ENGAGING INDUSTRY IN BUILDING SCHOOL-TO-CAREER OPPORTUNITIES: LESSONS TO DATE FROM THE EXPERIENCE IN AUSTIN, TEXAS

by

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INTRODUCTION

This report reviews the experience to date in building a system of apprenticeships and career pathways to assist the transition from school to careers in Austin and the Capital Area of Texas. It describes and explains what was attempted, reviews how initial plans were adjusted in implementation, summarizes what was accomplished, and draws lessons from the experience for the development of school-to-career systems in other localities.

School-to-Work Initiatives in Austin: A Brief History

Activities to improve the transition from school to careers began in the Greater Austin Chamber of Commerce in the Spring 1991 with the creation of its school-to-work transition committee. The Chamber hired a school-to-work coordinator and started two pilot programs, funded by local sources. The same year, the Austin City Council began to focus on youth development as a top priority, establishing its "Opportunities for Youth" initiative, including a summer jobs program and several efforts to assist youth who were at high risk of dropping out of school. During 1991-1992, a strategic plan for the implementation of school-to-work transition, entitled *Bridging the Gap*, was developed at the Lyndon B. Johnson School of Public Affairs. [1] In May 1992, a community initiative led by Walt and Elspeth Rostow, entitled The Austin Project, reinforced concern for youth development, especially for disadvantaged youth in East Austin, beginning in the prenatal period through their entry into the workforce.

Added impetus and inspiration came from a series of contacts with the German Dual System during 1993 and 1994. Especially helpful was the Chamber of Small and Mid-Sized Businesses and Crafts (*Handwerkskammer*) and its executive director, Karl-Jurgen Wilbert, in Austin's German sister city, Koblenz. In Spring 1993, Mayor Bruce Todd made an exchange visit to Koblenz, where he toured schools and firms participating in the Dual System. What he observed impressed him deeply and he resolved to use his influence to establish an Austin equivalent to the German apprenticeship system. Mayor Todd made improving school-to-work transition one of his three priority goals for the new City Council beginning in June 1993, and he called on the Greater Austin Chamber of Commerce to work together with the city to implement a system of school-to-work opportunities in Austin. In collaboration with Chamber officials, Mayor Todd convened an informal Task Force on Apprenticeships and Career Pathways for Austin Youth.

The Task Force recommended the establishment of a non-profit, industry led, self-governing organization to promote and guide the development of school-to-work efforts in Austin and the Capital Area. With assistance from the Greater Austin Chamber of Commerce and with seed monies and other assistance from the City of Austin, the Capital Area Training Foundation was chartered in April 1994 and Charles Bradley, a manufacturing manager who had recently retired from Texas Instruments, was hired as project director to get the organization established. The Foundation was publicly announced at an international workshop held in June 1994 entitled "Education That Works and Work That Educates" which featured dialogue with three training experts from Europe.

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[1] Glover, Robert W. and Kenneth W. Tolo, et al, *Bridging the Gap: Implementing School-to-Work Transition in Austin, Texas*. Austin: Lyndon B. Johnson School of Public Affairs, The University of Texas at Austin, 1993.

In fall 1994, the Capital Area Training Foundation was awarded a local partnership school-to-work opportunities implementation grant for $816,000 and a poverty area school-to-work opportunities implementation grant for $237,000 from the federal government. The grants were to be renewable for up to five years, providing startup funding for the effort. In addition, the City of Austin provided a second year of funding to the Capital Area Training Foundation at $200,000. With these resources in place in fall 1994, the CATF began to implement its plans.

The Austin Labor Market

By almost any measure, Austin has enjoyed a robust economy. Unemployment in 1995 remained near three percent, the lowest rate in Texas and one of the lowest of any metropolitan area across the nation. From 1993 through 1995, employment in the Austin five-county metropolitan area grew at over 6 percent, or about double the population growth rate of 3 percent. The Austin area, which contained only one-eighteenth of the population of Texas, accounted for nearly one-quarter of all gains in manufacturing that occurred statewide in 1993.[2]

The most dynamic component of Austin's economy has been the high tech electronic industry. Hiring activity at major and small corporations continued unabated, including firms such as Motorola, Advanced Micro Devices (AMD), National Instruments, Applied Materials, Crystal Semiconductors, Apple Computer, Origin Systems, and others. By 1995, Austin was home to 825 high tech companies employing approximately 85,000 persons. Employment growth in this sector has expanded at 6.9 percent per year over the past decade.[3]

The projections for Austin's high tech job market showed continued expansion. In 1995, construction on two new semiconductor wafer fabrication plants by Motorola and Advanced Micro Devices was nearing completion at an investment of more than $1 billion apiece — in East Austin near some of the poorest neighborhoods in the county. Together these two firms alone anticipated hiring 2,000 new employees annually from 1995 through the year 2000. At least an additional 400 jobs were projected to become available annually through normal turnover in the industry. In January 1996, Samsung announced the construction of a $1.3 billion wafer fabrication plant to hire 1000 workers by 1998. In February, Cyprus Semiconductor announced an expansion of its facilities in Round Rock to add 700 workers by the year 2000 and Motorola announced further expansion of its East Austin facilities to add 200 workers.

In 1995, the entry level qualifications for these jobs ranged from 10th grade tested skills for certain operator jobs to an associate's degree for technicians' positions. However, skill requirements are fast rising in this industry so that all jobs were expected to require proficiencies at the technician or two-year college level or its equivalent in scientific or technical courses within a few years.

Nine universities and colleges are located in the area's three central counties. Together they have a student enrollment of 100,000 and produce approximately 15,000 college diplomas annually

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[2] Angeles G. Angelou and Melissa Stokes, "Economic Review and Forecast: 1994-95." (Austin: Greater Austin Chamber of Commerce, 1994), p. 2.

[3] Angeles G. Angelou and Melissa Stokes, "Economic Review and Forecast: 1995-96." (Austin: Greater Austin Chamber of Commerce, 1995), p. 4.

compared with 5,000 high school graduates produced in the same area. Of that number, about 11,000 graduate from the University of Texas at Austin. Most college students graduate in non-technical areas. Because Austin is an attractive area, many try to stay in the area, even at the price of being underemployed in jobs usually occupied by individuals with less education.

However, the area's schools and training providers have not kept pace with the demand for workers trained in technical fields at the sub baccalaureate level. Of 26,000 students enrolled in Austin Community College for college credit courses, fewer than one thousand receive an associate degree or certificate each year. Yet no diploma or certificate program lasts more than two and a half years. As late as 1994, only approximately 100 students per year graduated as electronics technicians, of which 90 already were working for high tech firms. Thus only 10 new technicians not already employed by firms in the industry were graduated onto the labor market whereas labor market projections show that annually at least 400 would be needed by the industry over the next 5 years. Part of this problem is one of capacity. Austin Community College has encountered difficulties in maintaining pace with the changing laboratory equipment needs for training in high technology occupations.

A similar situation existed at the secondary school level. Remarkably, despite Austin's burgeoning electronics industry, the Austin school district did not offer any courses in Industrial Electronics during the 1994-95 school year. Through the efforts of the Capital Area Training Foundation, Industrial Electronics was reinstated in Austin in the 1995-96 school year, taught to high school students both in high school and community college facilities.

A distinguishing feature of the Austin labor market is that most of employment, especially many of the best jobs, remain located in the city. Unlike many other large urban areas, the movement of jobs to the suburbs had not yet occurred in a major way. Indeed, Travis County contained only 62 percent of the 10-county region's population in 1994, yet accounted for 71 percent of all employers, 80 percent of total employment, and 85 percent of total wages paid. [4]

Another facet of the Austin labor market is the increasing use of temporary service firms. Temporary service firms are utilized for a variety of purposes. A frequent aim is to avoid the expense and commitment of hiring permanent workers, thus providing a company with greater flexibility in downturns. Some local manufacturers target to have as many as 40 percent of their workers as temporary workers. A second prevalent use for temporary service is as a screening device. Rather than hiring permanent workers and placing them on probation, one local computer manufacturer hires all its initial production workers as temporary workers, retaining the best as permanent employees once they have proven themselves on the temporary job. Some firms use temporary service agencies to supplement their recruiting and training of new workers, especially in tight labor market conditions. For example, one newly established electronics assembly firm paid a temporary agency to recruit and train its production workforce in soldering techniques.

The use of temporary agencies varies significantly by firm and changes through time. This complicates the task faced by job applicants trying to develop a permanent attachment in the Austin

[4] Data supplied by the Capital Area Council of Governments and the Texas Employment Commission. See Table 2 in Appendix A for details

labor market. They need to understand which temporary jobs lead to permanent status and which do not.

In a tight labor market, emphasis is on knowledge and skill development rather than the completion of credentials. Some teachers of block training classes offered by Austin Community College have reported that their classrooms emptied before the end of the course because all their students had been recruited into jobs. In response, the college banned temporary job agencies from recruiting in classes to reduce this problem.

In short, even though the Austin labor market is strong, it poses serious challenges to youth who lack specialized skills or credentials and connections to employers. While low wage jobs unattached to career opportunities are commonly available in the fast food and retail industries, the fresh high school graduate confronts serious competition from college students and college graduates for jobs that have greater potential for producing income and benefits.

In this environment, the development of work-based learning as found in German-style apprenticeships offers Austin several advantages. By developing their own technical workers, Austin employers can alleviate their supply problems in technical fields and produce more loyal workers who are less likely to jump to competing firms. Employers also can directly improve the qualifications of their workers. Many of Austin's major high technology firms already provide tuition reimbursement to help their incumbent workers through school; what is needed at this point is to develop work-based learning that is structured and connected with school. Trainees can become familiar with current production equipment at their job sites which will reduce the financial pressures on high schools and Austin Community College to continually acquire the latest expensive equipment for use in school laboratory settings. By conducting training at worksites as well as in classrooms, training capacity can be expanded rapidly in high demand occupations. Most of all, Austin youth will benefit. Apprenticeships can offer teenagers clear, structured pathways to career positions, personal connections with employers, and training and credentials in specialized skills in short supply. All of these factors help youths to compete more effectively with more generally educated university graduates.

As an implementation site for this initiative, Austin offered several advantages. It enjoyed a robust economy, with many firms facing a labor shortage situation. Several high performance firms offering excellent learning environments for youth were located in the area. Austin also enjoyed a large supply of talented retired business people who were respected and trusted in the business community who could conduct outreach to the business community. The initiative had the active interest and support of elected officials, especially the Mayor and City Council. Finally and perhaps most importantly, the effort had strong backing from the Greater Austin Chamber of Commerce.

DISTINGUISHING FEATURES OF AUSTIN'S SCHOOL-TO-CAREER APPROACH

An Industry-led Approach

The approach proposed in Austin had several distinguishing features. First and foremost, it was designed as an industry-led initiative. In contrast to most school-to-work partnerships which have begun with schools and attempted to reach out to the workplace, the Capital Area aimed to organize industry to work with schools.

The strategy was to establish an institution to enable industry to develop, support, and guide the school-to-work system on a permanent basis by establishing a guiding framework, while leaving decisions regarding implementation details to individual firms. The new non-profit institution would be sponsored by industry. According to its bylaws, the board of directors of the Capital Area Training Foundation were to be at least 67 percent representatives of industry. Glenn West, the President of the Greater Austin Chamber of Commerce, served as chair of the Foundation's Board.

There were numerous reasons why the approach was designed to be industry-led. Ultimately, the approach was based on the premise that industry is the primary customer in school-to-work and workforce development activities. Of course, there are other important customers, including the students themselves and their parents and other stakeholders, such as the schools and community college. Put simply, however, if employers were not satisfied with the results, than any school-to-work system could serve students effectively.

Without employer involvement from the private as well as the public sectors, there would be little opportunity for work-based learning and less chance of employment for graduating students. Although work-based learning can be simulated in schools through school-based enterprises and other strategies, it is difficult to accomplish effectively.

If industry had a primary influence over the system, they would be more likely to take ownership and responsibility for participating in school-to-work activities. Moreover, industry officials have the best access and credibility to recruit their peers to participate.

Since funds available though the School-to-Work Opportunities Act are limited to temporary "seed monies" or "venture capital," it was reasoned that one of the best uses for these funds was to organize employers to become engaged as partners with schools in the process of preparing youth for the workplace. By organizing firms to articulate their needs with a unified and coherent voice, industry could have more influence over schools and training providers, raising standards and expectations for the performance of youth. Also, as experience with the German chambers illustrates, industry-led institutions can play a key role in organizing and supporting firms to take responsibility for developing youth as future workers. With employers taking ownership, the system would be more likely to persist beyond the start-up federal funding.

Austin-area industry had good reasons to participate. The Greater Austin Chamber of Commerce realized that building effective workforce development and school-to-work systems was essential to maintain it success in recruiting industry to the Capital Area. In short, the Chamber's leadership saw clear connections between the qualifications of Austin's workforce and continued economic development of the region.

Employer commitment is critical to the survival of the school-to-work movement. Congress currently is proposing to fold school-to-work monies into employment and training block grants to states at reduced levels of funding. As one experienced observer has noted: "This will likely result in a free-for all at the state level, with the older established employment and training programs having an inside track. A strong employer presence in the new school-to-work systems will be needed to help keep them alive and enable them to be good competitors in a block grant environment." [5]

Industry Steering Committees

The Capital Area Training Foundation organized steering committees in the area's major industry sectors to guide workforce development for youths. The particular industry sectors selected demonstrated high potential for employment growth. These included health care, high tech electronics, construction, metalworking-manufacturing, public service, criminal justice, and consumer service management. [6] The plan was to develop or modify steering committees as the market demanded. The Capital Area Training Foundation reserved one third of its budget for activities recommended by the steering committees to help them implement their ideas.

