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AUTHOR Goldberger, Susan; And Others
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ABSTRACT

This technical assistance guide is written to help practitioners and policymakers involve large numbers of employers in providing high quality learning experiences in the workplace. Section I discusses the challenge of the school-to-work transition and guiding principles for new efforts. Section II focuses on strategies for recruiting and maintaining meaningful employer involvement. Through lessons from the field, it provides advice to help new programs do the following: clarify roles and responsibilities of participating employers, target employers who are most likely to participate, approach employers in ways they trust, and maintain and deepen employer participation. Section III focuses on how to organize, structure, deliver, and assess learning experiences at the worksite. It is organized around 10 basic design elements that begin with the nature of the partnership and its goals, move through the structure and content of the workplace experiences and how they are reinforced in the classroom, and conclude with discussions of the academic, social, and administrative support systems for a successful program. Section IV addresses common implementation challenges in a question and answer format: student recruitment and selection, student attendance and performance, transportation and scheduling, insurance and liability, child labor laws, paying students for work, building good relations with workers and organized labor, and scale and cost issues. Appendixes include sample contracts, learning plans, assessment tools, a student evaluation form, and program descriptions. Contains 30 references. (YLB)

Learning Through Work:

Designing and Implementing Quality Worksite Learning for High School Students

By Jobs for the Future: Susan Goldberger
Richard Kazis
Mary Kathleen O'Flanagan

Manpower Demonstration Research Corporation

January 1994

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Preface

Two years ago, the Manpower Demonstration Research Corporation (MDRC) began the School-to-Work Transition Project, with the goal of learning about some of the most promising school-to-work programs in the United States. The project was carried out by a team of researchers at MDRC, joined by partners at Jobs for the Future, BW Associates, and Workforce Policy Associates.

The project's first major product was a monograph by Thomas Bailey and Donna Merritt of Teachers College and Conservation of Human Resources, of Columbia University—*The School-to-Work Transition and Youth Apprenticeship: Lessons from the U.S. Experience* (MDRC, 1993)—which reviewed the existing analyses of agricultural education, cooperative education, tech prep, and career academy programs. The project's second and third major products are MDRC's report on 16 innovative school-to-work programs in the United States—*Home-Grown Lessons: Innovative Programs Linking Work and High School* (MDRC, 1994)—and this companion volume by Jobs for the Future, which responds head-on to the tough challenges of how to engage employers in school-to-work programs and how to create effective workplace learning activities that will benefit both students and firms.

MDRC asked Jobs for the Future to prepare this technical assistance guide to provide the how-to-do-it advice that local education and business leaders need as they work together to define and establish the new work-based learning activities that are crucial elements of school-to-work programs. Based in part on the field research for the School-to-Work Transition Project, the guide offers concrete suggestions on recruiting employers, designing high-quality program components, and responding to implementation challenges. It also includes samples of actual student work tasks, learning plans, student-employer contracts, and assessment forms to give practitioners ideas they can apply in their own communities. MDRC is pleased to publish this guide, and to have worked with Jobs for the Future on the School-to-Work Transition Project.

While the educational reform movement has focused a great deal of attention on the challenges facing the public schools, there has been much less public discussion of the role of *employers* in educating our young people. Perhaps the greatest value of this guide is its clear demonstration that high-quality workplace learning experiences are *feasible* and *practical* in today's highly competitive economic climate. The news from pioneering employers is very encouraging: they are leading the way for major changes in the ways young people prepare for adult life, citizenship, and productive careers.

The School-to-Work Transition Project was made possible by funders who recognize the importance of the school-to-work transition in the lives of young people. MDRC received core support for the project from The Commonwealth Fund, the DeWitt Wallace-Reader's Digest Fund, and The Pew Charitable Trusts. Additional support for publication and dissemination of

the project's reports was provided by the Aetna Foundation, Inc., the Metropolitan Life Foundation, and the Bristol-Myers Squibb Foundation, Inc. Jobs for the Future's work on the project and this guide was also supported by the funders of its National Youth Apprenticeship Initiative.

We hope this technical assistance guide and its companion report will be useful resources for people in local communities as they work to improve the prospects and opportunities for today's youth.

Judith M. Gueron
President

A Statement from Jobs for the Future

In recent years, some of the most exciting innovations in youth policy have focused on improving the way high schools prepare youth for careers. State and federal policymakers have realized the need to forge more systemic links between schools and employers, between learning in school and career choices. And around the country, local consortia of employers, schools, and other key groups are creating and testing programs for improving the "school-to-work transition."

