11-14+	11-14+	10-Adult	11-12	12-Adult	

APPENDIX C

United States Departments of Education and Labor
Occupational Skill Standards Project Directory: 1994

United States Departments of Education and Labor
Occupational Skill Standards Project Directory: 1994

California

Sri Anada
Far West Lab for Educational Research and Development
730 Harrison Street
San Francisco, CA 94107-1242
(415) 241-2725
INDUSTRY: Health Care

Cheryl Fields Tyler
American Electronics Association
Box 54990
5201 Great American Parkway
Santa Clara, CA 95056
(408) 987-4267
INDUSTRY: Electronics (DOL)

Connecticut

John Tipple/James Warren
Laborers-AGC Education and Training Fund
37 Deerfield Road
P.O. Box 37
Pomfret Center, CT 06259
(203) 974-0800
INDUSTRY: Heavy Highway/Utility Construction and Environmental Remediation and Demolition

District of Columbia

Kenneth M. Chapman
American Chemical Society
1155 Sixteenth Street, N.W.
Washington, D.C. 20036
(202) 872-8734
INDUSTRY: Chemical Process

Doug Adair/Sally Conway
Council on Hotel, Restaurant, and Institutional Education
1200 17th Street, N.W.
Washington, D.C. 20036-3097
(202) 331-5990
INDUSTRY: Hospitality and Tourism (DOL)

Irwin Kaplan
Electronics Industries Foundation
919 18th Street, N.W.
Washington, D.C. 20006
(202) 955-5817
INDUSTRY: Electronics

John Morrison/Jane Beardsworth
Foundation for Industrial Modernization (FIM)
1331 Pennsylvania Avenue, N.W.
Suite 1410, North Tower
Washington, D.C. 20004-1703
(202) 637-3436
INDUSTRY: Computer Aided Drafting and Design

C.J. Shroll/Sally O'Dowd
Foundation for Industrial Modernization (FIM)
1331 Pennsylvania Avenue, N.W.
Suite 1081, North Tower
Washington, D.C. 20004-1703
(202) 662-8965
INDUSTRY: Advanced Manufacturing

Geoffrey Northey
Uniform and Textile Service Association
1730 M Street, N.W., Suite 610
Washington, D.C. 20036
(202) 296-6744
INDUSTRY: Industrial Laundry (DOL)

Robert Hall
National Retail Federation
701 Pennsylvania, N.W., Suite 710
Washington, D.C. 20004
(202) 783-7971
INDUSTRY: Retail Trade

Florida

Nelson C. Wall/Charles Fassinger
American Welding Society
550 N.W. LeJeune Road
Miami, FL 33126
(305) 443-9353
INDUSTRY: Welding

Georgia

Victor Harville
Southern Association of Colleges and Schools - V-TECS
1866 Southern Lane
Decatur, GA 30033-4097
1-800-248-7701
INDUSTRY: Air-Conditioning, Heating, and Refrigeration

Maryland

Charles Kelly
National Electrical Contractors
3 Bethesda Metro Center, Suite 1100
Bethesda, MD 20814-5372
(301) 657-3110
INDUSTRY: Electrical Construction (DOL)

William Ruxton
National Tool & Machining Association
9300 Livingston Road
Ft. Washington, MD 20744
(301) 248-6200
INDUSTRY: Metalworking (DOL)

Massachusetts

Judith Leff/Monika Aring
Education Development Center
55 Chapel Street
Newton, MA 02160
(617) 969-7100, ext. 2373
INDUSTRY: Bioscience

Virginia Mulkern/Marianne Taylor
Human Services Research Institute
2335 Massachusetts Avenue
Cambridge, MA 02140
(617) 876-0426
INDUSTRY: Human Services

Pennsylvania

Nicholas Duranko/Jack Simich
Graphic Arts Technical Foundation
4615 Forbes Avenue
Pittsburgh, PA 15213-3796
(412) 621-6941
INDUSTRY: Printing

Texas

Darrell Hull
Center for Occupational Research and Development (CORD)
601 Lake Air Drive
Waco, TX 76710
(817) 772-8756
INDUSTRY: Photonics

Jim Johnson
Center for Occupational Research and Development (CORD)
601 Lake Air Drive
Waco, TX 76710
(817) 772-8756
INDUSTRY: Hazardous Materials Mgmt.