The steering committee approach offered several conceptual advantages. Each committee was to be composed of knowledgeable individuals from the industry, who were familiar with occupational training issues in that sector. The committees could connect with the developing national skill standards movement and offer to help certify skills, especially if performance testing was part of the examination process. Organizing training on an industrywide basis would help assure training in transferable skills and avoid firm-specific training. It recognized that each industry is in a different situation so that no standardized approach would work across all industries. By organizing several steering committees, Austin could move its school-to-work efforts on several fronts simultaneously.

The steering committees were intended to be more than advisory. Each steering committee was charged with the task of devising workforce development strategies suited to its industry. Each committee was to assess its industry workforce development needs and to work with schools to form paths into the workplace for youth tailored to the needs of its industry. This approach recognized the fact there is no one best training model that suits all firms and all youth. Tech prep, academies, youth apprenticeships, and other approaches all have their own advantages and limitations. Austin envisioned a flexible approach in which any or all of these options could be functioning in area schools, with the support and guidance of steering committees. Firms must have the flexibility to structure work-based learning such that they see a clear relationship between training young people and their own productivity if significant opportunities for work-based learning for youths are to grow over time.

Proposed steering committees' roles included specific tasks, such as assessing the industry's current and future workforce development needs, identifying which entry level jobs could be filled by

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[5] Basil Whiting, "Missing: The Employer Side of the School-to-Work Equation." *P/PV News* (Summer 1995), p. 4.

[6] In addition, although a steering committee in financial services never got off the ground, a summer institute for high school juniors in the financial services industry was organized in summer 1994 by employees of the Smith Barney Corporation. The institute was continued in summer 1995 by the Capital Area Training Foundation.

student trainees, clarifying and validating the competencies and knowledge needed by a fully trained worker, designing structured work-based learning and collaborating with educators to develop related school-based curricula, committing to provide training slots, and implementing skill standards, assessment and certification procedures. Steering committees also support career awareness and exploration activities for younger students by providing speakers to classrooms and arranging worksite visits.

European Partners

A second distinguishing feature of the Capital area's approach was its collaboration with European partners, especially Austin's sister city in Germany, Koblenz. In September 1993, with financial assistance from the German Marshall Fund of the United States through the Center for Learning and Competitiveness at the University of Maryland, the Greater Austin Chamber of Commerce sponsored a team to study the governance and finance of apprenticeship in Germany, Denmark, and Switzerland.[7] Through the sister city program, several trips to Koblenz were made, culminating with a Mayor's delegation in October 1994 which focused its week long visit on the operations of the Dual System. Thirty-two persons joined the delegation, including officials from Advanced Micro Devices, IBM and other firms.

In its community partnership to implement a school-to-work system, Austin has moved beyond the study trips and reports to incorporate lessons from Europe by developing more continuous and meaningful contact with our European partners through establishing training exchanges and making direct use of the training expertise and advice of experienced European training officials. In January 1995, thirteen Austin-area youth traveled to Koblenz to enter German apprenticeships in a variety of trades through the generous support of the *Handwerkskammer-Koblenz*. In February 1995, a Swiss apprenticeship consultant with more than two decades of experience in designing and implementing apprenticeships moved from Zurich to Austin to work with the Capital Area Training Foundation to help establish aspects of the Dual system.

The aim was not to replicate German apprenticeship in Austin, but to learn the European experience and "apply the essentials" of German apprenticeship. Some of these essential features included the following:

(1) Promote joint responsibility between industry and schools in a dual system for developing youth as future workers.
(2) Develop experiential learning systems on the job.
(3) Train and prepare youth to full qualifications for entry.
(4) Build an institutional base to support the training of youth in industry, using public authority to raise funds for these activities but maintaining decisions in private hands.

The Capital Area Training Foundation aimed to use the full apprenticeship model where apprenticeship was wanted and needed. However, realizing that it would not achieve scale with this

[7] The report resulting from the study tour was published as *School-to-Work Transition in the U.S.: The Case of the Missing Social Partners*. (College Park: Center for Learning and Competitiveness, School of Public Affairs, University of Maryland, 1994).

approach within any reasonable time frame, CATF leaders decided make use of other approaches as well.

A Unifying Effort

Three years of research and planning had revealed several dozen efforts related to school-to-work under way in Austin, most of which had been undertaken on an isolated, *ad hoc* basis. Like most other American cities, Austin had a fragmented approach to workforce development and its school-to-work efforts. The Capital Area Training Foundation aimed to "pull the pieces together" developing a common framework and standards by industry to help schools ensure that programs would meet industry needs., thereby connecting student achievement with rewards in the workplace and fostering improved student motivation. Especially, CATF intended to develop a system of work-based learning experiences for a majority of Austin-area students that would result in the development of skills leading to attractive entry-level career opportunities.

Growing into a Regional System

The original plan was to focus on the City of Austin which contained most of the employers and best jobs in the region and where important political and financial support had been developed for school-to-work efforts. Then, over a period of three years, the plan was to grow the system into a regional approach covering the 10-county Capital Area.

The state of Texas encouraged localities to adopt a regional approach, making use of governor's planning regions. All recent initiatives in workforce development, including its Quality Workforce Planning, the implementation of Tech Prep, and recent Texas legislation (S.B. 642 and H.B. 1863) promoting the development of regional workforce development boards have encouraged or required a regional approach. For Austin, the relevant region is the 10-county Capital Area, which approximately coincides with Austin's labor market area.

Built into a Broader Foundation of Investment in Youth

The Austin Project is a community-wide initiative, started in 1992 by Walt and Elspeth Rostow, to implement a comprehensive program of action to invest in disadvantaged youth from prenatal stages through their entrance to the workplace, especially from poor neighborhoods in East Austin. The Austin Project is based on the principles of prevention, continuity of investment, and participation of the neighborhoods involved. The Project recognized that ensuring successful participation in school-to-career programs for disadvantaged youngsters requires earlier intervention, which is less expensive and more effective in the long term.

The Austin Project's concern for children begins with attention to prenatal health care to improve the incidence of healthy babies born. It extends through parent training, pre-school activities and health care with the aim of having all students arrive at kindergarten, physically, emotional, and mentally ready to learn. Working with schools and families in selected high-poverty neighborhoods, the Austin Project maintains a focus on the development of youth through a variety of activities in their school years, including fostering the development of a school-to-work system.

A Long-term Commitment to Reach Full Scale

By any calculation, growing this system to a scale that made a difference for significant numbers of youth would take commitment over the long term. Mayor Todd initially challenged his Task Force with the ambitious goal to scale up at roughly 10 percent per year over five years. If implemented, this would put the school-to-work system at a "steady state" full-scale operation serving half of Austin's high school entrants — or roughly 12,500 youth — through the system at the end of 10 years.

Evaluation and Continuous Improvement

If a school-to-work system is to persist, it must be able to demonstrate progress. The initial aim was to develop a community consensus regarding the importance of a few selected performance indicators and measure them through time with a computerized information system. What was initially planned was using the management information system of The Austin Project, using an adaptation of the Automated Case Management System developed by the Training and Development Corporation of Bangor, Maine. This system provided a framework designed for continuous improvement over time.

The following section explains how and why these initial plans and ideas were adjusted in implementation.

THE CHALLENGES OF IMPLEMENTATION

The realities of implementation have revised initial Austin's proposed approach to building a school-to-work system significantly. Despite the original intentions to focus on organizing industry and work-based learning, most of the resources and staff efforts of the Capital Area Training Foundation (CATF) during its first two years of operation were devoted to developing the school side of school-to-work. The rationale was that CATF needed to build a base of support for school-to-work within schools and that schools needed to be improved before employers would work with them. Career centers were established in schools. Career specialists were hired assigned to work in schools. Funding was provided to schools to get career pathways established.

On the industry side, only three of five industry liaisons initially proposed were hired, of whom two were part-time. In addition, two industry liaisons staff left their jobs within the first year. Although retired volunteers from the business community have helped to fill the gaps, changes in staffing support for the committees often adversely affected their deliberations because each staff member approached the committee with a little different view of priorities needing to be accomplished.

While some of the principles of German apprenticeship are appealing to industry leaders, the Austin business community has demonstrated that it is no hurry to adopt a full apprenticeship system.

The Capital Area Training Foundation accelerated its schedule to expand to include selected high schools across the Capital region, whereas resource constraints have prevented The Austin Project from moving beyond its focus on two selected neighborhoods. So while the two efforts are still allied, they are not aligned.

Industry Steering Committees

The experience with the industry steering committees has been mixed. On the positive side, the industry steering committee structure has provided

- a convenient forum to share effective practices in existing partnerships between schools and firms and a vehicle to explore promising practices in other localities.

- a platform to investigate and disseminate information about school-to-work innovations taking place with the industry in other localities.

- a source of information on upcoming industry workforce needs. This process was perhaps best organized by the metalworking-manufacturing group which at its first meeting circulated a written survey requesting firms to project their needs, asking them how many apprentices they planned to employ, and whether they could dedicate an experienced employee to the effort. Several committees reviewed and commented on the labor market projections developed by the Capital Area Workforce Alliance, the regional entity established by the state to review and disseminate information on labor market trends with the purpose of influencing vocational-technical education.

- a logical point of access to the industry.

- a base to recruit internships and work-based learning for students.

On the other hand, less was accomplished through steering committees than initially was envisioned. At their inception, steering committees were provided a list of possible activities to guide them; but they either ignored the list or were overwhelmed by it. In retrospect, the list contained too many items to provide a reasonable agenda for a volunteer committee and the tasks were not prioritized. "Big picture" ambitions tended to overwhelm most of the committees; most of the steering committees found developing a long range strategy especially difficult. The steering committees that achieved results (construction, financial services, high tech electronics, hospitality) did so by concentrating on a relatively narrow short-range plan of action with the help of support staff and volunteers who provided "arms and legs" to implement the ideas of the committees. It became clear that even good ideas do not translate to action without a lot of effort.

As an industry-led effort, CATF had a strong tendency to "leave decisions in the hands of the industry." This made CATF staff permissive about letting the committees do what they wanted. Staff did not constrain the activities of the committees to focus exclusively on school-to-work initiatives. For example, the construction and metalworking steering committees preferred to establish their initial training efforts with older workers outside of high school, citing the complications of the insurance and the restrictions in child labor law in hiring youths under age 18 in hazardous occupations.

The experience with CATF has demonstrated that employers do not automatically know what to do if they are just brought together. The steering committees need expert help and facilitation. Even when they receive it, they do not always come to agreement, nor does consensus get translated into action without considerable follow-up.

Skills Standards, Assessment, and Certification

One of the activities initially envisioned for the Capital Area Training Foundation and its industry steering committees was the implementation of skill assessment and certification. It has proven one of the most difficult.

Staff tried to guide the committees to consider industry skill standards; but left it up to committee members as to what they wanted to do about skill standards. Several activities related to skill standards were undertaken. For example, the executive director of the American Electronics Association's national skill standards project visited Austin and addressed the high tech electronics steering committee. Through the steering committee, a cross-company focus group of workers and supervisors was put together to help the American Electronics Association to select a second round of occupations for consideration. The health care steering committee reviewed the draft national standards and some hospitals incorporated the framework into their in-house training programs.

To date, most of the steering committees have made much progress in adopting and implementing skill standards. This situation may improve as skill standards become better developed at the state and national levels. Part of the problem has been the mixed membership of the steering committees which have included representatives from personnel, training, community relations, and production departments (see below). Developing or validating on skill standards in an industry requires the participation of those directly conducting the work — production workers, supervisors and managers. These are the individuals who need to be directly involved. It may not matter much what function the representatives from a company have as long as they have the authority or direct access to

authority to commit the firm to action and to bring the appropriate individuals to the table for a given task.

Skill assessment and certification remain complicated by legal and practical difficulties. Most of the 22 national contractors to the U.S. Departments of Labor and Education for the development of industry skill standards have backed away from assessment and certification due to its expense, questions about the application of equal opportunity laws and regulations, and other practical matters.

Several objections, questions, and concerns surfaced in discussions about skill standards and certifications in Austin's industry steering committees. For example, if an individual has a skill certificate endorsed by industry but also has some unacceptable personal quality, won't it be difficult for a firm to reject that job applicant? Can a skill standard/certification used in hiring include consideration of a job applicant's potential for advancement in career ladders that are not completely formal? What are the legal consequences under equal opportunity laws of being unable to demonstrate job relatedness of requirements to the entry level job? Would portable skill certificates simply facilitate "pirating" or "raiding" of talented employees by competing firms?

Perhaps most important, strong firms have their own individual culture and prefer to do things their own way rather than join in a industry skill certification process using common standards and procedures. Firms have different philosophies and approaches to defining the skills required by entry level employees. For example, AMD-Austin is moving toward hiring and providing "all round" training to workers. The apprenticeship model suits this approach well and three apprenticeship programs in facilities maintenance at AMD being developed with the assistance of CATF staff are based on extensive occupational analysis with AMD production staff. Motorola representatives, on the other hand, argue that it makes little sense to implement long term training in a variety of skills that may become obsolete in the fast-paced semiconductor industry. They prefer to require less from entry-level employees and rely on the company's rich environment of on-the-job training and continued employee education to upgrade skills over time on an as-needed basis.