The best programs share some common design principles: an experiential learning pedagogy emphasizing learning by doing; provision by employers of intensive workplace experiences; mechanisms for integrating classroom and work-based experiences; and a commitment to interventions that start early in the high school years and last for several years.

This practitioners' guide was written for MDRC's School-to-Work Transition Project, a two-year study of sixteen diverse school-to-work transition programs around the United States. MDRC has prepared a final report on the project: *Home-Grown Lessons: Innovative Programs Linking Work and High School* (MDRC, 1994). JFF has produced this companion piece: a guide for program practitioners on the employer-related challenges facing intensive employer-school partnerships built around workplace experiences. It focuses on two issues: first, how to recruit employers and maintain their active involvement; and, second, how to ensure that the worksite provides high-quality learning experiences for young people that can help them advance occupationally and academically.

The practical advice in these pages draws from another source in addition to the MDRC-led research effort. For the past three years, Jobs for the Future's National Youth Apprenticeship Initiative has worked at the local, state, and national levels, studying and assisting new models for linking school and work for young people. This guide incorporates many of the lessons we have learned, particularly through our ongoing technical assistance work with an expanding network of school-to-work transition programs.

This is an exciting time for practitioners and policymakers who are working to improve the school-to-work transition in this country. There is broad-based support for federal legislation that will begin to create a national system of state-coordinated and locally-run school-to-work partnerships built upon existing programs and models.

The publication of this guide comes at an opportune time. By highlighting the critical issues of employer participation and the provision of high-quality learning opportunities at the worksite, the guide hopes to help practitioners design, implement, and strengthen their worksite components. There can be no more important focus, for what distinguishes these new and promising efforts is the commitment from employers to provide learning experiences outside the classroom—in the world of work—that can increase young people's confidence, competence, and connections to the adult world and labor market.

Done well, these partnerships can be motivating, energizing, and powerful. We look forward to a surge in experimentation and innovation. And we believe that the advice and examples in *Learning Through Work* will contribute to the quality of these new efforts.

Hilary C. Pennington
President
Jobs for the Future

Acknowledgments

This technical assistance guide is the product of a rich collaboration involving several organizations—and countless dedicated practitioners.

The authors wish to thank all of our colleagues from Jobs for the Future's National Youth Apprenticeship Initiative, whose collective field-based knowledge is reflected throughout. Special thanks are due to staffers Andy Churchill, Mary Ellen Bavaro, and Donna D'Angelico for their production assistance and to consultants Laura Sperazi for her conceptual work and writing in the early stages of this project, Marc Miller for his editing, and Barbara Kroner for her design work.

JFF's partnership with the Manpower Demonstration Research Corporation has been a remarkably productive and enjoyable one. The authors wish to thank all of the MDRC staff who were involved in this project: Edward Pauly, Hilary Kopp, and Josh Haimson, authors of the MDRC report *Home-Grown Lessons: Innovative Programs Linking Work and High School.* (MDRC, 1994), and other staff who made significant contributions—Rob Ivry, Deborah Thompson, and Rachel Pedraza. We also appreciate the research contributions of BW Associates and the advice and conceptual work of Patricia McNeil of Workforce Policy Associates.

The two writing teams—JFF's and MDRC's—have shared freely our site visit write-ups and early report drafts. Careful readers of both the JFF guide and the MDRC report will therefore find some passages in this practitioners' guide that are drawn directly from MDRC source materials. Where the overlap is extensive, it is noted in the text.

Perhaps the greatest debt is owed to the teachers, counselors, workplace mentors, and administrative staff of the more than twenty work-based learning programs whose experience we distilled in preparing this guide. The creativity, drive, and commitment to young people that we saw across the sites we studied is inspiring. We thank these practitioners for taking valuable time to help us understand their programs and the lessons they have learned along the way.

Finally, we wish to thank those foundations that have supported this project from its inception: the funders of MDRC's School-to-Work Transition Project, who are ackowledged at the front of this guide, and the Funders of Jobs for the Future's National Youth Apprenticeship Initiative: the DeWitt Wallace-Reader's Digest Fund, The Pew Charitable Trusts, the C.S. Mott Foundation, the Lilly Endowment and the Ford Foundation. We thank these funders for their support of this and other efforts to improve the transition from school to work for this nation's young people.

