

Developing Apprenticeships and Career Pathways for Texas Youth: The Promise and the Challenges

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Committee for Design of Apprenticeships and
Career Pathways Programs for Youth

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Chapter 1. NATIONAL DEVELOPMENTS

In the past few years, the issue of improving the school-to-work transition of American youth has attracted increasing attention from the media, from politicians and from the public—and for good reason. Unlike virtually every other industrial nation in the world, America has no systematic approach for assisting youth to make a smooth transition from school to work. The career counseling provided is inadequate and job placement assistance is nearly non-existent. School and work in America are not connected: students see little or no relationship between what they are learning in school and their futures. One quarter of our students drop out before completing high school; many who stay are largely disengaged from school. Further, most American employers do not consider hiring recent high school graduates for entry into career jobs. They prefer young adults in their mid-20s who have some work experience and are "mature and settled down." This delay in hiring eliminates important communications between school and employers about skills needed in the labor market and it introduces a period of five-to-ten years of floundering in the labor market, a wasteful practice for both our youths and our economy.

The United States has focused on college preparation to the exclusion of other alternatives. By the year 2000, only an estimated 30 percent of jobs will require a college baccalaureate degree. However, the remaining 70 percent of jobs are critical to our economy. Most of these jobs—and practically all jobs providing good earnings—will require a better foundation of academic skills than our high schools now provide graduates and some significant form of learning beyond the twelfth grade.

Apprenticeship has several desirable features to motivate youth who are weary of conventional schooling. Apprenticeship combines practical **learning by doing** in formal on-the-job training with related classroom instruction in the academic principles and theoretical aspects of the work. Apprenticeships also provide **earning while learning**: wages advance progressively with skill levels, thereby motivating learners. Since most high school seniors already work, but typically in jobs with low learning content, the idea of reinforcing learning by combining school and work has significant appeal. Through apprenticeships teenagers can have contact with adult environments in **natural mentoring situations**, thereby providing a significant socializing influence during this important period of life. Mentors help initiate apprentices to the workplace culture, monitor progress and resolve problems, advocate for the youths, and coach, support, and counsel the youth regarding career directions, school, work, or personal issues.

A. Driving Forces

The new found interest in apprenticeship stems from several sources including: (1) growing dissatisfaction with our traditional approaches to schooling and training; (2) the rediscovery by cognitive scientists of the effectiveness of learning by doing; and (3) mounting evidence of favorable economic returns to apprenticeship and other forms of intensive, long-term training. Foremost of these have been the examples of Germany, Denmark, Switzerland and Austria which have the strongest apprenticeship systems in the world. In these countries, as many as two-thirds of all youths serve an apprenticeship, nearly all leave school with a meaningful occupational credential, and larger proportions of youth acquire higher levels of academic skills than a typical American high school graduate. In the face of global competition, Germany and her neighbors have been able to maintain a strong manufacturing base and a high-wage economy—accomplishments which the Germans themselves attribute to the strength of their apprenticeship system.

In addition, recent changes in the workplace have demanded better preparation and skills from *all* workers. New ways of organizing work in modern "high performance" workplaces and the introduction of new workplace technologies—especially the ubiquitous use of computers—have brought profound changes in the way we do business. Work in the United States traditionally has been fragmented into small tasks to be repeated several hundred times a day by closely supervised workers who needed little more than good work habits and literacy skills. This approach, devised by Frederick Winslow Taylor under the name "scientific management," is not generally a viable strategy for a high-wage country. Vast numbers of sufficiently skilled workers are available at lower wages in other nations to which the capital and standardized technology simply can be transported to where less expensive but adequate human resources exist. In addition, the scientific management approach neither guarantees the product quality demanded by those modern consumers willing to pay premium prices, nor does it foster flexibility in workers who must adapt rapidly to changes required by the marketplace. In the new global economy, the quality of human resources becomes the critical factor in competition for high-wage jobs.

B. Building Momentum

Many individuals and organizations played a role in nurturing the school-to-work issue into a national movement. The effort has received an assist in initiatives from the U.S. Department of Labor, the U.S. Department of Education, and from several major national foundations. Since 1990, nearly three dozen local pilot projects have begun under various waves of funding from the U.S. Department of Labor, U.S. Department of

Education, or through Jobs for the Future, a non-profit group, with funding from the Pew Charitable Trust and others. The Pew Charitable Trust also funded a pilot project in six states administered by the Chief State School Officers (CSSO) to design and implement youth apprenticeship. These states are California, Maine, Minnesota, Pennsylvania, West Virginia, and Wisconsin.

Of course, one of the most visible and potent forces behind the movement for improving school-to-work is the support that President Bill Clinton gave to school-to-work transition and apprenticeship programs for youth during his 1992 presidential campaign. Endorsement of apprenticeships for the "forgotten half" became one of Candidate Clinton's most popular themes. The presidential campaign demonstrated that school-to-work transition and attention to the education of the "forgotten half" could generate widespread appeal.

Even prior to the 1992 presidential campaign, however, the need to improve school-to-work transition and to strengthen the connection between school and work were remarkably common themes in reports from national Commissions, including:

- William T. Grant Foundation Commission on Work, Family and Citizenship *The Forgotten Half—Pathways to Success for America's Youth and Young Families*, (November 1988).
- Commission on Skills of the American Workforce. *America's Choice: high skills or low wages!* (1990).
- Secretary's Commission on Achieving Necessary Skills (SCANS). *What Work Requires of Schools*, (1991).

In short, several driving forces have been at work to bring the issue of school-to-work transition to the attention of the American public. This is not just a fad or topic of temporary concern. It has broad appeal for its potential to connect school and work, thereby providing a context for learning that revitalizes education and motivates learners.

However, this current interest does not assure a rosy or positive future for school-to-work transition and especially work-based learning. Its staying power will depend on how well it becomes institutionalized in industry.