Outside of the CATF high tech electronics steering committee, numerous recent initiatives in Austin have been undertaken to identify the skills and knowledge needed by workers in the Austin labor market. There have been efforts to profile skills and knowledge needed by workers at a generic initial entry level (across all industry) by the A+ Coalition, the Mayor's Task Force on Literacy, the Austin Industry-Education Council, and currently by a subcommittee of the Education Committee of the Austin Chamber of Commerce and by the Austin/Travis County Workforce Development Board. Attempts at developing more advanced occupational skill profiles for high tech electronics have been conducted by Austin Community College for its semiconductor technician degree option and for its non-credit training programs, by the Capital Area Tech Prep Consortium and the Austin/Travis County Private Industry Council using a commercially available software package entitled "Skills 2000," and by the Institute for Constructive Capitalism at the University of Texas at Austin for a proposed project to develop computer-mediated instructional programs. Perhaps the most promising effort currently underway is an initiative led by SEMATECH to outline the preparation for the semiconductor industry. As a national industry consortium with an extensive membership base of important firms, SEMATECH may be best positioned for such a task.

In view of inability to come to agreement on developing or using new skill standards, Austin has tried to build existing industry skill certifications into its career pathways. For example, in insurance industry, certifications such as Customer Service Representative (CSR) and Certified

Insurance Counselor (CIC) are widely Customer Service Representative (CSR) or Certified Insurance Counselor (CIC) and count for hiring and promotion. In software network administration, certification from Novell matters.

Steering Committee Membership and Participation

CATF was pragmatic and opportunistic about organizing the steering committees. The aim was to focus on industry sectors anticipated to experience high rates of job growth. Where existing industry groups were organized to deal with workforce development issues, such as in metalworking and insurance, CATF tried to make use of these organizations.

Three of the industry steering committees — in health care, high tech electronics and hospitality [8] — were organized at the initiative of the mayor who called together CEOs and site managers to get them started. In response to the mayor's call, industry executives established steering committees. However, once the steering committees were established, they had little or no contact with the CEOs, nor have they as a group ever reported back to CEOs or site managers about progress. Reports to the CEO or site manager on an individual basis have occurred within selected companies.

The CATF staff felt that they were not in a position to be selective regarding who served on steering committees. The result was that industry steering committees often included company representatives in a wide mix of functions and responsibilities, including human resources, training, and government and community affairs. Only a few production staff or managers have been involved.

Membership on the steering committees has been open to any interested individual who chose to participate. Effectively whomever got onto a committee's mailing list became a member. CATF staff have periodically recruited industry participants to fill gaps.

Participation in some of the steering committees has been highly irregular with many industry members attending meetings on an occasional basis. The membership of the committees included educators, who generally were more regular in their attendance. To assure industry voice, some of the steering committees began holding "industry only" working sessions.

The open membership has not posed significant problems for committees that have a regular core industry group attend each meeting; but when the composition of attendees changed dramatically from one meeting to the next, it was difficult to make progress.

Recruiting industry leadership to chair the committees was a special problem for several of the steering committees. In part, this was due to the fact that businesses and individuals naturally tend to avoid what appears to be an "open-ended" commitment.

The steering committee approach itself was not expansive. Without conscious or explicit efforts, committees did not reach out and recruit new employers to participate. Some members thought that just attending steering committee meetings was sufficient. They did not involve others in their

[8] The steering committee for hospitality, food and tourism was subsequently expanded and renamed to cover consumer services management.

own firms, reach out to peers in other firms, or take other responsibilities related to building a school-to-work system.

The Training Foundation has not been able to attract significant direct participation by small businesses on the steering committees. The most effective approach for this has been to use existing industry associations. For example, in construction, an industry noted for small firms, this problem was alleviated by obtaining effective representation from the industry's associations, notably the Associated General Contractors, the Associated Builders and Contractors, and the Building Trades Council. Likewise, the Independent Insurance Agents of Austin and the Austin chapters of the National Association of Insurance Women and the Federated Insurance Women of Texas are industry associations which reach smaller employers in the insurance business.

CATF also has found it difficult to engage businesses across a 10-county region in its industry steering committees. To remedy this problem, CATF is working to connect with outlying satellite groups of businesses in smaller localities around Austin. A model for this is the Georgetown Manufacturing Council, located in a small community north of Austin. The Greater Austin Chamber of Commerce also strongly favors a regional approach to workforce development and to this end has reached out to collaborate with smaller chambers in suburban and outlying areas.

Steering Committee Operations

Most of the committees have operated on consensus basis rather than taking votes on various matters. Some steering committees tended to meet monthly whether or not monthly meetings were needed. Some committees did not use the time of the industry participants efficiently so that by summer 1995, energy and attendance in some of the committees were flagging. Part of the problem here was that several of the tasks that needed to be accomplished were not the work of steering committees, but more appropriately delegated to special purpose task forces or other groups within the industry. Another problem was that the Capital Area Training Foundation was devoting considerable effort into building a presence in schools, leaving fewer staff resources than were need to work effectively with the industry steering committees. In other cases, committees generated more discussion than action and industry representatives felt little sense of accomplishment or return for the time they invested. In addition, several companies wanted to be involved and were willing to progress more rapidly and comprehensively than the committee as a whole. Those companies needed immediate technical assistance and support from industry liaison staff, who responded to those companies individually.

Nevertheless, considerable experience was accumulated in working with industry steering committees, as illustrated by the following profiles of selected committees.

Health care. CEOs and site managers in health care were called together by Mayor Bruce Todd of Austin, who made a presentation about the importance of school-to-work. In response, the industry established a steering committee led by a Vice President of Human Resources of one the local hospitals. Soon after its inception, the committee was paired with teachers who were trying to develop a new Health Care Academy at Crockett High School in Austin. In practice, the steering committee became an advisory group for this one high school program. The relationship offered the students in the Academy wonderful access to industry, providing classroom speakers, and industry tours and job shadowing opportunities in clinical rotations in five hospitals. On the whole, this Health Care Academy has provided an excellent vehicle for career exploration in the health care industry as well as

a focus for integrating learning across classes in several subjects; but it has not provided career preparation or credentials for jobs in the health care industry.

In its relationship with the Crockett Health Care Academy, the committee soon became engaged with operational details (such as scheduling hospital tours) that were inconsistent to its role as a strategic policy-making body.

The committee did serve as an effective platform to explore promising initiatives in other localities, including the Bryan High School for Human Services, the Northside Health Careers High School in San Antonio, the health care academies in California and in Philadelphia, and Project Pro Tech in Boston. The steering committee also made a cursory examination of the skill standards developed under the national skill standards contract with Far West Labs and approved them. The general sense was "if we can get applicants with those skills, it would be great." It is not clear that the committee has made any practical use of the national skill standards to design education or training, except in incumbent worker training offered by individual hospitals.

The health care steering committee began with the orientation "what do the students need?" rather than "what does the industry need?" After three years, the committee re-centered on its own workforce needs. In this regard, it has decided to focus on developing training in patient assistive care.

The effectiveness of the committee was adversely affected by major changes in the health care restructuring and mergers. Austin's five major hospitals—the health care entities most affected by restructuring and cost containment—were anchors of the health care steering committee. When the committee began in 1992, the labor market situation was in high demand and hospitals foresaw shortages of skilled labor looming. Within two years, restructuring, cost cutting, and mergers had changed labor market conditions, so that some major hospitals in Austin even implemented layoffs. Because Austin is regarded as an attractive place to live, Austin health care providers have less problem attracting qualified applicants to Austin than smaller hospitals, clinics and nursing homes located in small towns in outlying areas.

Although the committee has attempted to reach out to health maintenance organizations and smaller employers such as clinics, doctors, dentists, veterinarians, and nursing homes, such efforts have not yet been successful. A campaign to recruit members for subcommittees was not effective.

Unlike some of the other steering committees, the Health Care committee has been particular about who was qualified to serve as industry members of the committee. The committee limited industry representatives to individuals who have the authority to commit their organizations to participate.

Construction. From the outset, the construction steering committee focused on workforce development rather than school-to-work. Faced with construction employment growing at 20 percent per year in the Austin metropolitan area from 1993 through 1995, the committee decided that it needed to find ways to get qualified applicants into the industry quickly.

Thus the committee focused on implementing a Construction Gateway training program to prepare unemployed and underemployed individuals to work in construction. The curriculum for the program was put together with strong input from industry and with instructional materials developed by industry. The program included an introduction to the construction industry and seven basic trades,

applications of mathematics to construction, instruction and practice in proper use of hand tools, and perhaps most of all, safety training. OSHA certification, and certification in CPR and first aid certification were available in the course. Through December 1995, five cycles of the Construction Gateway program had been conducted. Altogether the program enrolled 150 individuals and graduated 110, nearly all of whom were offered jobs in construction.

The Construction Gateway program has been improved over time. The instructional portion of the program is operated by the Austin Community College. The five-week program offers college credit and advanced entry into the building trades technology program for those who want it. A community organization, SER-Jobs for Progress, provides assistance with recruiting, case management, and placement and follow-up services.

CATF staff have consistently encouraged the committee to consider school-to-work initiatives as part of the industry's approach to workforce development. During summer 1994 and 1995, students were recruited for internships in construction and related industries. However, despite pleas from its industry association executives, the industry provided few internship opportunities. The effort proved especially disappointing to students and their parents in 1995 when 30 high school juniors were recruited yet only six internships were offered. Many construction contractors fear problems from expanded exposure to liabilities and increased insurance premiums, and potential violations of child labor laws in placing youths under age 18 on construction job sites. The 1995 summer experience proved the wisdom having of internship positions in hand before widely recruiting students.

The persistence of the CATF staff and its practical approach to resolving problems in getting the construction industry involved in school-to-work appears to be paying off. At the initiative of CATF staff in negotiation with officials from the Texas Employment Commission and the regional office of the U.S. Department of Labor, child labor laws are being clarified for construction contractors (and other employers) who want to participate with schools in providing workbased learning but fear child labor violations. As of spring 1996, the industry was working with Lanier High School to establish a construction academy in Austin the following school year.

Other Approaches are Needed to Supplement Industry Steering Committees

One of most notable first year accomplishments of the Capital Area Training Foundation did not happen through an Industry Steering Committee. Rather it occurred separately with CATF staff working with an individual firm, AMD. Although the industrywide approach has considerable conceptual advantages, it is more difficult to implement than building bilateral firm-school relationships. Bilateral relationships between firms and schools facilitate screening and matching because teachers and counselors in a partner school can get to know the firm and its specific needs better. In addition, these partnerships can be built a step at a time with a particular outcome reached through mutual agreement.

CATF has taken the position that there is a need to build both industrywide and bilateral approaches. The ideal is to establish a common framework at the industry level under which bilateral school-firm relationships can operate. In order to work more with individual firms, CATF has supplemented the steering committees with an '"account executive" approach to working with individual firms. Under this strategy, individual CATF staff and volunteers have been assigned to contact individual employers to help them become involved and to address any issues that arise.

Permissive Approach Taken with Industry: Summer Interns

Realizing that hiring teenage youth was a major change from the traditional personnel practices in many firms, CATF tried to introduce firms to youths through organizing a campaign urging firms to hire students into work-based learning experiences during summers. A major aim of the strategy was get firms used to having youth in the workplace.

CATF leaders also reasoned that many students taking a rigorous schedule of college preparatory courses would not have the time available to work while they were attending school. Since they wanted to preserve the option for students participating in the school-to-work system to go to college, they focused on developing work-based learning during summers.

Austin's European training consultant warned that the summer strategy could be self-defeating. Begging for summer jobs may simply reinforce the "community service" mentality with which most American firms already approach this arena. More damaging, summer jobs could be mis-represented to youth and their parents as more than temporary employment. The alternative — an investment mentality — calls for more than providing a regular summer job. Rather the firm must train youths sufficiently to qualify them as workers.

Yet to some extent the summer strategy has worked. Firms who had not hired teenage workers began to see their potential. Most supervisors gave very positive reports about their summer interns, noting that the youths were much more capable and performed much better than expected. Several firms facing labor shortages have realized that it is in their self interest to maintain employment and/or contact with their best student interns after investing in them during the summer. This is being achieved in a variety of ways. Most of the firms have encouraged successful student summer interns whose school schedules permitted to continue working with the firm on a part-time basis during the following school year.

European Partnership

As previously indicated, Austin did not aim to replicate German apprenticeship in Central Texas but rather to apply the essentials of the German Dual System, specifically in four objectives:

(1) Promote joint responsibility between industry and schools for developing youth as future workers. One gauge of the Austin business community's response to European apprenticeship has been the reaction that the Swiss consultant, Robert Egloff, has received. Upon his arrival in Austin in February 1995, Robert immediately began meeting with representatives of the financial services industry. Receiving a cordial reception, he began to design a full apprenticeship program for them, which was natural for him because he had worked in the Swiss banking industry. His preliminary plan met with an enthusiastic response from Austin Community College but only a lukewarm reaction from the industry. Firms were more concentrated on downsizing and cost cutting measures. Mergers and acquisitions were pulling major banking functions out of Austin and placing them in Dallas and other larger centers of banking. Local bankers seemed more concerned with filling jobs for $7 per hour tellers than training all-round employees for the financial services industry.

Next, an article in the newsletter of the Greater Austin Chamber of Commerce authored by the Chamber's president broadcast the availability of Robert Egloff's services for developing workbased

learning. Four companies responded; but for a variety of reasons none followed through to implement a full apprenticeship program.