Virginia

Patricia Lundquist
National Automotive Technicians Education Foundation
13505 Dulles Technology Drive
Herndon, VA 22071-3415
(703) 713-0100
INDUSTRY: Automobile, Autobody and Truck Technician

Jim Williams
Grocers Research and Education Foundation
1825 Samuel Morse Drive
Reston, VA 22090
(703) 437-5300
INDUSTRY: Grocery

Bernard L. Staller
National FFA Foundation
P.O. Box 15160
Alexandria, VA 22309-0160
(703) 360-3600
INDUSTRY: Agricultural Biotechnology

APPENDEX D

Online Resources

Online Resources

World Wide Web

There are numerous World Wide Web sites that may be of interest to those who work in school-to-work programs. The following are just a few possible sites.

1. Florida's STW homepage: links to many other resources
   http://www.fsu.edu/~flstwtp/fl-stwtp.html

2. Texas STW
   http://www.tea.texas.gov/

3. American Training Standards Institute
   http://steps.atsi.edu/

4. U. S. Department of Education: up-to-date information on Skill Standards, STW, etc.
   http://www.ed.gov/

5. Federal Legislation and news
   http://www.thomas.loc.gov/

6. National Center for Research on Vocational Education
   http://vocserve.berkeley.edu/

7. Hot List of K-12 Internet School Sites
   http://toons.cc.ndsu.nodak.edu/~sackmann/k

8. National Skill Standards Project on Health Care
   http://www.fwl.org/nhcssp/nhcss03.htm

9. Open Options: a career/vocational education software site; MESC and Michigan Rehab services help to sponsor it.
   http://www.rust.net/~skindell/brochure.html

VOCNET

The National Center for Research in Vocational Education (NCRVE) is pleased to announce the establishment of VOCNET, an electronic discussion list for anyone interested in vocational education issues. The list is a LISTSERV mail distribution list available to anyone with access to BITNET or Internet.

To subscribe, send a message of the form

subscribe vocnet your_full_name

to LISTSERV@UCBCMSA (for BITNET users) or
to LISTSERV@cmsa.berkeley.edu (for Internet users).

For example, Jane Doe, wishing to subscribe to VOCNET from an Internet node, would send the following message to LISTSERV@cmsa.berkeley.edu:

subscribe vocnet Jane Doe

Even if you plan to just "lurk" for now, please subscribe and send a start-up item to the list, providing a few lines about yourself, your interests, and what topics you would like to discuss. To send a message from a BITNET host, send mail to VOCNET@UCBCMSA; to send a message from Internet, send mail to VOCNET@cmsa.berkeley.edu.

For example, a user wishing to send a message to VOCNET from BITNET would address the message to:

VOCNET@UCBCMSA

A user sending a message from Internet would address the message to:

VOCNET@cmsa.berkeley.edu

If you have problems subscribing, send mail to dcarlson@uclink.berkeley.edu
or call David Carlson at 800-762-4093.

VocServe: An Electronic Bulletin Board for Vocational Education

VocServe is an electronic bulletin board system designed to provide all members of the vocational education community with a central source of on-line information and a forum for communication among all stakeholders in the vocational education enterprise.

VocServe may be accessed using virtually any computer with telecommunications software. Special software for accessing VocServe is available for Macintosh users (it may be downloaded from VocServe or be obtained by sending a 3.5-inch disk to NCRVE). The Macintosh software makes the system easier to use, but it is not required; a built-in, menu-driven interface is available to users of all types of computers.