Section I: Introduction

The Challenge of the School-to-Work Transition

We've got two very clear tracks right now—college prep and "nowhere prep."
—parent of a Wisconsin vocational education student

In the United States, four-year college is seen as *the* route to occupational advancement. Most parents want their children to enter and complete college. Most high school students say they plan to attend college—even though many of them have little understanding of college entrance requirements.

The U.S. education system reinforces this emphasis on four years of college—to the exclusion of other career pathways. Almost half of all high school students surveyed by the Educational Testing Service in 1981 had never talked to a counselor about occupational or career options.

Yet despite the national orientation toward the baccalaureate, only about half of all young Americans go on to some form of post-secondary education program in the fall after graduating high school. And only half of these—*roughly one out of every four young people*—successfully completes a B.A. program.

For the rest—the majority—the transition from formal schooling to careers is unstructured, haphazard, and often painful. These young people are generally ill-prepared in school for the world of work they are about to enter. Many lack the reading, writing, math, and communications skills that quality employers desire. While most young people have worked during high school, too few have had significant on-the-job responsibilities or learning opportunities.

Neither school nor work has served this majority well. For too many, high school is "nowhere prep."

In the past decade, policymakers have grown concerned about the high costs of the nation's "non-system" for the school-to-work transition, both to young people and to society. This concern marks a significant shift. Historically, federal youth policy has been built around narrowly-targeted programs for the disadvantaged and the hardest to employ. Policymakers argued that the typical high school graduate would succeed well enough in the labor market, so public resources should be concentrated on those in greatest need.

Today, confidence about the prospects of the "average" student has disappeared. As real incomes of high school graduates slid significantly in the 1980s, and incomes of those with college degrees rose, attention broadened to the needs of those who may complete high school but still be poorly prepared to advance into high-paying careers.

A growing consensus among researchers and policymakers says that the nation must improve the academic and occupational preparation of *all* young people if it is to compete effectively in the global economy, maintain high productivity growth, and improve the national standard of living. Fortunately, the nation has made rapid progress in the past few years in addressing this challenge:

- The Clinton Administration has proposed a multi-year initiative to encourage systematic and aggressive efforts to integrate school and work for the nation's young people. Congressional support is broad and bipartisan.
- More than twenty states are already undertaking systemic efforts to improve the ways that employers and schools collaborate to prepare tomorrow's workers and citizens; that number will grow when federal legislation passes.
- Consortia of schools, colleges, employers, labor groups, and community-based organizations are coming together in scores of cities and towns. Frustrated with the quality of the high school experience and the paucity of career opportunities for young people, these consortia are creating programs that link learning at school and at work in intensive, coordinated ways.

The creative energy now focused on improving the school-to-work transition for young Americans will likely continue to build. *Learning Through Work* is intended to help practitioners and policymakers channel that energy into designing and implementing quality programs and systems.

Guiding Principles for New School-to-Work Transition Efforts

There is no need to begin from ground zero in designing school-to-work transition programs. Research on how people learn provides some guidance. So, too, does the extensive experience of both high school vocational education and employment programs that target out-of-school youth. In fact, a remarkable consensus is emerging on the basic building blocks of programs to improve the school-to-work transition—a consensus that informs some of the nation's most innovative new programs.

Research on learning: Cognitive psychologists argue for an active, experiential instructional approach in school-to-work transition programs, and recent research emphasizes the power of context to motivate effective learning. In contrast, much of today's schooling divorces skills and knowledge from their uses in the world. Only infrequently does schooling validate or tap students' own experiences—and their instinctual drive to make sense of their world.

Researchers are finding that most people learn best by doing, and they learn most effectively when they understand that the skills and knowledge they are developing are essential to accomplishing meaningful tasks. This body of research argues for programs that use the workplace as a learning place and adopt a pedagogy of active, experiential learning at both school and work.

This is particularly true for those students likely to have the most trouble succeeding in traditional schooling. "Evidence is beginning to accumulate," writes Lauren Resnick of the University of Pittsburgh, "that traditional schooling's focus on individual, isolated activity, on symbols correctly manipulated but divorced from experience, and on decontextualized skills may be partly responsible for the school's difficulty in promoting its own in-school learning goals" (Resnick 1987, 13-20).