Subsequently, through a personal contact, Robert Egloff began working with Advanced Micro Devices (AMD), assisting their facilities maintenance personnel to design three full scale apprenticeship programs.

The bottom line here is that while full apprenticeships remain an excellent approach and certainly a legitimate and valuable part of the school-to-career activities, apprenticeships are usually developed slowly over time on a case-by-case basis under favorable circumstances.

However, even without apprenticeships, getting employers to recognize joint responsibility with schools for the preparation of future workers is a genuine accomplishment requiring a significant shift in attitude. It will not be achieved quickly. The experience in Austin has confirmed several significant cultural differences in approach and perspective between American and Europeans:

- American businesses generally place the responsibility on schools for preparing youth with the basic skills to work. Yet at the same time American employers generally do not trust schools. For example, when hiring, most firms neither examine school transcripts nor ask for teacher recommendations (National Center for Educational Quality of the Workforce, 1995). European employers more readily consider worksite learning as an essential part of workforce preparation.

- American high school educators tend to view work-based learning as a strategy to motivate youth, as opportunities for career investigation by their students, or as added learning to supplement the core learning activities that occur in the classroom. They commonly do not perceive it as providing an important component of the core learning for career preparation.

- American managers tend to be focused on quarterly profits whereas European industry tends to have a longer term investment mentality. While investing in youth as future workers may pay off over the long run, in a world attuned to short term returns, such activities do not even arise as potential areas for investment.

- American industry (outside of traditional youth labor markets) does not have tradition of training teenage youth. Indeed, it appears that some American firms will almost do anything else first to find applicants other than training youth.

- In America, the lack of organized skill standards provides no common framework for learning. This complicates the communication between firms and schools and the design of appropriate workbased learning.

(2) Develop experiential learning systems on the job. The Capital Area Training Foundation found that it lacked expertise in accomplishing this effectively. Most of the early efforts were devoted simply to getting employers to consider hiring youth. With assistance and training from its Swiss training consultant, it will be better positioned to structuring work-based learning in the future.

(3) Train and prepare youth to full qualifications for entry. A key problem here has been the lack of consensus on industry skill standards. For example, notably there is little agreement among firms in the electronics industry as to what "full qualifications" for entry are. Also, in this initial phase of

development aimed at getting high school programs started, CATF leadership focused on worksite experiences for high school students more as "work sampling" or "career exploration" activity than as career preparation.

(4) Build an institutional base to support the training of youth in industry, using public authority to raise funds for these activities but maintaining decisions in private hands on a collective basis. Because so much of the effort was focused on building a base of support among schools in CATF's first 18 months of operation, less attention and resources have been devoted to developing industry institutions.

A Unifying Effort "to Pull the Pieces Together"

The Capital Area Training Foundation has no monopoly, nor should it aspire to be the source or conduit of all initiatives taken. As school-to-work concepts have gained popularity, the number of initiatives has multiplied. Among the challenges for CATF are the following questions: How can CATF coordinate efforts without limiting individual initiative? How can ad hoc pieces best be brought together into a synergistic whole? How can CATF serve as an effective broker and intermediary to achieve this?

Move to a Regional Approach Over Time

When the award of Austin's local partnership implementation grant was announced, outlying schools and businesses across the Capital Area advocated that the regional approach be accelerated and that the outlying region be provided a larger share of the first year's grant. They argued persuasively that a system should not be designed in Austin and imposed on the region; rather the region should develop it together. They also advocated for greater support for staff development and training of educators.

Building on the foundation of investment in youth through The Austin Project

The Austin Project is both a noble and daunting effort. Investing in youth from prenatal stages through entry into the workforce requires such significant resources that it can only be accomplished on a pilot basis within selected neighborhoods. With help from the Austin Project, the City of Austin competed for designation of part of East Austin as a "federal empowerment zone" or a "federal enterprise zone" but lost the competition. With foundation grants, The Austin Project subsequently focused its energy and available resources on two elementary schools and the neighborhoods they serve. The initiative, entitled "Para Las Familias" (For the Families) is concentrated on developing a community-based intervention to provide children's services and support for families in five areas: (1) health, (2) early care and education, (3) family resource centers, (4) leadership, and (5) collaborative networks.

As the CATF has accelerated its schedule to serve high schools across region, it has become more difficult to focus efforts on selected neighborhoods to reinforce the Austin Project. Whereas The Austin Project works with the neighborhoods around two elementary schools, CATF has initiatives underway in 14 high schools (among the 55 high schools in the region). These 14 high schools alone draw students from more than 60 elementary schools.

Scaling up

Mayor Todd's recommendation to mount a system "at a scale that meets the needs" within five years was ambitious and visionary. The system would serve 10 percent of all students entering the ninth grade during the first year and expand to serve an additional 10 percent each year thereafter so that by the end of five years, the system would have the capacity to serve 50 percent of all incoming ninth graders in a system that would follow them through high school and/or community college into the workplace. As steady state, the plan would eventually include 12,500 Austin students. Assuming four years of paid work-based learning from junior year of high school through community college, projected costs for the plan amounted to $46 million annually in wages and student incentives (in a county with a total payroll of $10.8 billion in 1994) and a conservatively estimated $8.2 million in operational costs by the 10th year when the system reached full build out.

Although these are not outrageous numbers, they offer a formidable challenge and sufficient resources are not likely to be raised without convincing proof of effectiveness. The pace of the proposed build up was too rapid to maintain quality and the original proposal did not encompass the full Capital region which is now the target.

Evaluation

The Austin Project wrote a proposal to put the Automated Case Management System in place in Austin, but unfortunately, the proposal was not funded and the Capital Area Training Foundation was left without a computerized management information system. CATF leadership have since decided to adopt the ERISS system used in the school-to-work system in San Diego and are raising funds from industry to help finance the acquisition of this system.

ACHIEVEMENTS TO DATE

The approach taken in Austin has engaged more active and widespread participation from private sector employers than found in most school-to-work initiatives. In its first year of operation, the Capital Area Training Foundation encouraged and assisted more than 75 employers to hire 218 students and provide them with work-based learning opportunities during summer 1995. Nearly half of these positions were provided by high performance firms in the electronics industry alone, which formerly had hired few teenagers. On the whole, employers reported that they were pleased and often surprised by the competence of these adolescent youths. This conforms with the findings of past research on employers who have hired youth. [9] The target for summer 1996 is to provide work-based learning experiences for 450 students.

At the same time, broad participation by employers has been maintained in the various school-to-work programs directly organized through the Greater Austin Chamber of Commerce. For example, during the 1994-95 school year, 51 employer representatives affiliated with the Austin Human Resources Management Association made presentations to classes of cooperative education students in all Austin high schools regarding various aspects of career development, job search and other job readiness skills. In spring 1994, 1500 students from 15 Austin middle schools visited with 207 employers to participate in a one-day job shadowing experience called *Gettin' Down to Business*. The following spring, 1208 eighth graders from the same 15 middle schools visited 122 employers in the same program. To complement this activity, during the 1995-96 school year, the Capital Area Training Foundation arranged "Workplace Success" presentations from business representatives in all the middle schools, urging students to take high school studies seriously and pointing out the consequences for their future earning potential. [10]

The CATF efforts have reached relatively large numbers of students. By the end of 1995, more than 2700 students had initiated individualized career plans with assistance of career centers established by CATF and a total of 477 students were enrolled in career pathways facilitated by the CATF in its partner schools.

Another accomplishment is that industry has invested more in school-to-work than other localities. In the initial year, contributions from industry have included more than $2.5 million in matching funds in cash and in-kind contributions, including wages of student interns in work-based learning, equipment provided for career pathways, and volunteered time during the past year to support the school-to-work opportunities system in Austin and the Capital Area. As a point of comparison, a recent survey of Tech Prep programs reported that only one percent of the revenue for Tech Prep programs came from industry contributions (Bragg, Layton and Hammond 1994). In the Capital Area, schools contributed an estimated $650,000 in matching, most of which was in the form of volunteered time of educators.

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[9] For example, see National Center for Educational Quality of the Workforce, *The Other Shoe: Education's Contributions to the Productivity of Establishments.* Philadelphia, PA, 1995; Lynn and Wills, *School Lessons, Work Lessons*. Washington, D.C.: The Institute for Educational Leadership, 1994; and Williams. et al. *Report on Impacts Study of Youth Initiatives in Apprenticeship*. Washington, D.C.: CSR, Inc. 1981.

[10] "Workplace Success" presentations are patterned after middle school presentations designed and used in the Texas Scholars Program of the Texas Business and Education Coalition, which has been implemented in several school districts across Texas.

The Austin initiatives have highlighted the importance of industry involvement in school-to-work and workforce development. In response, the Capital Area Tech Prep Consortium has redoubled its efforts to get industry involved in its activities. Likewise,the Capital Area Training Foundation has energized private sector participation in the Austin/Travis County Private Industry Council and the newly forming Austin/Travis County Workforce Development Board. The Foundation also had a direct impact on Texas state legislation regarding workforce development. According to state law, regional workforce development boards are to work with industry training committees, an idea that was spawned by the Capital Area Training Foundation's industry steering committees.

Success in High Tech Electronics

As part of its initial efforts, the Capital Area Training Foundation focused on high performance employers with demanding standards, especially firms in Austin's growing electronics industry. Two examples from the electronics industry illustrate what is being achieved through brokering by CATF.

Advanced Micro Devices (AMD)

One of the best illustrations of what has been accomplished in Austin with the help of the Capital Area Training Foundation has been with Advanced Micro Devices (AMD). AMD has taken several practical steps to increase the pool of qualified applicants available in Austin. AMD partnered with Austin Community College and two high schools near its manufacturing facility in East Austin — Johnston High School and Del Valle High School — to help them establish career pathways in electronics. With the assistance of a staff member from the Capital Area Training Foundation working as an intermediary, AMD collaborated with the community college and the two high schools to design a career pathways program for electronics, entitled the Accelerated Careers in Electronics (ACE) program. The program made use of the Tech Prep articulation agreements already approved by the school districts and the community college but not previously active in Austin ISD. High school students enrolling in this program could earn up to 16 credits of college courses while in high school. This gives students a jump start at the community college. In addition, the firm offered 20 six-week paid summer internships in which students were paired with technicians who outlined a program of training for them.

To launch the program, Advanced Micro Devices held an open house at the firm for interested students and parents which attracted 160 individuals from the two high schools. The presentation was specifically aimed at students who would soon enter their junior year and thus qualify to enter the electronics career pathway program. The presentation reviewed work in the semiconductor industry, featured a specially prepared video tape about AMD, and provided an explanation of the Accelerated Careers In Electronics (ACE) program, emphasizing that entering the program did not limit a student's options to continue education in college. The program proved so popular that the firm expanded the number of internships to 32 to accommodate all students who wanted an internship and provided funding for an additional class in industrial electronics.

CATF staff played several important connecting roles in bringing this initiative to fruition. In short, they did whatever was needed to keep the initiative moving. CATF staff helped to broker the relationship between the schools and the company. CATF staff wrote the proposal from the schools to AMD's community foundation for funding and CATF provided $20,000 as a match to the firm's

contribution of $41,000. They helped to recruit and screen students for the program. They helped to resolve various communication issues between the schools and the firm that arose along the way, including such matters as scheduling, transportation, recruiting students and student performance.

In a second initiative, AMD provided $350,000 funding for Austin Community College to increase its enrollment capacity in electronics at its campus nearest to the AMD manufacturing facilities. The process for moving to action here is instructive. After several meetings between AMD and college officials, the firm asked college officials for a written proposal to be submitted under a short deadline. This strategy prodded the college to mobilize its staff to organize a plan and produce the proposal.

In January 1996, AMD received a grant of $784,588 from the Texas Department of Commerce Smart Jobs Fund to train 972 new and existing workers, including 615 wafer fabrication technicians and 357 production engineers. This grant amounted to fully a tenth of the funding made statewide by the Smart Jobs Funds during 1995.[11]

In August 1995, AMD began working with CATF staff to develop apprenticeship programs in three technical specialties which were in short supply — in ultra pure water, ultra high purity piping, and instrumentation and control. These programs, which are being developed and designed on the basis of careful job analysis with production staff, are scheduled to begin in 1997 with 15 apprentices who are recent high school graduates.

The common theme running though all of these AMD workforce development initiatives in Austin is simply this: take practical action to expand the pool of qualified workers and applicants available to the firm.

Numerous factors and motivations contributed to AMD's proactive role in training its workforce. AMD's Director of Human Resources joined the Mayor's Delegation for the study tour of the German Dual System. Through the High Tech Electronics steering committee, AMD officials learned what other firms were doing to connect with schools and students. AMD had existing Adopt-a-School relationships with Del Valle and Johnston high schools to build upon. Staff of the Capital Area Training Foundation served as brokers to make it happen from both the industry and school sides of the partnership. Perhaps most important, the firm was motivated by growing shortages of qualified applicants to staff its expansion plans in Austin.

Software Network Administrator: A New Career Pathway

A second example is an initiative underway to develop a career pathway in software and networking. The origin of this endeavor is instructive. A computer systems consultant to the health care industry (who was also a parent of a student at the school) was pressed into service to commit to finding paid summer internships for 35 juniors at Austin High School. When he initially encountered difficulties in developing the internships, he reacted with a constructive approach. He began inquiring among his business contacts and colleagues what skills high school students could have that would make them easy to place into internships. The response he gathered was revealing. If high school students knew computer applications, could install computer software such as printer drivers and fonts,

[11] *Austin American Statesman*, January 22, 1996, p. E-1.

could hook up a computer to a network, and be capable of a few other tasks, they could be easily employed at levels well above the minimum wage. Further, acquiring these skills did not require a college degree.