VocServe features include private e-mail, public discussion groups, on-line versions of selected NCRVE publications and newsletters, facilities for chatting with other users in real time, and information from other vocational education organizations (such as ERIC/ACVE). All VocServe users have access to Internet electronic mail, allowing them to exchanges messages with other Internet users. In addition, the VocServe Public Forum is a gateway to NCRVE's VOCNET listserv, allowing VocServe users to participate in that worldwide forum even if they do not have access to the Internet by other means. The structure of VocServe will change in response to the needs of its users; planned expansions and improvements include a searchable library of NCRVE publications, additional materials from other organizations, and gateways to other systems that are of interest to the vocational education community.

How to Connect

VocServe may be accessed via modem or Internet. The phone number for modem access is 510-643-6793; settings should be 8 data bits, no parity, and 1 stop bit (8N1), and speed can be up to 14,400 bps. For Internet access, users can connect via telnet to vocserve.berkeley.edu.

Once connected, first-time users may type GUEST to have a look around, or type NEW to enter the on-line registration procedure. Each user is assigned a unique user number and an on-line ID and password of the user's choosing; either the number or ID can be used to log on during subsequent sessions. A list of all registered users is available on-line.

For further information, contact David Carlson, National Center for Research in Vocational Education, Suite 1250, 2150 Shattuck Avenue #1674, Berkeley, CA 94720-1674
Phone: 800-762-4093 or 510-642-3798
Electronic mail: dcarlson@uclink.berkeley.edu

STWNet

STWNet welcomes discussion on all STW-related issues, including comprehensive education reform, national skill standards, performance-based education and training programs, workplaces as active learning environments, local partnerships that link the worlds of school and work, YFC initiatives, strategies that assist out-of-school youth, tech-prep, supportive services, and other activities to improve the knowledge and skills of youth by integrating academic and vocational learning.

STWNet is managed by the Center for Education, Employment, and Community at EDC and is run by Majordomo software on an UNIX server at EDC in Newton, MA. An e-mail sent to STWNet will be distributed to all subscribers of the list over Internet.

To subscribe, please send an e-mail to "majordomo@confer.edc.org", with the body of the message as:

subscribe stwnet

If you normally append a signature to your message, please remove it when you send this message.

As a subscription option, a weekly STWNet digest of messages sent to the list is available. To subscribe, please send a message to "majordomo@confer.edc.org", with no subject, and the message:

subscribe stwnet-digest

alone in the body of the message.

For more information and for assistance on how to join STWNet, please contact

Dr. Joyce Malyn-Smith and Dr. John Wong, Project Directors
The Center for Education, Employment and Community
Education Development Center, Inc.
55 Chapel St.
Newton, MA 02158-1060
617-969-7100 X2386-Joyce, 2348-John
joycem@edc.org
johnw@edc.org

APPENDIX E

Michigan Resources

Michigan Resources

Michigan Council on Vocational Education
P. O. Box 30008
Lansing, MI 48909
517-373-6407

Michigan Department of Education
Employability Skills Project
P. O. Box 30008
Lansing, MI 48909
517-373-8393

Michigan Jobs Commission
School-to-Work Office
201 N. Washington Sq., 3rd Floor
Lansing, MI 48913
517-373-6432

Michigan Occupational Information Coordinating Committee
201 N. Washington Sq.
Lansing, MI 48913
517-373-0636

Michigan School-to-Work Clearinghouse
230 Erickson Hall
Michigan State University
E. Lansing, MI 48824
1-800-292-1606 or 517-353-4397

APPENDIX F

References

References

Alberta Advance Education and Career Development. Alberta's Apprenticeship System: A Model of Excellence. Edmonton, Alberta: Learning Resources Distributing Centre, 1993.

American Vocational Association. Briefing Book on the School-to-Work Opportunities Act of 1994. Washington, DC: American Vocational Association, 1994.

Bailey, Thomas; Koppel, Ross; and Waldinger, Roger. Education for All Aspects of the Industry: Overcoming Barriers to Broad-based Training. Berkeley, CA: National Center for Research in Vocational Education, 1994.