C. The School-to-Work Opportunities Act of 1994

The Clinton Administration's School-to-Work Initiative, entitled the "School-to-Work Opportunities Act," was introduced on August 5, 1993 in the Senate by Senator Paul Simon (S. 1361) and in the House by William Ford (H.R. 2884). The proposed legislation

- establishes *components and goals* of every school-to-work program in the nation;

- provides *developmental grants for all states* to plan and create comprehensive, statewide school-to-work systems;
- provides five-year *implementation grants to states* that have completed the development process and are ready to begin operation of school-to-work systems;
- provides direct *implementation grants to localities* that are ready to implement school-to-work systems, but are in states that have not yet received implementation grants;
- provides direct *grants to high poverty areas* to address the unique challenges of implementing school-to-work systems in impoverished areas; and
- provides *waivers of certain statutory and regulatory program requirements* to allow other federal funds to be coordinated with comprehensive school-to-work programs.

The proposed Clinton Administration Initiative on School-to-Work will be jointly administered by the U.S. Department of Labor and U.S. Department of Education and it emphasizes the development of systems at the State level. In order to begin this initiative immediately, the Administration has obtained \$100 million in new funds through the Carl Perkins Act and Job Training Partnership Act to pay for

- *Developmental grants* ranging from \$200,000 to \$750,000 to all states for a nine-month planning process to develop a statewide school-to-work plan (applications accepted through December 1, 1993); and
- *Implementation grants* to selected states and communities awarded on a competitive basis beginning in summer 1994).

These grants aim to finance **state development activities** to build statewide systems of school-to-work opportunities for all youth, including those who have dropped out of school.

The Clinton Administration's School-to-Work Initiative organizes the **program components** of effective school-to-work transition into three categories: work-based learning, school-based learning, and connecting activities.

Work-based learning components include a planned program of job training or experiences, paid work experience, workplace mentoring, and instruction in general workplace competencies as well as a broad array of elements of an industry. Teachers, together with their students, become acquainted with workplaces through internships in industry.

School-based learning includes career exploration and counseling, instruction in a career major (selected no later than 11th grade), a program of study based on high academic and skill standards (as proposed in the Administration's "Goals 2000: Educate

America Act"), at least one year of postsecondary education, and periodic evaluations to identify students' academic strengths and weaknesses.

Connecting activities include coordinating the involvement of employers, schools, students, and parents; matching students with work-based learning opportunities, jobs or further education or training upon the completion of their training; generating needed support and services for students; program evaluation; articulation with postsecondary education and training agencies; training for teachers, mentors and counselors; and governance through partnerships among the multiple stakeholders.

Successful completion of school-to-work programs should provide several credentials to a youth, including a high school diploma, a certificate or diploma from a postsecondary institution, and, if appropriate, an occupational skill certificate. The skill certificate is to be a portable, industry-recognized credential that certifies competency and mastery of specific occupational skills.

D. Skill Standards and Certification

Nearly everyone who discusses apprenticeship or career pathways programs for youth views the assessment and certification of skills as an integral feature of the new training models. At the national level, the proposed "Goals 2000: Educate America Act" establishes a National Skills Standards Board to stimulate the development and adoption of a voluntary national system of skill standards and certifications. The Board would encourage and facilitate the establishment of voluntary partnerships to develop skill standards systems for broad occupational clusters or industries. The Board also would conduct research, maintain a clearinghouse, develop a common nomenclature related to standards, and endorse and promote the qualified skill standards systems developed by the voluntary partnerships.

Indeed, movement to develop industry skill standards has already begun. The U.S. Department of Labor and U.S. Department of Education have contracted with more than a dozen national industry groups for pilot projects to establish skill standards.

Within Texas, the Governor's Skills Development Program has recommended the establishment of a voluntary system of industry-recognized skill certifications through the creation of a Texas State Board of Professional and Technical Standards. This body would work closely with any national voluntary standards system.

How does this new movement differ from traditional approaches to vocational preparation and why does work-based learning deserve a special focus?

The present drive to improve school-to-work transition is not a revival of on-the-job contracting, nor it is simply a re-invigoration of cooperative education. It is an entirely new way of doing business that calls for educators to use different instructional approaches, and for firms to radically revise their hiring and training practices to select youth and develop them through work-based learning. It requires turning the rhetoric of "life-long learning" into reality. Perhaps most of all, it calls for a change in attitudes toward valuing skills and learning of all kinds.

The current school-to-work movement should not be confused with traditional approaches to vocational education. Important differences exist, including the following:

- It spans secondary and postsecondary education.
- It engages industry as a full partner in the training process, especially through work-based learning.
- It requires a concentration or focus on a skill area to develop depth and breadth of skill—to the extent of developing sufficient skills to be marketable in an occupation.
- It integrates academic and vocational/applied education.
- It is a key component in school reform: learning-by-doing can revitalize education.

School-to-work transition is not just a passing fad. Considerable impetus for this effort comes from several sources and has been building for several years. The movement has bipartisan support and considerable momentum behind it. Furthermore, it fits well with several related national developments, including the effort to build systems to serve all—not just categorical needs-based programs for the disadvantaged; the movement away from fragmentation; the effort to put greater substance into school-business partnerships; the recognition of the efficacy of learning-by-doing; the movement toward national examinations and skill certification; the increased recognition that we are neglecting a majority of our youth; and the competitiveness and growing importance of front line workers in new work organizations now popularly labeled "high performance organizations."

Chapter 2. SENATE BILL 367: WORKFORCE DEVELOPMENT INITIATIVE FOR YOUTH

A. Origin and Rationale

An initiative to promote apprenticeships for youth was first recommended to the Texas Legislature by State Comptroller John Sharp in his report, *Against the Grain: High-Quality Low-Cost Government*. This report aimed to find ways to reinvent government. It emphasized the need to improve our approach to workforce development, including addressing the employment problems faced by our youth.

The Act authorizes a series of pilot demonstration projects to provide apprenticeships and career pathway programs for Texas youth.¹ Apprenticeships were defined exclusively as programs registered with the Bureau of Apprenticeship and Training.² Career pathways programs were defined more broadly as a school-industry partnership including a preapprenticeship program, career academy, mentoring program, internship and practicum program, technical preparatory program ("tech prep"), cooperative education program, and any other program that meets the qualifications defined by the design committee.

The Act specified that each pilot program shall

- (1) foster interactive, team-based learning in the classroom and at the workplace;
- (2) include curricula on all aspects of the industry in which the student is training;
- (3) use competency-based measures for evaluating student progress;
- (4) place strong emphasis on occupational safety;
- (5) provide both academic and occupational credentials;
- (6) provide access and support to women, minorities, and persons with disabilities, in order to explicitly address the issues of diversity in society and the workplace; and
- (7) involve industries and occupations that offer entry-level jobs with good opportunities for advancement into high-skill, high-wage jobs.