At the same time, a group of IBM employees had been working to develop a high school curriculum in software networking at another Austin high school on a similar initiative. CATF brought the two initiatives together to develop a curriculum, aiming to have it in place at the two schools by August 1996 for the start of the 1996-97 school year. After piloting in the two schools, the program will be made available to other schools across the region and throughout the state. Representatives from several other school districts have attended the development meetings to get a jump start in planning for implementation.

Part of the plans for this career pathway include providing work-based learning positions for participating students during summers between their junior and senior year, having industry personnel teach various modules, and preparing students for the existing skill certifications offered by the industry.

Success in Other Industries

Electronics is not the exclusive focus of CATF. The foundation has also been active in helping other industries develop partnerships with schools. A good example comes from the insurance industry.

Independent Insurance Agents of Austin: Project InVEST

The Independent Insurance Agents of Austin illustrates how an industry association can be an effective vehicle to reach small businesses. During summer 1995, the Independent Insurance Agents contacted the Capital Area Training Foundation requesting assistance to establish a program called Project InVEST (Insurance Vocational Education Student Training) in an Austin high school. CATF staff helped to broker a partnership with a teacher of a microcomputer applications course at Johnston High School. In preparation for the project, the teacher visited various independent insurance agencies to become better acquainted with the industry.

Developed nationally by the Independent Insurance Agents of America in 1980, Project InVEST teaches high school students basic business skills and provides access to job opportunities in the insurance industry. Through the project, teams of students establish insurance agencies and sell automobile insurance policies to their fellow students on a simulated basis. Each student takes a role, such as receptionist, underwriter, customer service representative, and office manager. By rotating jobs, participants gain experience in dealing with customers, processing applications, rating, and accounting. For many students the one-year program will result in an offer of employment because the program provides personal connections with industry and direct access to jobs.

Johnston's microcomputer class traditionally teaches word processing, spreadsheets, and data base applications. The insurance partners contributed insurance rating software that insurance agents use to calculate the rates that various insurance companies charge for policies. In addition the Independent Insurance Agents paid for instructional materials, and telephones in the classroom.

Industry representatives recruited by the Independent Insurance Agents of Austin and the Austin chapters of the National Association of Insurance Women and the Federated Insurance Women of Texas have visited classes nearly every week to assist the students, to make presentations, and talk with students. In addition, students are paired with industry mentors who are available to answer their questions about the industry. Each student compiles a individual portfolio, including his or her resume and samples of work using various microcomputer applications.

In several ways, the insurance industry offers an attractive target for school-to-work programs. The industry offers careers to both high school graduates and college graduates. The industry sponsors well developed continuing education programs with established national skill certifications, based on passing industry assessments. The resulting credentials, such as Customer Service Representative (CSR) or Certified Insurance Counselor (CIC), are portable across the country. Most independent agencies pay for their employees to take courses toward these certifications.

The insurance industry in Austin was motivated largely out of self interest to begin this program because it has a growing need for qualified applicants. Few high school students presently are informed about the insurance industry and several have negative views about it which has made it difficult to attract interested applicants. Many of the InVEST students now express interest in the insurance field, which they had never considered previously. But broader motivations come into play with participating industry representatives as well. As one of the organizers of the Austin project, Laurie Schaefer of the John A. Barclay Agency, says: "We see Project InVEST as an opportunity to support young people to make the connection between doing well in school and succeeding in business. We are hoping to foster relationships with students who will be interested in insurance careers, help them develop skills and knowledge needed in the insurance field, and at the same time make their coursework more relevant by tying it to the real world."

Frederick Bentley, the teacher, is enthusiastic about this program because it demonstrates to students direct workplace applications of what they are learning in school, as well as providing his students with access to careers in the insurance industry. Encouraged by his experience with the insurance industry, he envisions similar arrangements with other industries for the other sections of the microcomputer applications course he teaches.

Begun on a pilot basis in fall 1995, the project reached about 90 sophomores, juniors, and seniors during its first year of operations. The Independent Insurance Agents of Austin will evaluate the project in Spring 1996 and consider expanding it to other Austin high schools. Project InVEST operates in more than 200 localities in 30 states. The program in Austin is the only one in Texas.

LESSONS TO DATE

Engaging Employers Meaningfully in School-to-Work is Difficult even in Tight Labor Markets

The Austin experience is demonstrating what industry can accomplish voluntarily, prodded by a tight labor market. There is a need for other forces to maintain it during leaner times and to bring it to scale to match the need.

Certainly a tight labor market helps. It is no accident that the three most active industry sectors for CATF (electronics, construction, and consumer service management) were also those facing the

greatest shortfalls of qualified labor. By contrast, in health care and financial services, school-to-work activities have been overshadowed by concerns about restructuring and cost-cutting. But in targeting the most receptive firms likely to offer high quality work-based learning, additional characteristics matter as well. Robert Egloff, the Swiss apprenticeship expert on CATF staff, believes that three conditions need to be present for a firm to consider apprenticeships seriously:

(1) The firm must experience a severe shortage of qualified applicants;

(2) The firm must be under serious pressure to compete on the basis of quality; and

(3) The firm must be sufficiently profitable to be able to afford the investment.

Frank Peters, a member of the CATF Board of Directors, adds that there must be good business reasons for firms to take any action, including training youth.

Success requires the effective engagement of several people within a firm. The experience in Austin reveals that the best results occur in firms where there is commitment from the CEO or top-level executive, concurrence from the training and personnel staff, a "champion" or advocate with access to the top who is dedicated to implementing the effort and sensitive about mobilizing consensus within the organization, and support from production staff. With proper support, school-to-work initiatives in firms can be energized from the bottom by employee interest and motivation.

When schools and firms join in educating and training youths, they can produce higher levels of student motivation and performance. Employers are in a unique position to have positive influence on adolescents in both socializing and training them. Offering paid work as a reward to students who take demanding course work and achieve in school can provide an important student incentive.

Yet many American employers have considerable reluctance to hire and train youth. Getting employers to accept joint responsibility for the development of their future workforce is a major change in cultural attitude, which will take time.

If American business waits on the sidelines for school reform to improve schools, it is not likely to happen. However, lessons from CATF's first year demonstrate that schools will respond if business presents its needs and standards clearly and consistently and is willing to work patiently with schools to troubleshoot barriers.

Move Firms from Complaining about Problems of Schooling to Taking Action in their own Interest

There are at least three important stages of awareness on the part of firms in the school-to-work arena. The first is recognizing that public schooling is not serving their needs. Increasing numbers of firms are coming to this conclusion. The next two stages both involve doing something about it, but for different motives.

Many corporate partnerships have been established with schools motivated by community service. It is difficult to overemphasize how deeply rooted is the community service mentality toward schools among American employers. Robert Egloff, Austin's visiting Swiss training consultant,

continually expresses amazement at the difference between the reaction of American employers and European employers to receiving technical assistance. American employers commonly imply that they are doing a favor for the Capital Area Training Foundation to let them help design a training program for youths. In contrast, European employers view it as a valued service and pay consulting fees for it. Perhaps part of this attitude may stem from the fact that CATF services have been offered free-of-charge as a government-supported activity.

The chart below displays a range of responses to the question why employers participate asked of the staff of 16 innovative school-to-work programs studied by MDRC in 1993 (Pauly, Kopp, and Haimson, 1994, p. 123). The factors are displayed along a continuum from community service to self interest of the firm. The numbers indicate the ranking of frequency in which these factors were mentioned to MDRC researchers. Overall, the most popular responses reflected community service motivations whereas the responses reflecting the self-interests of the firm were mentioned less.

Community service

- The employer's interest in helping the students and the local community (#1).
- The employer's interest in maintaining a good image with local customers, residents, community leaders and employees (#4).
- The employer's interest in helping the industry (#2).
- The employer's dissatisfaction with the number of job applicants possessing adequate technical skills for specific jobs (#3).
- The employer's dissatisfaction with job applicants' academic and general work-readiness skills (#5).
- The employer's desire for opportunities to identify and assess good job applicants (#6).
- The employer's interest in using students as part-time workers (#7).

Self-interest of the firm

Generally the strategy in Austin has been to try to move firms motivated by community service and public image concerns into partnerships which have a more self interested approach in developing local youth as their own future workers. When possible, school-to-career activities are built onto Adopt-A-School relationships. This is not to say that community service motivations are abandoned as the firm moves more toward self-interest. Indeed, motivation is commonly mixed; multiple motives can be present simultaneously.

In America, moving to an investment mentality will require greater emphasis on return-on-investment (ROI) calculations to individual firms. By "growing their own" workers, firms can reduce their recruitment and screening costs, achieve lower turnover costs, and gain more influence over the career preparation process. However, as the Germans are quick to acknowledge, apprenticeship pays off only in the medium to long term. The short term time horizon of many American firms poses a significant impediment to their participation in school-to-career activities.

Promote Work-Based Learning as a Catalyst for Change

The Austin experience has demonstrated that firms can have a dramatic effect on the behavior of students. Usually it takes quite a while to recruit students into a new career pathway, but offering opportunities for work-based learning can accelerate this process substantially. By reserving high quality work-based learning assignments for students who are enrolled in career pathways, firms can

motivate students to take challenging courses to meet their labor needs. Several examples have illustrated the power of providing work-based learning and hiring graduates.

The experience of the Accelerated Careers in Electronics (ACE) Program developed by AMD at Johnston and Del Valle high schools offered of the best illustrations. Leander high school provided another. Leander high school, located to the northwest of Austin, was one of the first schools in the nation to develop and adopt a 2+ 2 program for electronics technicians in 1987. Student enrollment in the program remained low until Texas Instruments began to hire the students. Currently about 10 percent of each class cohort enrolls in the electronics program.

A contrasting example can be found at a high school in Southwest Austin which offered an electronics program for high school juniors. The program had no industry partner to offer work-based learning or jobs to the students, enrollment in the program lagged and it was dropped from the school curriculum. Students reacted to the program with the question: "Do I need this to graduate?" The answer was "no." In fact, it offered a more rigorous program of work for students. Although the program was the only one in electronics offered by any Austin high school in 1993-94, it had difficulty achieving enrollments even though it was open to students throughout the school district. The program closed down in Spring 1995 with the retirement of its teacher.

Failure to align hiring practices with student course selection can have adverse consequences, as experience with the instrumentation and control option in electronics at Austin Community College illustrates. With industry input, Austin Community College designed an advanced program option in electronics to prepare students for work in instrumentation and control. This advanced option required an additional semester of course work beyond the regular program for electronics technicians. But the diploma a participating student receives makes no mention of this specialty. Indeed, the only way to determine its completion is to examine a graduate's transcript. Employers offered neither hiring preferences nor any increased pay for completion of the extra course work. Thus nearly all students in the program have transferred from instrumentation and control to the shorter electronics technician program.

The health care academy at Crockett High School offered another example. Several Austin hospitals provided excellent opportunities for worksite observation for students enrolled in the health care academy during the school year, yet employers did not offer paying summer jobs and worksite learning experiences to students. Neither did they specify what they wanted students to know and be able to do until Spring 1995, after the committee had been meeting for several years. The involvement of health care professionals had not been focused and the Crockett academic goals and preparation were vague as a result. Now committee members expect that students from school programs they support will have the patient assistive skills necessary for entry-level health care jobs, and students will be eligible to take certification exams soon after high school graduation.

The key point here is that by aligning their hiring practices with their school-to-work preferences (e.g., conditioning hiring on students having a demonstrated interest in a field, being enrolled in the program and performing satisfactorily), firms can have a major influence on the behavior and performance of students and schools and can attract the interest and support of parents.

Pay Greater Attention to Developing High Quality Structured On-the-Job Learning

Some Austin firms did a splendid job in developing learning rich opportunities for their interns during summer 1995. AMD carefully selected adult mentors and oriented them to work with the 32 student interns. The supervisors and mentors in collaboration with each student planned an individual schedule of work that matched the student's goals with the company's needs. An Intern Coordinator developed written guidelines for the program and scheduled a series of internship activities, including internship orientation, training classes in safety, software applications, and other subjects, concluding the program with a banquet. The program was carefully evaluated through one-on-one weekly meetings between supervisors and students, through exit interviews conducted with all students by the Human Resources Department, and through follow-up surveys and interviews with both supervisors and interns conducted by an independent evaluator.

In its first major effort to hire high school students, IBM-Austin took a different approach from AMD. Rather than creating a separate internship program for students, IBM hired 32 high school students to fill regular positions across its facilities and sought to make connections between workplace skills and school work. IBM is carefully evaluating their experience through a written survey, roundtable discussions with managers and students, and individual interviews.

Unfortunately, not all the work-based learning opportunities made available by employers through the Capital Area Training Foundation have offered excellent learning experiences for students at the worksite. Some employers in the hospitality industry offered housekeeping jobs to teenagers, without providing rotational assignments or supplemental instruction to enrich the learning in the jobs offered. Quality control was lacking during the initial summer in 1995, largely due to the short time frame available to begin the initiative.

To some extent, this problem was self-correcting. Many of these jobs simply remained unfilled as students rejected them. However mis-labeling these positions as "internships" adversely affected the reputation of the Capital Area Training Foundation among students, educators, and parents.