The experience of youth employment and education programs: Several decades of evaluation studies of youth-employment programs funded through the nation's "second chance" system emphasize another set of principles for new school-and-work programs. Such research leads to three observations:

- Work experience alone is generally ineffective (and typically, youth-employment programs are divorced from any academic learning component);
- Interventions that try to reverse years of inadequate education, discrimination, and alienation in a few weeks or months are ineffective; and
- It is difficult to succeed in the labor market after exiting the educational system without a diploma.

The evidence leads to the conclusion that whatever shape a school-to-work transition program takes, it should start while young people are still in school, extend over several years, and combine intensive work experience and school-based learning in a coordinated, high-quality program. Exemplary programs that strengthen the school-work connection for in-school youth reinforce these lessons.

David Stern of the University of California at Berkeley highlights two sets of programs that respond to the challenge of preparing young people for a "more learning-intensive workplace." One set creates an integrated curriculum on the school side that combines academic and vocational courses, strengthening both by providing a real-world context for academic learning and infusing college-prep rigor into vocational programs. The second set bridges school and work directly, providing workplace experiences that are structured to promote and reinforce student learning. "The two kinds of options—integrated curriculum and structured work experience—can positively reinforce each other," says Stern. "School-supervised work experience reinforces and extends what students learn in classes. Such work also takes on more meaning for students when it is part of an integrated curriculum" (Stern 1991, 5).

To a great extent, the conclusions of Stern and others mirror Jobs for the Future's emphasis on the importance of building three kinds of new "integrations" into school-to-work transition programs: (1) the integration of academic and vocational learning; (2) the integration of school and work-based learning experiences; and (3) the integration of secondary and post-secondary learning.

Most important, these principles are reflected in many of the nation's most exciting and highly regarded school-to-work transition programs. While these varied efforts have different origins, often have different target populations, and are wildly diverse in their design, they also display a surprising degree of commonalty. By and large, these programs all share a commitment to:

- Employers' providing work and learning experiences;
- An experiential learning pedagogy; and
- Relatively early and long-term interventions.

About This Technical Assistance Guide

Focus on Employers and the Workplace

Learning Through Work has a specific focus. It is written to help practitioners and policymakers address perhaps the most difficult challenge in implementing a school-to-work transition program: involving large numbers of employers in providing quality learning experiences in the workplace.

The models for linking school and work highlighted in this guide require a level of employer commitment of time and resources—and of collaboration with school personnel—that is still rare. How widely these models expand and diffuse will depend ultimately upon the investment employers are willing to make to prepare young people for productive work and citizenship—and upon the quality of the worksite learning opportunities employers provide.

Because of the critical importance of intensive employer involvement, this technical assistance guide focuses on the *work* side of the school-and-work equation. It is written to help practitioners plan, design, and implement sound work-based components for programs linking schools and employers.

We explore in-depth program strategies in two important areas: recruiting and maintaining employer involvement; and structuring high-quality work-based learning experiences. For each, we identify approaches that innovative programs have found effective or promising. And we organize our learning from the field into practical suggestions for designing and implementing new programs.

Obviously, these are not the only challenges facing practitioners. The most promising school-to-work transition efforts insist on creating high-quality work experiences *and* high-quality academic preparation—and linking the two.

This guide, though, focuses on employers—on how to get and keep them involved and how to help ensure that their work-based learning provides the maximum value to students. Therefore, it addresses some of the most critical questions about employers and their role in school-to-work transition programs:

- What are some successful strategies for enlisting employer participation in school-to-work transition programs?

- How can programs maintain and deepen employer commitment?
- How can a program ensure that the work-based learning component is of high quality?
- What are some of the most promising approaches to common challenges in implementing school-to-work transition programs?

Learning from "Best Practice"

Our answers to these questions derive from the experience of pioneers. A great deal of practical wisdom already exists on programs that integrate school and work-based experiences for young people. As a result, this guide is based on lessons from the field. The practical information it contains is distilled from the experiences of some of the nation's most innovative school-to-work transition programs.

The lessons come from two sources. Over the past two years, the Manpower Demonstration Research Corporation, along with Jobs for the Future and BW Associates, conducted a research effort that studied sixteen U.S. programs that link high school and work experience in significant, intensive ways. In addition, this guide draws heavily on Jobs for the Future's continuing work with an expanding group of programs that are part of its National Youth Apprenticeship Initiative.