¹ The original version of the bill included \$5 million in Texas general revenues money to help fund the pilot projects, but Texas funds for pilot projects were subsequently removed from the bill in a budget-cutting measure. The act authorized use of federal or private funds, grants, or donations to fund the pilot projects.

² In this way, the Texas legislation conformed to the recommendations of the Federal Committee on Apprenticeship in their statement, "The Meaning of Apprenticeship: When and How to Use the Term." (See appendix A).

S.B. 367 reaffirms that age limitations in state or federal law regarding employment in hazardous occupations will be respected and specifies that no grants be made for a project relating to an occupation "in which there is low demand for workers or an oversupply of workers."

The Texas Department of Commerce is required to report annually to the governor, lieutenant governor, and speaker of the house regarding the progress of the initiative.

The legislation goes beyond pilot programs by initiating the development of a statewide system for improving school-to-work transition. The Act establishes a 19-member Design Committee on Apprenticeships and Career Pathway Programs for Youth, bringing together representatives of major groups of stakeholders, including employers, organized labor, secondary and postsecondary educators, and apprenticeship sponsors, to develop a systematic statewide approach to improve the transition from school to work for youths across Texas. The Design Committee is charged with the responsibility to develop recommendations in a report to the 73rd Texas legislature due October 1, 1994. The Design Committee's report is to include a status report on any pilot programs, an analysis of the operation and success of similar programs in other states and foreign countries, and the Committee's recommendations regarding the design and implementation of effective long-term programs for the transition from school to employment.

The legislation provides guidance to the Design Committee regarding issues to be considered. According to S.B. 367, *at a minimum* the Design Committee must address:

- (1) methods of achieving integration of secondary and postsecondary learning, academic and vocational or applied learning, and learning at work with learning at school;
- (2) intended goals for the program;
- (3) development of capacities and structures, particularly in private industry, to administer and finance the programs on a permanent basis;
- (4) professional development for educators, on-the-job trainers, and mentors;
- (5) adoption of high academic standards for participating youths to enhance future academic and career options;
- (6) methods of ensuring access and support to women, minority group members, and persons with disabilities;
- (7) provisions for the assessment of an industry certification program adopted for youths who successfully complete a career pathways program;
- (8) incentives for employers and schools to participate;
- (9) analysis of attendant safety and liability concerns; and

(10) provisions to assure that the training provided is of high quality.

This list should be treated as a beginning inventory of issues for the Design Committee to consider. While there is significant overlap between these points and the components of the Clinton Administration's school-to-work initiative, the Texas legislation was written prior to the introduction of the national legislation. Other components identified in the Clinton proposal should not be ignored, however. These include such specifics as paid work experience and job rotation as part of the workplace learning components, school learning components that include career exploration and counseling and the selection of career majors no later than 11th grade, and connecting activities such as articulation agreements between schools, technical assistance, evaluation, and liaison among parents, schools, employers, and students. The Clinton Plan calls for states to develop school-to-work opportunities for all youth, including low-achieving students, students with disabilities, and out-of-school youth. Perhaps most important for the Design Committee, the Clinton Administration's legislation envisions the development of statewide systems.

B. Key Roles and Duties of the Design Committee

To summarize, the Design Committee was given five key responsibilities.

- (1) Guide the knowledge-development process and gather information on successful practices in programs across Texas, in other states and communities, and internationally.
- (2) Advise the Texas Department of Commerce and the State of Texas on the development and implementation of pilot programs.
- (3) Serve as a forum for dialogue and consensus-building among the major stakeholders and various points of view.
- (4) Design a system for implementing school-to-work transition statewide outlined in a report to the Texas Legislature by October 1, 1994.
- (5) Become a vehicle for outreach and education on the issue of school-to-work transition to industry and the general public across Texas.

In developing a statewide initiative to improve school-to-employment transition for Texas youth, S.B. 367 aims to build dialogue and partnership among the various stakeholders, including management and labor, public school educators, postsecondary educators, the apprenticeship community, and representatives of the general public. Texas has a large reservoir of talent, knowledge and interest from which to draw on to devise remedies for the problems that youth face in making the transition from school to work.

The Design Committee is a temporary body with two-year life. Once its tasks are completed, it is scheduled to be abolished on August 31, 1995.

Chapter 3. HOW DOES THIS INITIATIVE FIT WITH OTHER TEXAS DEVELOPMENTS?

Texas has begun to recognize school-to-work transition as an important element in the reform of its workforce development efforts. For example, failure to address school-to-work transition was identified as a major gap in the report of the Smart Jobs Task Force. Generally, creating apprenticeships and career pathway programs for youth is **complementary** and **reinforcing** to other Texas workforce development initiatives.

A. S.B. 642 Workforce Development and Competitiveness Act

This act creates the Council on Workforce and Economic Competitiveness, authorizes the establishment of local workforce development boards, and promotes the development of an integrated state and local program delivery system serving all Texans.

Part of the impetus for this legislation was to enable industry to make our vocational preparation system more responsive to workplace needs. S.B. 642 envisions the creation of a series of regional workforce development boards across Texas. These boards, whose membership would be drawn primarily from industry, would have control over workforce development funding in that region.

While it is necessary that an industry-driven board be established for each geographical region, it is equally important that workforce development be organized by industry cluster as well. If the United States is to establish a national system of skill assessment and certification, performance examinations must be included in the mix of assessments used. Performance tests can determine what workers can do as well as what they know. Conducting performance assessments effectively and economically will require industry to provide judges.

At the State level, S.B. 642 consolidated six separate advisory committees into a unified Texas Council on Workforce and Economic Competitiveness which must address the numerous mandates of the subsumed councils. S.B. 642 explicitly charges the Council with the responsibility of addressing the issue of improving school-to-work transition.

Why establish a new Design Committee on Apprenticeships and Career Pathways for Youth when the primary thrust of S.B. 642 was to consolidate the numerous advisory committees? The Design Committee was established as a distinct entity so that the task of improving school-to-work transition would not get lost among the numerous other responsibilities of the new Council. In addition, providing work-based learning for a significant proportion of youth and school-to-work activities for all youth represents **profound changes** in hiring and training practices for American businesses and education.