Quality does not happen automatically. Industry consensus is needed on standards. Some employers need help in designing high quality work-based learning assignments. Assisting in the design of good work-based learning requires technical knowledge and skills on the part of staff of the Training Foundation. Employers collaborating with their workers, training experts, and educators can develop structured written plans outlining learning goals and assessment procedures at the worksite that mesh with learning in school.

In the future, CATF needs to give greater attention to the development of (1) structured work-based learning, (2) the training of worksite mentors, (3) improved connections between worksite learning and school-based learning, and (4) projects between students and industry partners that demonstrate the application of academic learning.

Emphasize Training to Full Qualification — Not Just Summer Internships

Since many employers were not accustomed to having teenage youth in the workplace, CATF encouraged summer internships as an interim step on the way to a more complete program of work-based learning. However, summer internships were offered by many businesses merely as a community service — not as investments in their future workforce. The ideal approach is for firms to examine their industry's needs and implement career pathways that develop the relevant skills and

knowledge to full entry-level qualifications through learning that integrates school-based and work-based components. But this depends on the willingness of firms to support schools that offer the needed programs — not just advising the schools to offer them.

Understandably, the initial focus of CATF has been on getting career pathways started in high schools and using the appeal of work-based learning to recruit students into the newly established programs. Largely neglected to date has been the postsecondary work-based portion of these pathways. Arranging work-based learning for community college students should be easier than the task of organizing work-based learning for high school students for several reasons. There are none of the barriers and impediments of child labor and insurance liability concerns with workers under age 18 on the job. Community college students generally are older and more mature than high school students and have taken more technical courses. Finally, many firms have generous tuition reimbursement programs.

Most of the firms participating in Austin's school-to-work initiative simply assumed that the best of their high school interns would return to work for the firm upon high school graduation and continue their education using the firm's tuition reimbursement programs. There are at least two problems with this strategy: First, while many firms offer generous tuition reimbursement plans, only full-time employees are eligible to participate and the firms offer limited flexibility in adjusting work schedules to accommodate educational classes. At the pace of one class per semester, a student-worker may take as long as ten years to complete an associate's degree. Secondly, learning at school and on the job are not well connected or integrated and thus the full power and potential of combining work-based learning with school-based learning is missed. Many students simply have jobs and are accumulating work experience— without the essential elements of workbased learning, including a structured learning plan, direction from worksite mentors or coaches, and evaluation.

The Texas Higher Education Coordinating Board has encouraged the incorporation of "external learning experiences" into postsecondary degree and certificate programs. Toward this end, the Board has expanded the array of recognized available worksite experiences to include cooperative education, clinical, practicums, internships, capstone experiences, and apprenticeships and opened the possibility of contact hour reimbursements from the State to postsecondary schools for organizing and monitoring these worksite experiences.

Focus on High-Growth, High-Skill, High-Wage Employment

Electronics is Austin's premier growth industry and is likely to remain so for several years; yet the training base to produce qualified "mid-tech" workers locally remains underdeveloped. At this point, even if 10 percent of all high school graduates chose to work in the electronics industry, the supply would not meet the needs of the industry for the foreseeable future.

In addition to its favorable outlook for employment growth, high tech electronics offers other advantages as well as a target of opportunity for school-to-work programs in the Capital Area. Career preparation for the high tech electronics industry requires a more demanding curriculum in high school, which raises expectations of student performance. Most of Austin's electronic firms require high skills, pay relatively high wages, and emphasize continued learning through industry training and college tuition reimbursement programs. Finally, the industry has an attractive image among students, parents, and the community.

Although high tech electronics should be a primary industry focus of CATF, it should not be its sole focus. In any case, CATF should aim to build pathways into high-wage, high-growth jobs that offer potential for career advancement.

Lessons from the Apprentice Exchange with Koblenz, Germany

As previously described, in January 1995, at the generous invitation of the *Handwerkskammer-Koblenz*, Austin sent thirteen youths to begin apprenticeships of their choice in Germany. A year later, seven of the thirteen were still in Germany pursuing their apprenticeships. Austin has learned a lot through this experience. Although this pilot effort is only half completed at this writing, some lessons are already apparent.

Establishing such an ambitious effort could not be considered without the generous, able and patient assistance of a German partner, such as *Handwerkskammer-Koblenz* and its director, Karl-Jurgen Wilbert and his competent staff. Nor would it be possible without the dedication and commitment of individuals in the Austin Sister City program who are familiar with the German culture and can resolve problems of mis-communications which inevitably arise.

Overall to date, the youths who persisted appear to be those who were most career oriented and intent on learning a particular trade. Yet most American youths lack career awareness in any depth. If Austin were to conduct this program again, a requirement should be that youths spend time at the worksites in the same trade in Austin before departing for Germany. This would offer the added advantage of engaging counterpart Austin employers in the initiative and it would help assure that jobs were available for the youths upon completion of the training. Also awareness of the program should be better disseminated to schools, teachers, students and parents to encourage early planning by prospects.

Commitment and perseverance are critical characteristics of the successful youth. Youths who have stayed have commented on the hard work involved in their apprenticeships, the dedication of their German counterparts, and the importance of persistence needed to complete the program.

A knowledge of the German language has proven to be important, especially for the school portion of apprenticeships. Only three of the thirteen youths had any prior knowledge of German. Although lacking facility in spoken German was not generally a major handicap for the on-the-job portion of the training, it offered genuine problems in the school (*Berufsschule*) portion of the program in which all instruction is conducted in German. The Austin sponsors recognized this problem and offered tutoring in German from a qualified instructor one evening a week for three months prior to the youths' departure. Similarly, the *Handwerkskammer* provides weekly German tutoring to all participating youth. But these measures have not been sufficient. After a year in Germany, the youths speak German proficiently, but some cannot read or write in German — which portends problems in passing the qualifying tests at the end of their apprenticeships. For future exchanges, more German language training is clearly needed. In addition to adding a preference for applicants with German language training in the U.S., one possibility may be to send the apprentices early and make arrangements in country "immersion language training" with the Goethe Institute for at least six weeks

prior to starting apprenticeships. Such training should include an orientation to cultural practices in German workplaces, schools and families as well.

The lack of secure financial support in Austin for the program has been a continuing problem. The experience has clarified the costs of such an exchange program. Participants and their families have borne the costs of travel. It turned out that living costs have amounted to approximately $4,000 per year beyond apprentice wages. The initial plan was to have the youths stay with Koblenz families recruited by the sister city program, but this idea turned out to be unrealistic for a two-year stay — without some form of subsidy to the sponsoring family. The Mayor's Task Force has raised funds to help subsidize the pilot group in small contributions from businesses and individuals in Austin. However, in any future programs, the burden of financing the program necessarily will be on the participants and their families. Sources of loans can be identified to help families who do not have readily available funds. Scholarships could be added for youths who cannot afford to participate without such financial assistance.

If the program is to exist beyond the initial group of students, it must become a bilateral arrangement with Germans coming to Austin for training as well as Austin youth participating in apprenticeships in Koblenz. Moreover, its value as a device to educate the Austin business community about the value of workbased learning and apprenticeship needs to be further developed.

Intermediary Role is Important

Negotiating agreement and implementing action on the development of career paths between industry and schools requires time, patience, and persistence. A connector organization has to have staff that truly understand both business and school cultures and can interpret and clarify expectations for both sides. Non-profit intermediaries, such as the Capital Area Training Foundation created in Austin, can be helpful brokers to facilitate progress.

Every success of school-to-work in Austin, including the programs with Advanced Micro Devices and the independent insurance agents of Austin, has required significant brokering activities. In a current development, an initial proposal developed by a high school for a computer-assisted design (CAD) academy has been transformed into broader curriculum focus on Engineering Design Graphics. To access laboratory equipment for this program, CATF staff are brokering a partnership with Austin Community College to upgrade and make more intensive joint use of the college's computer laboratory facilities which already located on the high school campus.

In forming the Capital Area Training Foundation, Austin purposefully decided to create a new organization that would be unencumbered by baggage associated with any existing organization. Forming a new organization offered several advantages. Mainly, it offered the opportunity to create its own image. It offered great flexibility to serve as a connector between firms and schools without being hampered by the reputation or operational constraints of an existing organization. However, forming a new organization also significantly increased the challenges and multiplied the tasks to be accomplished during the first year of implementation. Creating a new organization involved recruiting and selecting a Board of Directors and staff, establishing personnel and fiscal procedures sufficient to satisfy government auditors, equipping an office, and achieving credibility — while simultaneously implementing a new program — has not been easy.

The Austin experience has demonstrated that industry is concerned with workforce development issues generally, of which school-to-work is only a component. Industry also has a regional labor market perspective and is not concerned with political boundaries. To maintain the attention of employers, industry steering committees need to address their industry's workforce development interests rather than focusing only on school-to-work issues. CATF staff have emphasized school-to-work, but at least two of the steering committees — construction and metalworking — initially decided against providing work-based learning to students in high school due to the potential liabilities of having youth below age 18 on the worksite. In metalworking, employers established an apprenticeship program and recruited initial candidates from among incumbent workers. Most of the attention of the construction steering committee has been devoted to the design and implementation of a Construction Gateway program, a short-term training program offering instruction in tool use and safety training and certification to prepare unemployed or under employed workers to enter the construction industry. By fall 1995, however, both committees were exploring the development of high school academies with local high schools. This has been a significant step for employers because many of them knew that the Austin school district had used building trades programs as a dumping ground for special education students and those with behavioral problems.

The initial intention was to organize industry to offer career pathways for area youth. The CATF did recognize that in-school catalysts were needed to help Austin area schools to learn to be receptive to industry. During the first two years of implementation, most of the staff time, energy and resources of the Capital Area Training Foundation went into efforts to build a base of support within schools.

On Recruiting and Sustaining Industry Participation

The Austin experience has demonstrated that retired industry personnel can be a valuable resource for helping to implement school-to-work. Six retired industry executives work with the CATF, most on an unpaid basis. They serve as executive director, operations director, and steering committee facilitator. Three serve as industry liaisons who manage industry accounts and support steering committees. Of course not all volunteers have worked out well. Volunteers who work only irregularly have been the least helpful; due to their limited participation, they are not sufficiently informed to provide effective assistance.

The CATF experience to date has generally confirmed that the use of peer networks is a promising means to motivate action. A telephone call from a respected associate in the same industry is often the best recruiting device.

Arrange Permanent Sources of Support

An important part of institutionalizing school-to-work opportunities involves finding a way to support it over the long run. Austin initially examined the possibility of investing five percent of the increment in property taxes paid by commercial and industrial interests each year into a dedicated fund for training local residents. But it was decided that this would be politically infeasible until the value of the program could be demonstrated to taxpayers.

In the face of rapidly rising taxes rates on residential properties, tax abatement for industry is not a popular idea. Although Austin made use of tax abatements and other incentives to promote the growth of employment during the 1980s, tax abatements had not been offered since 1990. Moreover, not much attention had been given to help assure that local residents obtained the jobs created. As a result, many jobs that could have been obtained by local residents have been filled by applicants from others states and areas. The added population has increased the burden of building additional infrastructure (streets, roads, water and waste water facilities, schools, etc.) and has increased environmental pressures, contributing to urban sprawl and environmental degradation.

Some progress was made in Spring 1995 when the opportunity arose for a tax abatement package to attract wafer fabrication facilities in the semiconductor industry. With assistance from The Austin Project, the Greater Austin Chamber of Commerce, and the Capital Area Training Foundation, City of Austin and Travis County officials agreed on a tax abatement design that included incentives to hire local residents and funding to train residents. The incentives were limited to establishments whose new capital investment in new plant and equipment was at least $50 million dollars and at least $250,000 per new job created. The establishment has to sell a majority of its products or services to customers outside the Austin Metropolitan Area. The following incentives would be offered to qualifying firms on their city and county property taxes for up to 10 years:

(a) Forty percent (40%) of applicable property taxes on the improvements will be abated outright.

(b) The firm can earn up to an additional 15 percent in "grant-backs" if it fills forty (40%) percent (or 7.5 percent if it fills twenty percent) of its jobs with Travis County residents whose household income is at 80 percent or below the median income in the county.

(c) Twenty percent of the taxes will be set aside for training local residents administered by the Austin/Travis County Workforce Development Board.

(d) Twenty-five percent of the tax will be collected and used to provide property tax relief to all other taxpayers in the county.

Final decisions are to be made on a case-by-case basis. No school taxes are abated in this offer.

As an interim arrangement until the Workforce Development Board became established, training will be administered by a collaboration between the Austin/Travis County Private Industry Council and Austin Community College. Training funds could be used for school-to-work activities with youth as well as for training adult workers.

The package was politically successful in large part because it was narrowly targeted at capital intensive firms for which Travis County was in strong competition from Portland and other cities. It offered an important innovation in dedicating the new tax monies to training. Of all the measures in the incentive package, the training initiative received the most favorable public comment. But the future for extending and expanding this source for training will depend on how well the proposed training efforts in electronics are implemented.

In January 1996, Samsung announced that it would build a $1.4 billion semiconductor fabrication plant in Travis County — the first of possibly as many as three facilities. Initial projections predicted that the training provision of the tax incentive would yield up to $28 million over a 10-year

period from this plant alone; but subsequent estimates taking account of accelerated depreciation show an estimated yield of about $7 million.

As the federal resources for workforce development are reduced and the continuation of federal support for school-to-work opportunities becomes uncertain, cities and counties must turn to local sources to fund such initiatives.