Barley, Stephen. The New Crafts: The Rise of the Technical Labor Force and Its Implications for the Organization of Work. Philadelphia, PA: National Center on the Educational Quality of the Workforce, 1992.

Barton, Paul. From School to Work. Princeton, NJ: Educational Testing Service, 1990.

Barton, Paul. Indicators of the School-to-Work Transition. Princeton, NJ: Educational Testing Service, 1994.

Bragg, Debra; Hamm, Russell; and Trinkle, Kay. Work-based Learning in Two-year Colleges in the United States. Berkeley, CA: National Center for Research in Vocational Education, 1995.

Bragg, Debra; Kirby, Catherine; Puckett, Paula; Trinkle, Kay; and Watkins, Larae. Building a Preferred Future with Tech Prep Systems. Berkeley, CA: National Center for Research in Vocational Education, 1994.

Bragg, Debra; Layton, James; and Hammons, Frank. Tech Prep Implementation in the United States: Promising Trends and Lingering Challenges. Berkeley, CA: National Center for Research in Vocational Education, 1994.

Cappelli, Peter. Is the "Skills Gap" Really about Attitudes? Philadelphia, PA: National Center on the Educational Quality of the Workforce, no date.

Cappelli, Peter. British Lessons for School-to-Work Transition Policy in the U. S. Philadelphia, PA: National Center on the Educational Quality of the Workforce, 1993.

Cappelli, Peter and Rogovsky, Nikolai. Skill Demands, Changing Work Organization, and Performance. Philadelphia, PA: National Center on the Educational Quality of the Workforce, 1995.

Carnevale, Anthony; Gainer, Leila; and Meltzer, Ann. Workplace Basics: The Skills Employers Want. Washington, DC: The American Society for Training and Development and the U. S. Department of Labor, 1987.

Center for Workforce Preparation and Quality Education. Public Education: Meeting the Needs of Small Business. Washington, DC: United States Chamber of Commerce, 1991.

Commission on the Skills of the American Workforce. America's Choice: high skills or low wages! Rochester, NY: National Center on Education and the Economy, 1990.

Education Writers Association. First Jobs: Young Workers in a Changing Economy. Washington, DC: Education Writers Association, 1990.

Ellibee, Margaret. Recent National Studies and Reports on Education and Economic Reform: Some Initial Implications for Curriculum Standards in Vocational Education. Madison, WI: Center on Education and Work, 1994.

Ganzglass, Evelyn, Ed. Excellence at Work: Policy Option Papers of the National Governor's Association. Kalamazoo, MI: W. E. Upjohn Institute, 1992.

Grubb, W. Norton. School Reform and the "New Vocationalism": What It Is, What It Could Be. Draft paper presented at the 1994 Annual Meeting of the American Educational Research Association, New Orleans, LA.

Grummon, Phyllis. The Transition from School to Work. Grummon, P. and Mullan, B., Eds. *Policy Choices: Creating Michigan's Future*. E. Lansing, MI: Michigan State University Press, 1995.

Grummon, Phyllis. Assessing Educational Outcomes: Trends and Opportunities. Bynum, T.; Cutcher-Gershenfeld, J.; Grummon, P.; Mullan, B.; Roberts, K.; and Weissert, C. Eds. *Policy Choices: Framing the Debate for Michigan's Future*. E. Lansing, MI: Michigan State University Press, 1993.

Hamilton, Steven. Apprenticeship for Adulthood: Preparing Youth for the Future. New York: The Free Press, 1990.

Hamilton, Steven and Hamilton, Mary Agnes. Opening Career Paths for Youth: What Cant Be Done? What Can Do It? Washington, DC: American Youth Policy Forum, 1994.

Hill, Clifford and Larsen, Eric. Testing and Assessment in Secondary Education: A Critical Review of Emerging Practices. Berkeley, CA: National Center for Research in Vocational Education, 1992.