Clearly, the Council on Workforce and Economic Competitiveness will have the major role to play in the effort to build a school-to-work system over the longer term. The Design Committee needs to be linked to the Council and its recommendations must be coordinated with the larger perspective that the Council brings to the arena of work force development and economic competitiveness.

B. Programs under the Job Training Partnership Act (JTPA)

Making Better Use of Summer Learning. Summers offer an ideal time for both students and teachers to engage in innovative learning activities in the workplace. Well designed work-based learning opportunities offer an attractive means of getting students into year-round learning situations. Internships in industry can help teachers improve their knowledge of the work skills needed in modern workplaces and provide them with examples of practical applications of the academic principles they are teaching. Implementing summer learning programs offers special benefits in countering the “summer deficit phenomena” that unfortunately characterizes the achievement patterns of many youth, especially disadvantaged youth.

Amendments to the Job Training Partnership Act (JTPA) of 1983, passed in autumn 1992, offer important new flexibility in the JTPA “capacity-building” provisions for teacher professional development and in designing summer learning experiences for students. Staff development programs for teachers instruct them in new ways of presenting academic concepts in applied context, offer them industry internships, and inaugurate industry/professional collaboration. Accompanying the staff development for teachers, innovative summer school can be offered to youth, but the instructional practices must be more engaging to students than traditional teaching methods, such as lectures and other teacher-directed activities. This may be a perfect fit in that students will stay in rich learning environments and teachers can try out new approaches. Once excited by new and more effective ways of teaching and presenting material, teachers will naturally tend to make use of the best of the new ideas in their teaching during the regular school year. Innovation and experimentation should be fostered; teachers should be encouraged to work in teams; and both teachers and students should be engaged in designing the learning strategies and activities.

Alternative Learning Centers. The considerable number of youth who are not succeeding in conventional schooling offers an important resource to Texas. Although these youth are commonly labeled as problems or less able students, many are not slow learners and many are problems only because our “one size” conventional schooling does not fit them. Many find school boring or are alienated from the instructional approach

used in schools. The traditional group-paced teaching approaches geared toward lectures and textbooks simply does not work for them; it does not match their learning style, or engage them actively in their own learning.

Across Texas, numerous alternative learning centers have been established to reach these youths and teach them effectively. Teachers in alternative settings often have more freedom to innovate new teaching methods or programs than do teachers in conventional classrooms. They use self-paced, competency-based curricula offering multiple-media approaches to learning. Teachers believe in the abilities of their students and seek individualized methods to address their needs and keep the students challenged academically and behaviorally.

Private Industry Councils across Texas fund numerous alternative learning centers for dropout prevention and recovery. Many of these centers have devised creative approaches to meet the needs of students in difficulty. Most place great emphasis on the responsibility of the students for their own learning. The Centers often aim to duplicate a worksite environment by mandating attendance and other policies; they require students to clock in as they arrive or to call in if they are going to be absent.

Some alternative learning centers recently have been experimenting with learning-by-doing and "hands on" approaches to learning. The New Horizons Alternative Learning Center in Greenville asks students to volunteer in its on-site day care center as part of its parent training program. It also places students in cooperative education assignments for regular school credit in day care centers and nursing homes. At the American Institute for Learning in Austin, a construction crew of eight students began working in June 1993 to build houses for Habitat for Humanity and to learn construction skills in the process. A two-hour class in related academic skills using a contextual learning approach is taught each afternoon at the worksite.

Alternative learning centers across Texas offer significant potential as a resource to move youth from school to work. They have taken the lead in implementing innovative approaches to accelerate learning, offer field studies, and provide continuous assessment. Furthermore, the principle of connecting effort and achievement while learning with rewards in the labor market is no less valid as an incentive to perform for "second chance" learners as it is for regular high school students.

C. Promising Changes in Traditional High Schools

Worthwhile innovations are not confined to alternative learning centers. Some traditional Texas high schools are beginning to restructure their approach to instruction by emphasizing learning-by-doing. Begun in the 1992-93 school year, the Brownwood

Career Technology Academy offers a "school-within-a-school" at Brownwood High School that is a companion to a college preparatory school-within-a-school on the same campus. Students may study at either the college preparatory school or the career technology school or both. As its mission, the high school tries to prepare all students for success in college or the workforce or both. Brownwood administrators recognize that a high school diploma is not a sufficient credential to obtain a good job in today's labor market—so they encourage all students to continue with some form of postsecondary learning. Toward that end, the District has identified or negotiated various articulation arrangements for high school students to receive college credits by examination, through credit in escrow programs, or through other methods. At the same time, Brownwood recognizes that a 4-year baccalaureate program is not suitable for everyone.

The Technology Academy offers a workplace curriculum focused on automotive technology, industrial technology, electronics, and microcomputers. The curriculum is designed to be initially broad and then narrow its focus over time. Thus a student who aspires to be an automotive technician would take Technology Systems in freshman year, Transportation Systems as a sophomore, and Automotive Technology I and Automotive Technology II respectively during the junior and senior year. With financial assistance from the regional Tech Prep consortium and Texas State Technical College-Brownwood, the high school installed "hands on" laboratories in technology systems and electronics. English, mathematics, and science teachers team-teach with vocational instructors. To foster greater integration of academic and vocational subjects, the school schedule has been revised to provide all teachers a one-hour common planning period every day. Each year Brownwood teachers devise a common theme for a series of lessons conducted across all classes during a 6-week period. Last year's theme focused on 10-speed bicycles. The math class examined gear ratios on 10-speed bicycles. The English class disassembled a bicycle, reassembled it; and then wrote a repair manual on bicycle assembly. The health occupations class collected empirical data on the cardiovascular effects of bicycle riding. And so on. This year's theme is a crime scene. Future plans at Brownwood call for coop coordinators to place senior students into unpaid job-shadowing experiences tailored to students' chosen career interests. The shadowing experience provides them with first-hand opportunities for career exploration. Some discussion has been held on developing work-based learning and apprenticeships for students, but no definite plans have yet been made

D. Improving Cooperative Education

Our best cooperative education programs could be improved and expanded as an initial step toward the development of apprenticeships. Although the quality of coop

program worksites varies enormously and the system needs standards, many good coop programs are in operation across Texas.