Improve Evaluation

The Capital Area Training Foundation established 12-month objectives which were operational tasks to be accomplished and announced 10-year goals to improve student completion through school and placement into the workforce. Needed are measurable intermediate benchmarks of performance. These intermediate goals need to become part of the vision. Progress needs to be assessed and publicly reported on a regular basis.

If the school-to-work movement is to be sustained, Austin needs publicly announced benchmarks to which the community subscribes and reports of progress against these goals on a regular basis. Until some sort of accountability system which includes a reliable longitudinal follow-up information is in place, neither approach will likely produce the intended results. Evaluation of school-to-work programs will remain primitive, based on enrollments and activities rather than results.

A major shortcoming is the lack of systematic longitudinal information regarding the status of students in jobs and learning systems beyond high school. The most promising source of information to resolve this deficiency may be the Unemployment Insurance Wage Record system. [12] Other fundamental problems include the lack of a consistent definition of who should be counted as students participating in school-to-career systems.

Enlist the Leadership of Local Elected Officials

Local elected officials can provide a critical leadership role in developing school-to-work transition efforts by leveraging support from industry representatives and fostering the creation of ongoing organizational structures to support school-to-work transition and workforce development.

In a 1995 publication, the National League of Cities Advisory Council outlined several roles for municipal governments can play in building "learning communities," including:

– As model employer
- As economic development policy maker
- As advocate for access and equity
- As surveyor of community needs and assets
- As lead visionary and communicator
- As a source of funding and support for promising programs [13]

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[12] Texas State Occupational Information Coordinating Committee, *Automated Student and Adult Learner Follow-Up Study*. Austin: Texas State Occupational Information Coordinating Committee, August 1994.

[13] National League of Cities, *Building Learning Communities: Workforce Development and the Future of Local Economies*. Washington, D.C.: National League of Cities, 1995, p. 10.

The City of Austin has played all of these roles with respect to Austin's developing school-to-career system and the Capital Area Training Foundation.

FUTURE OUTLOOK

During the past two years, considerable progress has been made in developing a school-to-career system in Austin and the Capital Area. But many challenges and much work lie ahead. At this point, it is clear that the school-to-career movement in the Capital Area will persist, but it is less certain exactly what future forms it will take.

A Turbulent Year

By any standard, 1995 was a year portending dramatic changes in employment and training both nationally and in Texas. The legislative landscape is changing so that school-to-work activities may be incorporated into some form of national block grants to states for workforce development. Within Texas, school-to-work will ultimately become the function and prerogative of the regional Workforce Development Boards, one of which is currently being established in Austin/Travis County with a separate board being formed in the nine Capital Area counties surrounding Austin.

The implications for school-to-work efforts in Austin are significant. The initial promise of five years of renewable federal "seed monies" dedicated to building a local school-to-work partnership will likely be reduced. Beginning in 1997, school-to-work must compete with other priorities in workforce development system. School-to-work is a long run investment strategy and a relatively new initiative. How will it fare against competing shorter term needs and more established interests? The Capital Area Training Foundation has tried to meet this challenge by recommending the appointment of school-to-work advocates to the Austin/Travis County Workforce Development Board. It was successful in advocating for 13 of the 31 members appointed to the Board.

The Austin effort faces numerous challenges. For example, although school-to-work efforts began in the city of Austin, industry prefers a regional approach. This means working with up to 43 school districts across the 10-county Capital area. Given limited resources and rising expectations for school-to-work activities, how can focus be achieved to produce meaningful accomplishments across such a broad area?

Many of the smaller school districts in the suburban and outlying areas can take quick action. In contrast, the Austin Independent School District, the largest in the region with forty percent of all students and most of the minority and low income students, is widely regarded as the most bureaucratic and difficult to move. Further, many central city minority parents fear that school-to-work programs will become a new way to track their children into low expectation non-college options. Given these circumstances, how can Austin best assure that low income and minority youths benefit from efforts to develop school-to-work opportunities? At the same time, it should be noted that one significant advantage that Austin has over many other cities is that most of the best jobs available still remain concentrated in the city.

Expanding Vision and Shrinking Resource Base

There is no clear consensus vision of school-to-work. It means many things to many people. Further, it is changing and evolving and growing in its ambitions. From its roots in the 1980s, the vision of the school-to-work movement has grown from a primary concern for the "forgotten half" of students who do not go to college (William T. Grant Foundation Commission on Work, Family and

Citizenship, 1988) to a vision of school reform with benefits for all students. In its more recent incarnations, the school-to-careers movement offers an approach to enlist business support and participation to radically restructure American high schools, raising standards and eliminating the general track and dissolving the distinction between college-bound and non-college bound in order to keep options for further education open for all young people. In short, the aim now is to prepare all students for college and careers.

The current school-to-work movement emphasizes new instructional approaches that weave contextual learning with academic knowledge so that students will be able to apply what they learn in active, learning-by-doing settings. This means more than simply integrating, combining, or blending vocational and academic courses. It is consistent with other educational reforms that include restructuring, yet it requires clear guidance from and the significant involvement of business and industry.

Such a comprehensive vision is unlikely to be accomplished in a local school district or region on its own. Such reforms will require state-level systemic changes in education, including improvements in curricular frameworks which facilitate and promote alignment, a coherent system for implementing industry skill standards and assessments, a system of pre-service and in-service professional development to support the changes, and assessable measurement systems to evaluate performance over the long run.

But more than vision is required. Implementation is equally important. To be of any use, attractive concepts and ideas must be converted into action.

Bringing School-to-Work and Tech Prep Together

During the 1994-95 school year, the Capital Area Tech Prep Consortium re-incarnated itself as the "Capital Area Tech Prep/School-to-Work Consortium" for the Capital region under a Texas statewide planning process. This effectively set up two entities competing for the same territory, the Capital Area Training Foundation and the Capital Area Tech Prep/School-to-Work Consortium. The base of support, the operating philosophies and procedures, and governance structure of these two organizations are quite different. Each has its own strengths and weaknesses. Taken together, the two entities are remarkably complementary.

The Tech Prep Consortium is primarily a school-based entity whereas the Capital Area Training Foundation was established intentionally as an industry-led organization. The Tech Prep Consortium receives its strongest support from outlying rural and suburban school districts and tends to advocate for them. The Training Foundation was initiated in Austin with the assistance from the City of Austin and the Greater Austin Chamber of Commerce and has focused much of its efforts on the Austin school district.

The Capital Area Tech Prep Consortium has an established track record in obtaining Texas state agency approval for articulated degree plans which combine high school and community college courses. The CATF has relied on the expert facilitation of CATPC staff in bringing these articulated courses to the Austin school district. Through these agreements, high school students can obtain college credits for course work they take in high school. These "advanced degree" plans usually contain additional college course requirements leading to more advanced skills, resulting in students

taking the full regular two years in community colleges. At this point, it is unclear how many students are completing these advanced programs.

More than 32 school districts belong to the consortium and since most send at least one representative to meetings, they far outnumber the employers, many of whom soon stop attending. The result is that meetings of the Capital Area Tech Prep Consortium are generally dominated by school representatives. The Capital Area Tech Prep Consortium has successfully engaged the participation of certain vendor businesses to schools (such as software vendors), but they participate more as suppliers to schools rather than customers.

In contrast, the Training Foundation has focused on organizing employers, who comprise more than two-thirds of the membership of its Board of Directors. To date, CATF Board of Directors meetings have successfully achieved a quorum of industry participants at every meeting. More than 200 employers have participated with CATF in its activities.

The Foundation also has taken a different strategy from the Tech Prep Consortium with respect to the allocation of its resources. With limited funding, the CATF Board of Directors tried to focus its efforts and resources on selected high schools, along with the elementary and middle schools that feed them, to create models or pilots that demonstrate what is possible to other schools. The initial year invitations were circulated to high schools, along with an application form that had to be returned for the school to be considered. During 1994-95, twelve high schools received career centers and six were staffed with career specialists. [14] The idea was to implement systemic changes in the chosen schools and then move on to work with other schools while teams of staff at the initial schools picked up the responsibilities for maintaining the system.

In contrast, the Tech Prep Consortium offers to work with all interested schools across the region, relying mostly on the resources of schools and volunteers. Tech Prep has allocated approximately a third of its budget to administration and communication; a third is distributed to participating schools — half to the community college and the other half in equal shares to participating high school clusters who agree to abide by reporting requirements and other conditions. In 1995, the amount per school cluster was $1,000. The final third of the budget is used to fund a "pockets of innovation" small grants program that has offered schools up to $12,000 to undertake innovative projects. The Tech Prep Consortium then attempts to showcase the innovations to get them replicated across the region.

The Capital Area Tech Prep Consortium has not provided staff funding for school districts, requiring the school districts themselves to staff Consortium activities. As a consequence, the Consortium works with the districts that have been the most responsive. These are generally smaller districts with a single high school and central office staff who are available to assist. Also such districts have less bureaucracy and shorter chains of commands which expedites decision making.

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[14] In practice, maintaining strict focus has proven difficult for CATF. Other schools than those initially targeted have worked with industry partners, demonstrating great initiative and the Capital Area Training Foundation responded favorably to these initiatives. Anxious to get programs serving students up and running and prodded by business partners allied with other schools, the Foundation ended up making grants to get career pathways begun in two high schools and to a career exploration program in an elementary-middle school that were not among the schools initially selected for focus.

On the other hand, the Capital Area Training Foundation funded career specialists to work in the schools, reaching out to industry. These specialists were located in the high schools. During the first year, the "buy in" to the program on the part of the Austin school district was not clear. Without commitment from the schools, there is a danger of school-to-work simply becoming an "add on" program which is dropped when the outside funding ceases.

The competition between the city and the region is complicated by the unfavorable political relationships between Austin-Travis County and the outlying governmental entities, fueled by past fights over annexation, environmental regulation, competition for industrial relocations, and other issues unrelated to workforce development or school-to-work. In the arena of employment and training, the outlying counties and municipalities argue that to serve a widely distributed population effectively, they incur extra transportation costs and cannot achieve the economies of scale available to urban programs. The city and Travis County counter-argue that it is more expensive to serve the greater proportions of disadvantaged populations which are concentrated in the central city. Each alleges that the other has taken advantage in past resource allocation schemes, although no one seems to be able to cite specific recent examples of this behavior.

The political environment has also been complicated by uncertainties regarding funding at the national and state levels. Vocational educators feel threatened by the possible loss of federal funds for vocational education that may occur through consolidation of school-to-work and vocational education funding into block grants to states and regions. To maintain control over these funds, vocational educators have been repositioning themselves as school-to-work entities.

The multiplicity of entities dealing with school-to-work in the Capital Area have confused and frustrated some employers and resulted in extra administrative burdens. Employers prefer a regional labor market wide approach, which ignores political boundaries. They prefer to consolidate the entities and have a single point of contact. Employers also tend to take a broader perspective of workforce development, of which school-to-work is only one component.

The Training Foundation and the Tech Prep Consortium may be coming together. Negotiations between the boards of directors of the two organizations are currently underway. There are some hopeful signs, including collaboration in the development of the new career pathway for software network administrators, coordination of professional development activities for educators, and cooperation in the development and publication of brochures on career pathways in the Capital area.

The Outlook for a School-to-Careers System within the Austin School District

The Austin school district is the largest in the Capital region and has the highest concentration of minority students. During the 1993-94 school year, Austin ISD had 40 percent of total enrollments in the region, including 65 percent of all African American enrollments, 53 percent of all Hispanic enrollments, and 52 percent of the disadvantaged students.

At the same time, the central city school district in Austin has the well deserved reputation of being the most difficult to change within the entire region. It is by far the largest and most bureaucratic. Also, administrative stability has been a problem. In the five years since the Greater Austin Chamber of Commerce has been active in the school-to-work arena, the Austin school district has had five superintendents (two of whom served on an interim basis).

The Foundation underestimated the time, effort, and resources required to change schools, especially within the central city school district. CATF career specialists faced a daunting set of assignments — serving as the contact point with industry to educators and students (for recruiting and screening students into summer internships, for example), becoming "change agents" in the schools, offering technical assistance and professional development to school personnel, and organizing feeder schools and the surrounding community, including adopt-a-school partners, to start school-to-work activities. The first year, the career specialists set up systems (e.g., career centers, procedures for providing career counseling of students) and provided direct service to students (e.g., assistance with individualized career plans).

The relationship between the Capital Area Training Foundation and the schools has evolved and strengthened over time. To participate the second year, principals in cooperating schools had to agree in writing to a more demanding set of conditions which included establishing school-to-work teams in each high school cluster. The career specialists moved from spending their time on direct service to students to the role of facilitator in providing technical assistance and guidance to help the team at the school accomplish school-to-career tasks. The school-to-work teams make decisions on what is to be accomplished, how, and by whom. For example, individualized career planning for all ninth graders may be accomplished in English classes or it might be assigned to counselors.

The first year, the commitment of the Austin school district was uneven, especially among middle managers. During the second year of implementation, there were some positive signs of movement within the Austin ISD. The district central office began an initiative to establish a career academy in each of its 10 high schools. School-to-work issues were explicitly addressed as a component in the District's new comprehensive long range plans being developed in Spring 1996. The superintendent mandated all school counselors to participate in a program of industry field visits arranged by the Greater Austin Chamber of Commerce and the Capital Area Training Foundation. During 1995-96, school counselors visited employers in high tech electronics, health care, and the hospitality industries. In addition, each counselor was responsible for arranging a fourth tour on his or her own and reporting on it. Discussions began between Austin ISD and Austin Community College about the possibilities of sharing education and training facilities.