Hoerner, James. Breaking the Mold: Tech Prep and the New Paradigm. Berkeley, CA: National Center for Research in Vocational Education, 1993.

Jobs for the Future. Steps to Creating a School-to-Work Program: A General Guide for Program Design and Implementation. Cambridge, MA: Jobs for the Future, no date.

Johnson, Amy and Summers, Anita. What Do We Know About How Schools Affect the Labor Market Performance of Their Students? Philadelphia, PA: National Center on the Educational Quality of the Workforce, 1993.

Kane, Michael; Fiske, Edward; Copple, Carol; and Cohen, Jon. Developing Schools that Work: Fort Worth Project C^3. Washington, DC: Pelavin Associates, 1992.

Kansas Competency-Based Curriculum Center. School-to-Work Opportunities Sourcebook. Topeka, KS: Kansas Competency-Based Curriculum Center, 1994.

Klerman, Jacob and Karoly, Lynn. Young Men and the Transition to Stable Employment. *Monthly Labor Review*, August, 1994, pp. 31-48.

Kroll, Arthur and Pfister, Linda. Selecting and Using Tests of Career Skills. Columbus, OH: ERIC Clearinghouse on Adult, Career, and Vocational Education, 1979.

Lynn, Irene and Wills, Joan. School Lessons, Work Lessons: Recruiting and Sustaining Employer Involvement in School-to-Work Programs. Philadelphia, PA: National Center on the Educational Quality of the Workforce, 1994.

Maddy-Bernstein, Carolyn; Cunanan, Esmeralda; and Mikulin, Eleanor. Local Accountability Systems: Addressing Perkins Mandates for Special Populations. Berkeley, CA: National Center for Research in Vocational Education, 1994.

Mendel, Richard. The American School-to-Career Movement: A Background Paper for Policymakers and Foundation Officers. Washington, DC: American Youth Policy Forum, 1994.

Michigan Center for Career and Technical Education. MCCTE Newsletter. Volume 10, Spring, 1995.

Michigan Council on Vocational Education. Biennial Evaluation Report. Lansing, MI: Michigan Council on Vocational Education, 1991-1992, 1993-1994 (draft).

Michigan Council on Vocational Education. Accessibility of Vocational Education to Special Populations. Lansing, MI: Michigan Council on Vocational Education, 1990-91.

Michigan Council on Vocational Education. Accessibility of Vocational Technical Education for Special Needs Students in Michigan. Lansing, MI: Michigan Council on Vocational Education, 1992.

Michigan Council on Vocational Education. Creating a Seamless Web for Educational Reform by Reducing Confusion and Strengthening the Linkages Among Educational Initiatives. Lansing, MI: Michigan Council on Vocational Education, 1991.

Michigan Occupational Information Coordinating Committee. A Counselor's Guide to Occupational Information. Lansing, MI: Michigan Occupational Information Coordinating Committee, 1992.

Michigan Occupational Information Coordinating Committee. How do I get from here to there? A Guide to Work-based Learning. Lansing, MI: Michigan Occupational Information Coordinating Committee, 1992.

Michigan Occupational Information Coordinating Committee. Work-Based Learning: Bridging the Gap from School to Work. Lansing, MI: Michigan Occupational Information Coordinating Committee, 1992.

National Governor's Association. Issues in Developing National Industry-Based Skill Standards: A Report of the March 23-24, 1994 Meeting. Washington, DC: National Governor's Association, 1994.

Osterman, Paul and Iannozzi, Maria. Youth Apprenticeships and School-to-Work Transition: Current Knowledge and Legislative Strategy. Philadelphia, PA: National Center on the Educational Quality of the Workforce, 1993.

Pauly, Edward; Kopp, Hilary; and Haimson, Joshua. Home-Grown Lessons: Innovative Programs Linking Work and High School. New York: Manpower Demonstration Research Corporation, 1994.

Pautler, Albert Ed. High School to Employment Transition: Contemporary Issues. Ann Arbor, MI: Prakken Publications, Inc., 1994.