Summers offer special opportunities for monitored cooperative education work assignments, as a means to promote year-round learning. Full-year contracts for cooperative education coordinators, which could be financed by JTPA and industry sources, would benefit students by allowing cooperative education work stations to continue through the summer by school personnel. Summers offer an ideal time for students to engage in structured learning through work assignments because there are no scheduling conflicts with school classes or other studies.

Secondary and postsecondary cooperative education programs in Texas should be linked. Although Texas has well-developed coop programs at both the secondary and the postsecondary level, remarkably, they remain unconnected. Linking, integrating, and extending structured on-the-job learning offers powerful means to promote continued learning and education beyond high school. Tech prep programs could provide a vehicle to connect work-based learning in secondary and postsecondary settings.

E. Tech Prep and the Carl Perkins Act

The 1990 amendments to the Carl Perkins Act emphasize the integration of academic and vocational education and the launching of Tech Prep programs as central themes. Both of these efforts can be complementary in reinforcing the school-to-work initiative.

Texas decided to launch Tech Prep in conjunction with its regional quality workforce planning committees. As part of its systematic development, Texas state officials required work-based learning as an integral component of any Tech Prep program. Yet, as subsequent experience has revealed, imposing a mandate does not automatically yield implementation; many Tech Prep programs across Texas do not yet offer an effective work-based learning component.

In other states, notably North Carolina, work-based learning has been successfully combined in Tech Prep programs. Although the jury is still out with respect to the development of work-based learning in Tech Prep programs across Texas, there are promising developments. For example, the Bureau of Apprenticeship and Training has recently signed articulation agreements with Katy ISD for tech prep students in apprenticeable occupations. Under a waiver from the Texas Education Agency, four high school seniors are apprenticing at the Arco Corporation as draftsmen or electrical maintenance workers. The remaining three days each week, they attend school. After

high school graduation, they will move on to community college and continue in their 8,000 hour apprenticeships.

Lee Community College and Goose Creek ISD also have signed an articulation agreement with the Bureau of Apprenticeship and Training. The district is investigating potential occupations in the medical industry, and are also soliciting employers with coop students to see if they are willing to make longer term commitments to train their students as apprentices. Fort Bend ISD and Houston ISD are presently considering similar articulation arrangements with the Bureau of Apprenticeship and Training to offer their students credit toward completion of apprenticeships while they are still in high school.

The school-to-work initiative could provide an impetus to help local Tech Prep programs meet the Texas state requirements for a work-based learning component. To achieve this, industry will have to become much more involved and be willing to hire more students as worker/learners.

F. The Texas Master Plan for Career and Technical Education

Every five years, the State of Texas—through its tri-agency partnership of the Texas Education Agency, the Texas Higher Education Coordinating Board, and the Texas Commerce Department—revises its Master Plan for Career and Technical Education. The last such revision was published in 1993.

This plan has many beneficial elements which fit very well with the apprenticeship/career pathways initiative, such as the emphasis on career guidance (K-12), integration of academic and career and technological education, and the infusion of SCANS skills into the curriculum.

Providing improved career guidance and career exploration to students beginning in elementary school and middle school is clearly essential to the success of any effort to build apprenticeships or career pathways for youth. If students in Texas are expected to be able to choose a career field of interest while in high school, they must have much better information than they currently have. Without earlier career information, intensive and expensive work-based learning can unintentionally be reduced to a career exploration exercise. The consequence will be unnecessarily high turnover rates and increased resistance on the part of employers to commit resources to training uncommitted youth.

One important subject almost totally neglected by the Master Plan is the development of work-based learning. Texas must put considerable effort into this area to develop an apprenticeship/career pathways system.

Chapter 4. PROFILES OF PROMISING LOCAL INITIATIVES IN TEXAS

No matter what plans are made at the state or national level, action to improve school-to-work transition takes place locally. It is most important to develop local systems and activities that actually place youth into apprenticeships and other career pathways programs. Efforts are underway in communities all across the nation to find ways to improve school-to-work transition. Here are some examples found in Texas.

A. Building Local Systems to Administer—School-to-Work Improvements in Austin

Austin has a strong business community with an active concern about public schools. In marked contrast to the state and national trends of a shrinking manufacturing employment base, Austin's manufacturing employment base is growing significantly. Austin is home to five operating divisions of IBM and two major Motorola plant sites, and many other well-known firms in the electronics industry, such as Dell Computers, Texas Instruments, Advanced Micro Devices, Applied Materials, Radian, Tracor, and an Apple maintenance facility. MCC and Sematech, the major national industry consortia for research and development in the electronics industry, are located in Austin.

Even in Austin, with all its resources, there are limitations. Other than Dell Computers and Tracor, Austin is primarily a city of branch plants. Only limited amounts of major equipment or cash contributions are available under community service programs, and these grants are increasingly being steered by employee contributions through commitments to matching programs. Furthermore, contributions over the amount of \$3,000-\$5,000 often require approval from the firm's headquarters and/or application to a foundation associated with the firm. It is next to impossible to build a permanent initiative on the basis of the annual voluntary cash contributions. Furthermore, volunteer time, while an important and helpful ingredient, is limited.

The Austin business community needs the means to raise funds locally to support its chosen school-to-work activities, ranging from assistance with career guidance and development to summer internships with industry for teachers and apprenticeships for students. Funds must be secured on a continuous, permanent basis and not be dependent on the availability of an occasional grant from the federal government or a foundation. Similarly, the needs and allocations are best determined locally by industry officials—not by the requirements of legislation, government regulations, or foundation guidelines developed outside of Austin.

As Austin has discovered through recent exchanges with its sister city, Koblenz, Germany, useful lessons on the governance and finance of a school-to-work system may

be available from abroad. Indeed one can see systematic approaches to school-to-work transition only by traveling outside of the United States. One lesson is that industry structures need to be established to support the apprenticeship system and improve it through time.