An unforeseen development has negatively affected the availability of resources for school-to-career activities in Austin. The budgets of the Austin school district and several other school districts in the Capital region were adversely impacted by the state equity measures because rising property values pushed them into a higher wealth classification on the state's school financing program. Under the new equity arrangements implemented by the Texas legislature, higher wealth districts receive less funding from the state. For the Austin school district, this meant more than a $20 million reduction in state resources coming Austin schools for the 1995-96 school year in a budget of $380 million. A reduction of a similar magnitude was anticipated the following year. Faced with decisions to lay off teachers and increase average class sizes at all of its high schools, Austin ISD offered only dim prospects to pick up the expense of additional non-teaching personnel during the first two years of the federal grant. Negotiations are underway to help assure that the Austin school district undertakes this responsibility in the third year, however.

Improving the Responsiveness of Schools to Shifts in the Labor Market

Employers don't communicate their upcoming needs for workers to schools effectively. In fact, often they do not sound the alarm until their applicant pool is depleted. Such short notice presents problems especially in occupations that require relatively lengthy training times. Part of the reason for this lack of foresight is that employers often honestly cannot predict shortages. Further, as long as employers can obtain suitable workers from any source, they are satisfied and generally many workers are willing to relocate for coveted high skill, high wage jobs.

At the same time, the response of Austin schools to the area's expanding economy has been remarkably sluggish. From 1993 through 1995, in the face of a certain build-up due to construction of new semiconductor manufacturing facilities at both Motorola and AMD, Austin Community College was unable to expand its capacity to teach electronics and the Austin school district let the only course in industrial electronics lapse on retirement of its teacher. Much remains to be accomplished in aligning labor market supply and demand to improve access for local residents to the expanding better jobs in the community.

Participation of Workers and their Organizations

Austin is a non-union city located in a right-to-work state. Union members constitute no more than an estimated four percent of the private sector workforce and they are largely concentrated in selected construction trades and in the telephone company. However, most larger firms in Austin make use of some form of Total Quality Management (TQM) emphasizing worker empowerment. The low rates of union participation are reflected in the governance structures of the Capital Area Training Foundation and the Capital Area Tech Prep Consortium. As of March 1996, only one of twenty members of the Foundation's board of directors was a union representative. Likewise, there was only one active union representative in the Tech Prep Consortium.

At the same time, firms have been quite responsive to the concerns of incumbent workers about developing training programs for youth. For example, the metalworking-manufacturing industry committee formed a registered apprenticeship program, reserving all of the initial training slots for incumbent workers. Only after the supply of incumbent worker candidates diminished has the group sought to establish links with a high school as a source of applicants for training. In another example, the managers and supervisors of one Austin major firm, in experimenting with a pilot career pathways program for youth, identified fairness to incumbent workers and to contract workers as two of their key concerns in developing the new program. [15]

Worker and union perspectives have also been sought in the design and operation of training. For example, in the establishment of the Construction Gateway program, input was solicited from apprenticeship directors of programs in both the union and non-union sectors.

However, the Capital Area Training Foundation has established no general guidelines regarding worker input. The matter has been left to each firm or industry as they saw fit.

Employers as Part of a Broader Partnership

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[15] Sharon Ann Knotts Green, *School-to-Work: An Employer's Views*. Austin: Ph.D.dissertation, The University of Texas at Austin, 1996, p. 161.

As key partners in school-to-work, employers are only part of a broader partnership that includes students, their parents, workers and educators. The special challenges are to find ways to organize employers to give effective voice to their legitimate concerns and to engage all of the partners without smothering or repelling employer participation.

The Austin experience has been focused on the mission of mobilizing employers in the Capital Area to play a major role in the school-to-work transition process. It has demonstrated that in healthy economic climate, employers will become involved with an organizational strategy that reaches out and engages them.

However, other partners must certainly participate in any effective school-to-work movement. Employer interests cannot dominate all aspects of the school-to-careers system without some community checks on their behavior. Indeed, youth and their parents may have the largest stake in preparing students for good jobs within a labor market. Many employers don't care where their workers come from as long as they are qualified and they don't have to pay too much for them in recruiting, screening, relocation, and compensation costs.

At the same time, a school-to-career partnership without engaged employers is doomed to failure. Can an approach be identified that engages employers through specialized outreach while simultaneously involving the full partnership at the same time? Perhaps a key is to outline the appropriate roles and relationships. The use of terminology as "employer led" or "school led" may be at best misleading and at worst simply inflammatory. Each group has valid and important roles to play. Employers must lead in pointing the direction for training, in determining the occupations for which training is offered, identifying skill standards, and developing curriculum frameworks that are clear and useful to educators, rewarding students who meet expectations, and providing opportunities for career exploration and work-based learning. Educators, in turn, must take the lead in devising curricula and instruction to meet the standards identified (where work-based learning is offered, in collaboration with employers). In short, developing pathways that offer students efficient transitions into careers is a joint responsibillty of industry and schools.

Sustained Efforts Required

Clearly progress has been made in Austin and the Capital Area to engage the employer community in school-to-career initiatives. Firms within an industry have begun to discuss a common approach to schools. Corporations that have not hired teenagers in the past employed as many as three dozen high school students as interns in summer 1995. With support from the Greater Austin Chamber of Commerce and the Mayor of Austin, school-to-work has gained the attention of the business community. The development of a "market-ready workforce" remains one of the Chamber's top goals. More than in other cities, firms are providing time, money, and in-kind contributions to the effort.

Changing patterns of behavior of employers and schools that have been in place for decades is a long run endeavor. Yet federal "seed money" is available only for the short run. Moreover, rather than five years of federal assistance originally envisioned in the School-to-Work Opportunities Act of 1994, national support for school-to-work implementation grants may be available for a shorter period of time. Other sources of financing must be identified and implemented and school-to-work must become a prominent objective of the newly forming Austin/Travis County Workforce Development Board.

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APPENDIX A:
STATISTICAL PROFILE OF THE CAPITAL AREA

Table 1. Enrollment in Capital Region School Districts, by Selected Characteristics: 1993-94.

County /School District	Total Enrollment	As % of Region	African American	African American	As % of Region	Hispanic	Hispanic	As % of Region	Eco Disad	Eco Disad	As % of Region
	#		%	#		%	#		%	#	
Travis County											
Austin ISD	71,664	39.7%	19%	13,616	65.3%	38%	27,232	52.6%	48.8%	34,972	52.3%
Del Valle ISD	4,625	2.6%	14%	648	3.1%	51%	2,359	4.6%	60.8%	2,812	4.2%
Eanes ISD	6,828	3.8%	0%	0	0.0%	4%	273	0.5%	2.7%	184	0.3%
Lago Vista ISD	581	0.3%	1%	6	0.0%	7%	41	0.1%	32.0%	186	0.3%
Lake Travis ISD	2,246	1.2%	0%	0	0.0%	9%	202	0.4%	12.8%	287	0.4%
Manor ISD	1,617	0.9%	23%	372	1.8%	32%	517	1.0%	56.3%	910	1.4%
Pluggerville ISD	8,267	4.6%	11%	909	4.4%	18%	1,488	2.9%	15.2%	1,257	1.9%
TX School for the Blind											
TX School for the Deaf											
Bastrop County											
Bastrop ISD	4,725	2.6%	10%	473	2.3%	23%	1,087	2.1%	41.8%	1,975	3.0%
Elgin ISD	2,326	1.3%	16%	372	1.8%	33%	768	1.5%	47.7%	1,110	1.7%
McDade ISD	102	0.1%	3%	3	0.0%	15%	15	0.0%	43.1%	44	0.1%
Smithville ISD	1,520	0.8%	14%	213	1.0%	19%	289	0.6%	47.0%	714	1.1%
Blanco County								0.0%			0.0%
Blanco ISD	719	0.4%	2%	14	0.1%	25%	180	0.3%	37.7%	271	0.4%
Johnson City ISD	566	0.3%	0%	0	0.0%	20%	113	0.2%	35.7%	202	0.3%
Burnet County											
Burnet Cons ISD	2,280	1.3%	2%	46	0.2%	18%	410	0.8%	39.6%	903	1.4%
Marble Falls ISD	2,714	1.5%	2%	54	0.3%	20%	543	1.0%	44.7%	1,213	1.8%
Caldwell County								0.0%			0.0%
Lockhart ISD	3,721	2.1%	9%	335	1.6%	46%	1,712	3.3%	47.3%	1,760	2.6%
Luling ISD	1,499	0.8%	11%	165	0.8%	43%	645	1.2%	57.2%	857	1.3%
Prairie Lea ISD	189	0.1%	12%	23	0.1%	33%	62	0.1%	74.6%	141	0.2%
Fayette County								0.0%			0.0%
Fayetteville ISD	223	0.1%	5%	11	0.1%	0%	0	0.0%	15.2%	34	0.1%
Flatonia ISD	520	0.3%	8%	42	0.2%	37%	192	0.4%	41.5%	216	0.3%
La Grange ISD	1,930	1.1%	11%	212	1.0%	14%	270	0.5%	34.4%	664	1.0%
Round Top-Carmine ISD	218	0.1%	8%	17	0.1%	4%	9	0.0%	18.8%	41	0.1%
Schulenberg ISD	700	0.4%	17%	119	0.6%	10%	70	0.1%	31.1%	218	0.3%
Hays County								0.0%			0.0%
Dripping Springs ISD	2,127	1.2%	1%	21	0.1%	8%	170	0.3%	13.2%	281	0.4%
Hays Cons ISD	4,844	2.7%	2%	97	0.5%	37%	1,792	3.5%	33.3%	1,613	2.4%
San Marcos ISD	6,441	3.6%	4%	258	1.2%	61%	3,929	7.6%	49.6%	3,195	4.8%
Wimberley ISD	1,192	0.7%	1%	12	0.1%	5%	60	0.1%	19.0%	226	0.3%
Llano County								0.0%			0.0%
Llano ISD	1,288	0.7%	0%	0	0.0%	9%	116	0.2%	35.9%	462	0.7%
Lee County								0.0%			0.0%
Dime Box ISD	212	0.1%	26%	55	0.3%	61%	129	0.2%	57.1%	121	0.2%
Giddings ISD	1,746	1.0%	17%	297	1.4%	27%	471	0.9%	45.4%	793	1.2%
Giddings St Hm and Sch								0.0%			0.0%
Lexington ISD	878	0.5%	14%	123	0.6%	6%	53	0.1%	31.7%	278	0.4%
Williamson County											
Coupland ISD	117	0.1%	5%	6	0.0%	8%	9	0.0%	31.6%	37	0.1%
Florence ISD	694	0.4%	1%	7	0.0%	11%	76	0.1%	27.2%	189	0.3%
Georgetown ISD	5,531	3.1%	3%	166	0.8%	20%	1,106	2.1%	23.2%	1,283	1.9%
Granger ISD	334	0.2%	11%	37	0.2%	25%	84	0.2%	44.6%	149	0.2%
Hutto ISD	681	0.4%	5%	34	0.2%	16%	109	0.2%	25.0%	170	0.3%
Jarrell ISD	460	0.3%	2%	9	0.0%	25%	115	0.2%	45.7%	210	0.3%
Leander ISD	7,178	4.0%	2%	144	0.7%	10%	718	1.4%	20.9%	1,500	2.2%
Liberty Hill ISD	1,032	0.6%	1%	10	0.0%	15%	155	0.3%	33.5%	346	0.5%
Round Rock ISD	22,887	12.7%	6%	1,373	6.6%	14%	3,204	6.2%	15.7%	3,593	5.4%
Taylor ISD	2,527	1.4%	20%	505	2.4%	36%	910	1.8%	49.6%	1,253	1.9%
Thrall ISD	481	0.3%	9%	43	0.2%	19%	91	0.2%	42.8%	206	0.3%
Total-Capital Region	180,430			20,847			51,775			66,878	
				11.6%			28.7%			37.1%	

Source: Calculated from
Texas Education Agency,
Snapshot '94 (Austin: Texas Education Agency, 1995).

Table 2. Profile of the Capital Area:

Population, Employment, Wages and Employers: 1994

County	Population		Employment		Total Wages		Reporting Units	
Bastrop	42,350	4.1%	7,683	1.5%	$ 144,302,085	1.1%	579	2.3%
Blanco	6,890	0.7%	1,766	0.3%	$ 33,736,132	0.3%	196	0.8%
Burnet	25,270	2.4%	6,483	1.3%	$ 114,059,018	0.9%	661	2.6%
Caldwell	27,681	2.7%	5,861	1.2%	$ 99,625,804	0.8%	509	2.0%
Fayette	21,206	2.0%	7,392	1.5%	$ 146,471,026	1.1%	671	2.7%
Hays	74,229	7.2%	24,962	4.9%	$ 443,049,080	3.5%	1420	5.7%
Lee	13,599	1.3%	4,792	0.9%	$ 99,839,678	0.8%	386	1.5%
Llano	12,142	1.2%	3,137	0.6%	$ 56,252,452	0.4%	356	1.4%
Travis	643,437	62.1%	404,462	79.9 %	$ 10,844,391,650	84.7%	17741	70.9%
Williamson	169,168	16.3%	39,677	7.8%	$ 826,860,549	6.5%	2520	10.1%
Total Capital	1,035,972	100%	506,215	100%	$12,808,587,474	100%	25039	100%

Sources: Population data are from the Capital Area Council of Governments. Other data are unpublished tabulations from the Texas Employment Commission.

Source: Calculated from
Texas Education Agency,
Snapshot '94 (Austin: Texas Education Agency, 1995).