Sashkin, Marshall and Egermeier, John. School Change Models and Processes: A Review and Synthesis of Research and Practice. Washington, DC: U. S. Government Printing Office, 1993.

Secretary's Commission on Achieving Necessary Skills. What Work Requires of Schools: A SCANS Report for America 2000. Washington, DC: U. S. Department of Labor, 1991.

Secretary's Commission on Achieving Necessary Skills. Teaching the SCANS Competencies. Washington, DC: U. S. Department of Labor, 1993.

Siedman, Peter and Ramsey, Kimberly, Eds. Vocational Education and School Reform: New Connections from School to Work. *Education and Urban Society*, Volume 27, Number 3, May, 1995.

Sheets, Robert. Building a World-Class Front-Line Workforce: The Need for Occupational Skill Standards in State Workforce Preparation Programs. Philadelphia, PA: National Center on the Educational Quality of the Workforce, 1992.

Stecher, Brian; Hanser, Lawrence; Hallmark, Bryan; Rahn, Mikala; Levesque, Karen; Hoachlander, E. Gareth; Emanuel, David; and Klein, Steven. Improving Perkins II Performance Measures and Standards: Lessons Learned from Early Implementers in Four States. Berkeley, CA: National Center for Research in Vocational Education, 1995.

State of Florida. Investing in Florida's Economy: Florida's School-to-Work Continuum. Tallahassee, FL: Department of State, 1992.

Stern, David; Stone, James; Hopkins, Charles; McMillion, Martin; and Cagampang, Helen. Quality of Work Experience as Perceived by Two-Year College Students in Co-op and Non-Co-op Jobs. Berkeley, CA: National Center for Research in Vocational Education, 1992.

Stern, David; Finkelstein, Neal; Stone, James; Latting, John; and Dornsife, Carolyn. Research on School-to-Work Transition Programs in the United States. Berkeley, CA: National Center for Research in Vocational Education, 1994.

Stevens, David. The School-to-Work Transition of High School and Community College Vocational Program Completers: 1990-1992. Philadelphia, PA: National Center on the Educational Quality of the Workforce, 1994.

Stone, James; Hopkins, Charles; Stern, David; and McMillion, Martin. Adolescents' Perceptions of Their Work: School Supervised and Non-School Supervised. Berkeley, CA: National Center for Research in Vocational Education, 1990.

Stone, James; Madzar, Svjetlana; Cagampang, Helen; and Smith, Clifton. Continuous Improvement in Programs Connecting School to Work: Youth Apprenticeship, Cooperative Vocational Education and School-Based Enterprise. Berkeley, CA: National Center for Research in Vocational Education, 1995 (Draft).

Tucker, Marc. School-to-Work Transition in the United States: How the Interests of the Actors Will Affect Implementation. Washington, DC: National Governor's Association, 1994.

United State General Accounting Office. Transition from School to Work: States Are Developing New Strategies to Prepare Students for Jobs. Washington, DC: U. S. Government Printing Office, 1993.

Youth Policy Institute. Creating a Successful, Comprehensive School-to-Work System. *Youth Policy*. Volume 15 & 16, Numbers 12 & 1, September, 1994.

Zemsky, Robert. What Employers Want: Employer Perspectives on Youth, the Youth Labor Market, and Prospects for a National System of Youth Apprenticeships. Philadelphia, PA: National Center on the Educational Quality of the Workforce, 1994.

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement (OERI)
Educational Resources Information Center (ERIC)

NOTICE

REPRODUCTION BASIS

☑ This document is covered by a signed "Reproduction Release (Blanket)" form (on file within the ERIC system), encompassing all or classes of documents from its source organization and, therefore, does not require a "Specific Document" Release form.

☐ This document is Federally-funded, or carries its own permission to reproduce, or is otherwise in the public domain and, therefore, may be reproduced by ERIC without a signed Reproduction Release form (either "Specific Document" or "Blanket").