Specifically, we need to invent an equivalent to the German Chambers of Industry and Commerce, and Chambers of Small- and Medium-Sized Firms and Crafts—the two "competent bodies" which administer most of German apprenticeship system locally. The German Chambers are self-governing, private bodies that have public responsibilities for implementing the national training ordinances governing apprenticeships. According to German law, all firms must be a member of a Chamber. The Chambers charge dues and/or fees, which are then used to finance the administration of the training system. The Chambers promote and support apprenticeship training among firms in the local economy and monitor the quality of the training provided to youth in various ways, including prequalifying firms desiring to sponsor apprentices, implementing *meister* training requirements, and administering the assessment and certification of the skill levels of completing apprentices. A major advantage of the German approach is that the system's administration and funding is primarily in private hands.

Under the leadership of Mayor Bruce Todd, the City of Austin is pioneering one American approach to implement an industry structure to administer school-to-work transition activities. Austin is establishing a non-profit organization, The Austin Training Foundation, and is planning to use public authority to support it with continuous funding, through some sort of pooled tax credit arrangements. The Austin Training Foundation will serve as the umbrella network for affiliated industry steering committees established in each of Austin's major economic sectors. Ultimately these steering groups will have the responsibility for assessing and certifying the skills of workers in their industry, under the guidelines of nationally developed skill standards.

It is clear that we cannot simply transport the German approach or other European systems into Austin intact, nor would we want to. Each is embedded in its culture and has its own strengths and weaknesses. We are not going to try to re-make our Chambers of Commerce into German Chambers, nor are we going to adopt the formal, three-track high schools characteristic of the German education system. Rather, we should strive to learn from the approaches used in other nations and incorporate the best aspects into our own homegrown solutions.

B. Developing Youth Apprenticeships with Goose Creek CISD/Lee College in Baytown

Goose Creek school district is restructuring its system to ease the transition from school to work for all students, with changes in curriculum taking place beginning in kindergarten. As part of the restructuring plan, the district is trying to move in the direction of apprenticeships and internships, and away from traditional cooperative education programs for work-based learning during the high school years. Of the approximately 1000 students who graduate annually from the district's two high schools, 29% go on to college. One hundred students progress annually through traditional vocational programs for technical/electronics or office administration, with many placed in jobs after high school.

Projected to begin in 1994 are apprenticeship programs in the law enforcement and petrochemical fields. Under a Carl Perkins grant for Model Youth Apprenticeships from the Texas Higher Education Coordinating Board, Lee College and Goose Creek ISD are working to forge agreements with the Baytown Police Force, petrochemical companies, and contractors in the building trades and to resolve liability, security, and labor issues for working with youths.

Because individuals must be 21 years of age to assume "street" police duties, carry a gun, and operate a patrol car, the police chief is enumerating possible positions for apprenticeships at the main office and in police substations for clerical and communications positions or jobs. The Baytown Police Force can hire individuals who are at least 17 years of age to work in an office setting or with dispatchers, and handle phone calls and administrative reporting tasks. Students who will take part in the program will be given academic tasks within the context of their future career choice, for example, a descriptive essay for English class may require students to map out a crime scene. Lee College is working with the police department to coordinate Police Academy training for apprentices, and with four year colleges to articulate a bachelors degree for Lee College graduates in Criminal Justice.

Goose Creek and Lee College are attempting to work with construction contractors and petrochemical employers to shape apprenticeships. At this point, they envision a high school curriculum based, in large part, on assessments and analyses of requirements for the entry level jobs targeted by industry developed through the DACUM process. For the past year, the school district has been using the Associated Builders and Contractors (ABC) *Wheels of Learning* curriculum for initial certification levels in building trades, but the entire certification process is not fully established in Goose Creek. Over a six-year period, students would take an appropriate sequence of courses in high school, enter an

apprenticeship at age 18 under the guidance of a mentor, and work toward an Associate Degree after they complete high school, as a complement to their apprenticeship. Exxon Corporation currently donates equipment to the school and brings equipment to the schools for demonstrations; however, concerns about security, age requirements, and liability have so far precluded most opportunities for on-site learning at the company. Students will go to work sites to learn the curriculum safety module during this school year. Model Apprenticeship staff are now working to secure commitments from building contractors and petrochemical companies such as Exxon for apprenticeship training slots. At present, companies are attempting to delineate commitments for training slots and post-certification employment opportunities. Contractors are likely to work with apprentices in welder, millwright and electrical trainee positions.

In addition, the district has a Health Preceptorship program underway, with the health careers course taught at the hospital. Students rotate through different hospital stations as part of that course. The teacher is a Registered Nurse. Most students now in the program are college-bound, hope to become physicians, and eventually go on to Medical School. Goose Creek also has a health occupations cooperative education program. The school district and Lee College are collaborating to develop articulation agreements for certification programs within the health field, broadening the focus to health careers at all levels, including technician and nursing positions.

Lee College is also working with three rural school districts to develop initiatives for Rural Health Care. In 1994, students can enroll in an 80-hour preparation course for Nurse's Aide, which will include laboratories and clinicals. Structured work-based learning will be part of the course, although some placements will be paid while others will not. Students will be certified if they complete the course requirements successfully.

The district and Lee College are developing articulation agreements for an apprenticeship/summer internship program for future teachers, in conjunction with Better Educators Start with Teachers of Tomorrow (BESTT), a state program recognized by the Texas Education Agency. In addition, the Goose Creek district offers an early childhood professionals program where students take classes in child development and day care management. These classes are held in elementary schools and day care centers to prepare students for careers in elementary education or day care management.

C. Melding School- and Work-based Learning in Corpus Christi ISD

At **Moody High School** in Corpus Christi, approximately forty students who are enrolled in the Electrical Trades class have opportunities for hands-on training in school and out. Under the supervision of their instructor, who is a Master Electrician, and

member companies of the Associated Builders and Contractors Merit Shop Training Program, Inc. (ABCMSTP) of the Texas Coastal Bend, students have had opportunities to learn on the job, in the classroom, and in the community.

In the classroom, the students study the Associated Builders and Contractors' *Wheels of Learning* curriculum, and complete the activities prescribed in this curriculum to the ABCMSTP standards. Students have the opportunity to complete level I the first year and level II the second year. They can complete the remaining five-level certification program after high school.

The students have an opportunity to learn on the job through a summer job program sponsored by the member companies of Associated Builders and Contractors (ABC) and with employment opportunities during the second semester of their second year and after graduation. Legal problems for the employment phase are being resolved by the school district and the ABCMSTP. Only students who are 18 are allowed to participate in this phase. This employment phase is still under development.

The Electrical Trades students work in the community completing civic projects such as electrical work for charity and helping the Associated General Contractors (AGC) complete the electrical installations for Bayfest, a community festival.

After graduation, the students have several options. They may go straight to work with an ABCMSTP affiliated company, go to college or technical school, or enter a union apprenticeship program.

Supporting the students at Moody High School is an applied academic team. This support team consists of applied math, applied English, and Principles of Technology instructors. The team also includes teachers from drafting and health occupations. The Vocational Support Services Program also assists Electrical Trades students who need academic and language assistance. Moody High School piloted the Tech Prep program for the Corpus Christi ISD.

To continue the work-based learning aspects of this program, problems of liability, workmen's compensation, and child labor law issues need further resolution. The possibility for students to enter structured on-site training during their junior year would add to the success of the program.

Summer Training and Education Program (STEP) is a 15-month program that incorporates academics, work experience and school support to youths who are below grade level in Corpus Christi ISD. Students attend classes in the morning, improving their reading and mathematics skills through practical academics that will help them function in life and the workplace. Students work in the afternoons. Second-year students are placed in jobs that require advanced workplace skills.

D. Fort Worth ISD

Fort Worth ISD has cooperative education programs in health science technology, home economics, business and office occupations, and trades and industry. Fort Worth has an Automotive Service Excellence program, from which students leave with industry certification in one area. The district also has a Trades and Industry Education on-campus laboratory program which uses the Associated General Contractors (AGC) competency-based curriculum. Carl Perkins Act funds are used to support these academic/vocational integration projects.

An on-campus laboratory program utilizes curriculum developed by the Educational Institute of the American Hotel and Motel Association in its **Hospitality Services** program, now in its second year, to eleventh and twelfth graders interested in hospitality careers. Program coordinators envision expanding the program to include a rotation in supervised internships at cooperating hotels in the community. Larger full service hotels are usually equipped with the resources to assume such a challenge. Program instructors are working to establish the type of relationships necessary for the hotel management to agree to undertake such a training responsibility. Because liability concerns limit the food service training that hotels can provide to individuals under eighteen years of age, the district provides intensive laboratory instruction in that component. The balance of on-campus laboratory and supervised internship will provide students with the opportunity to refine key skills while developing insights into real-world situations and issues that evolve on the job. One barrier to developing and maintaining such a relationship is the frequency with which hotels change management. The district is currently holding discussions with Tarrant County Junior College, which is investigating the possibility of beginning a program in hotel and motel management. These discussions include industry representatives and will delineate roles for the secondary and post-secondary institutions. A tech prep program articulation agreement may be one result of these discussions. Hotels which have experience with high school internship programs have expressed great support for the program because of the need for individuals trained in the field and because of the opportunity to recognize and select students who show promise of being capable employees.

Project Community, Corporations, Classrooms (C3), a partnership of Fort Worth ISD and the Fort Worth Chamber of Commerce, provides multiple work-based learning components. One such component is the **Vital Link**, which connects students and teachers with employers for mentoring, job shadowing and internships. During the summer of 1992, one thousand Fort Worth ISD seventh graders and 250 teachers interned

each morning for a week in 89 Fort Worth businesses to assess the skills, knowledge, and personal attributes needed for work.

Fort Worth also has several programs funded at least partially through the Job Training Partnership Act.

Students Taking Academic Responsibility for Success (STARS) is a dropout prevention and recovery program for in- and out-of-school youth. The program operates in cycles based on a 10-week semester, with academic courses and GED preparation offered in the evenings coupled with school-supervised work and training on the job during the day. Enrollment is fluid as students begin the program at different levels, and require different amounts of time in the program to complete their requirements. While students are encouraged to start the program at the beginning of a cycle, program coordinators have found that students who are in need of such assistance often lose their motivation to participate if they are forced to wait. Therefore, when a cycle is already underway and students prefer to start immediately, they are placed in the GED program for the remainder of the cycle, and then begin the new semester in the appropriate class. Students receive school credit for their academic classes, as well as for their coop experience in the workplace. During the 1992-93 school year, 76 students took part in the program, and 39 students are now participating in the first semester of the 1993-94 school year.

We're On Our Way (WOW), now in its second year, is a program serving economically and educationally disadvantaged high school students to prepare them for careers in office occupations. Most students participating in WOW need special support for successful transition to the workplace. The WOW teacher serves as teacher, mentor, job coach, and counselor to help students overcome barriers to successful transition to the workplace. She is assigned full time to the program, which serves fifteen students. For the first two months of the school year, WOW provides intensive instruction, four hours a day, in office skills, basic skills, communication and public relations, and development of work habits and attitudes. After the initial intensive in-school training period, students develop their skills in class for one hour each day and work in a supervised office job where they apply what they have learned in class. Transportation between the school and workplace is provided. Fort Worth ISD developed the program in response to a request for a proposal from the Private Industry Council, which uses JTPA funds to pay the teacher's salary and subsidize student wages in public sector employment. FWISD pays other program costs.

During the first year, all twelve participants completed the program and eleven passed the TAAS exam. During the initial year, all students performed successfully in

jobs at the Fort Worth Federal Center, a large government complex which houses many governmental agencies, e.g. National Archives, G.S.A. and Soil Conservation. After graduation, two found full-time employment in offices, and at least five work in offices part-time and attend junior college as part-time students.

FWISD Trimble Technical High School is a pilot test site for WordPerfect Corporation Certification Assessment which consists of the Essential (entry level), Business, and Professional levels of competency certification. Students in the business computer application class may complete the Essential and part of the Business certification.

Better Remediation Increases Determined Gains in Education (Project BRIDGE) is a combined academic and work summer program located at a Fort Worth worksite and funded with JTPA moneys. The program is limited to twenty youth per worksite. Participating students are those who are sixteen to twenty-one years of age and who meet economic and educationally-disadvantaged program criteria. The employer hosting the program provides space for two classroom environments, where students, grouped in classes of ten, receive instruction in workplace math and reading for one hour each. For the third hour of the morning, all of the students come together for an occupational education class, focusing on skills required at that particular worksite. In the summer of 1993, the twenty Project BRIDGE students worked in different offices throughout the Fort Worth Federal Center, so students learned and refined job skills needed in an office setting.

In the afternoon, students see the immediate need for reading and math skills as they work at their jobs. They earn an hourly minimum wage for their work. The FWISD occupational education teacher who leads the class in the morning remains at the worksite during the afternoon to monitor the students' on-the-job performance. Students in the 1993 summer program showed an 89 percent reading level improvement and a 74 percent math level improvement.

In addition to the three Project BRIDGE teachers, a FWISD youth programs coordinator and worksite supervisors also support the program and help to make it a success. The program has a strong parental component: the FWISD staff is required to make at least three home contacts, including one home visit, and contact the parent immediately in the event of a student absence. The program is slated to expand during 1994, adding twenty students at the Fort Worth Aviation Administration and twenty at the Texas College of Osteopathic Medicine.

Chapter 5. CONCLUSION—THE CHALLENGES AHEAD

Today the challenges of competing successfully as a high-wage country in the global economy are formidable. They require marked improvements in the effectiveness with which America prepares its work force, which in turn demands significant reforms of all of our learning systems. School reform is not a challenge for schools alone; improving school-to-work transition is integral to both effective school reform and economic development. Industry must join with schools to advance the professional formation of American youth for the long term benefit of our economy.

We need to motivate employers to provide enough apprenticeships and other structured career pathways to accommodate the numbers of youth in need of them. To accomplish this effectively, we must build industry-wide structures to support a system of apprenticeships/career pathways and improve it through time. America needs to develop an effective counterpart to the German Chambers of Industry and Commerce, and Chambers of Handicrafts, which administer German apprenticeship systems locally.

A related challenge for American industry is to develop sufficient numbers of incumbent workers who are not only highly skilled but who can teach their skills effectively to youth. This is not an insignificant task, since most Americans have worked in traditional workplaces organized according to scientific management principles. A key strength of the German system is their well-developed cadres of *meisters* and other skilled workers who can serve as trainers, coaches, and mentors on the job. American industry must develop high-performance work organizations that make productive use of higher level skills.

The needs of improving school-to-work transition are so large that we must make better use of all available resources. These include traditional employers of youth, JTPA, summer jobs, alternative learning centers, cooperative education assignments, tech prep programs, and registered apprenticeships.

Many advocates of the new so-called "youth apprenticeship" have dismissed the existing American apprenticeship system as an adult system that is too small and narrowly focused. Yet as the youth apprenticeship pilot programs over the past three years have clearly demonstrated, building new programs from scratch without systematic support often yields only a handful of apprenticeships. Our existing apprenticeship system offers significant potential to serve, if we can find ways to integrate it with the new initiatives to improve school-to-work transition. Although the existing American apprenticeship system is relatively small and heavily concentrated in building trades, it offers an important resource for training front-line workers. Moreover, while existing

apprenticeships are widely characterized as adult programs, an estimated 50,000 apprentices (20 percent) begin their training at age 20 or younger. Thus, increasing youth participation in a strengthened and expanded existing apprenticeship system offers one relevant starting point for the new initiative.

The registered apprenticeship model, while attractive, may not serve the needs of all industries and all youth. We will need to develop and implement a variety of training models that offer organized career pathways for youth. In short, we need instruction and certification systems that effectively integrate learning at worksites with learning in school, academic learning with vocational or applied learning, and secondary with postsecondary learning. In this way, student tracking, characteristic of the German high school system, can be avoided and options for further learning and advancement can be maintained.

A. Concluding Notes on Essential Components of a School-to-Work System

America remains in a learning mode with its school-to-work initiative as its shape and scope continues to evolve. For example, for various reasons national policymakers have expanded their views of who needs a school-to-work transition system. What was once advocated specifically as a means to improve labor market preparation for "the forgotten half" of high school students who do not go to college, is now viewed as a beneficial vehicle for reforming the instruction of *all* students and a means to better engage students in their studies and motivate them. **Curricula that integrate academic principles with applications and problem-solving** can demonstrate to students the relevance of what they are learning in school.

Likewise, while lack of career awareness is certainly an acute problem for students going directly into the labor market after high school, many college students remain equally ignorant of the jobs and careers available. **Improved approaches to career awareness and development** combined with **opportunities for active career exploration** are fundamental to the effective operation of a school-to-work system. Our youth are not the only ones in need of better career information—so do their teachers, administrators, school board trustees, and parents. This lack of career knowledge is due to the fact that few clear paths from school to workplace have existed, clear information has not been available on what skills are actually needed in the labor market, and there has been no follow up information on how students have fared after graduation. Widespread dissemination of such information is crucial to generating community consensus in support of a school-to-work system.

Early experiences with implementing school-to-work transition have produced the realization that any school-to-work initiative or program that by design is not connected to a four-year college option is subject to justifiable criticisms of tracking. **As a general principle, the Texas school-to-work system should have "no dead ends."** This implies high levels of expectations and standards for participating students. Accumulating evidence from the career academy movement and other school-to-work endeavors demonstrates that as youth learn more about the realities of the labor market, they often choose for themselves to continue their learning. Moreover, attending college is not a one-time decision made only at the end of high school, as the unfortunate term "non-college bound" connotes.

What is needed is a system that **values all types of learning**, a system that offers **coherent sequences of learning** (not just *courses*) from the beginning of high school on that lead to meaningful work, earnings, and opportunities for lifelong learning, a system that recognizes achievements and skills through **industry-based assessment and certification procedures** on the basis of **validated skill standards**. The implementation of **competency-based curricula** and **provisions for universal statewide transferability for learning achievements** among secondary schools, postsecondary institutions and workplaces are systems changes that would facilitate the development of these ideal characteristics.

Perhaps most important, we need a coherent system that meets the scale of the needs rather than small fragmented pilot efforts. To achieve this large scale system will require **attention to developing effective incentives for employers, students, and schools to participate**. Building capacity to serve high proportions of students also will require significant **professional development of both school staff and industry personnel**. Perhaps the most effective way for industry to accomplish this in a given school is by pairing **teams of teachers with teams of industry personnel in ongoing relationships** rather than sponsoring a one-shot training event.

These concluding comments on essential components of a school-to-work system are not final comments. On the contrary, the school-to-work arena must remain a dynamic area of change for some time to come. If learning-by-doing has meaning at all, we should learn from implementing school-to-work transition and we should continue to make improvements and refinements on the basis of this knowledge over time.

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