For the criteria for including a program in the MDRC study, see the adjacent sidebar. Descriptions of the sixteen programs included in the MDRC study can be found in MDRC's final report, *Home-Grown Lessons: Innovative Programs Linking Work and High School*. Program descriptions of five additional sites referred to extensively in this technical assistance guide are included in the appendix. All other programs listed are profiled in the MDRC report.

MDRC, JFF, and BW Associates researchers made a special effort to interview employer representatives at each site, from supervisors to CEOs. The research team benefited greatly from the candor and openness of the people with whom we spoke. We learned from their progress and their problems, from strategies that worked well, and from reflection on what could have worked better.

Selection Criteria for the MDRC School-to-Work Transition Study

The MDRC research team, assisted by colleagues at Jobs for the Future, BW Associates, and Workforce Policy Associates studied sixteen programs. Each program had the following characteristics:

- Young people participate starting at least two years before their scheduled high school graduation.
- The programs provide both high school instruction and work-based experiences and draw from the combined efforts of schools and employers.
- They differ substantially from regular high school education in content, instructional methods, and intensity.
- They serve a broad range of students, including both disadvantaged/low-achieving and non-disadvantaged students.
- They have operated long enough to provide start-up and implementation lessons for others.
- They represent the diversity of innovative school-to-work approaches being developed in the United States.

Case-study research on these programs has generated a set of rich lessons and guideposts for both local programs and for state and national policy. Although there is no substitute for "learning by doing," this publication is designed to help practitioners accelerate program planning and design—

and to avoid some of the more obvious and predictable pitfalls. We believe that grounding this guide in the concrete experience of innovative programs can stimulate the development of new programs, accelerate their "learning curve," and speed their progress.

The Study Sites: Five Models Linking School and Work

The programs studied represent a diverse range of models. The projects differ significantly in their origins, structure, methods, and design. Also, the intensity of employer involvement varies greatly, as do the linkages between school- and work-based experiences, instructional approaches, and often, target populations.

Yet despite such differences, these programs share certain basic elements. All are for high-school students, and all are relatively new. Most important, each program includes both an in-school and a workplace-learning component.

MDRC staff have grouped these programs into five generic models:

- Restructured vocational education;
- Tech Prep;
- Occupational-academic clusters;
- Career academies; and
- Youth apprenticeship.

This categorization makes it easier to explain the diversity of origins, funding bases, and strategic emphases of some of the most innovative school-to-work transition programs in the nation.

However, to a large extent, these are ideal types. Creative programs tend to borrow promising innovations wherever they find them and often craft their descriptions of what they are doing to conform to the dictates of funding sources. In general, practitioners are far more concerned with impact on students than on the "purity" of a program model.

The five generic models are defined briefly below, with particular emphasis on the worksite learning component of each model (these definitions are adapted from MDRC's *Home-Grown Lessons*). Each of the twenty-one sites that served as the research base for this guide is listed under the model it most closely represents. (An asterisk next to the program name implies that a more detailed description of the program can be found in the appendix to this guide; program names without asterisks are profiled in the companion MDRC report *Home-Crown Lessons.)*

Restructured Vocational Education Programs: In a typical co-operative education program, employers provide part-time school-year jobs in the student's vocational field. A vocational education teacher arranges placements, writes a training plan specifying what the student is expected to learn on the job, and occasionally visits the worksite. The workplace supervisor evaluates

job performance and can also serve as a mentor. In many schools, co-op education is a small program, targeted to the best vocational-education students. For this study, the research team restricted its attention to programs that have reshaped traditional co-op education and job-skills training to provide more intensive and varied opportunities to explore a career. These programs broaden workplace experiences by providing earlier and more diverse opportunities to learn about different careers. They also enable students to experience a greater range of work settings through job-shadowing and other workplace visits, and they create structured links between work experience and academic courses. These programs usually involve a large and diverse segment of the students in a school and make career exploration a central part of education.

Kalamazoo Health Occupations Program,* Kalamazoo County, Michigan

Rindge School of Technical Arts, Cambridge, Massachusetts

Professional and Career Experience (PaCE), Poudre R-1 School District, Fort Collins, Colorado

Tech Prep: Tech Prep is one of the fastest-growing innovations in occupational education, spurred by the 1990 Perkins Vocational Education Act Amendments. Two distinct elements characterize Tech Prep programs. The first is curricular: typically, the high school component of Tech Prep consists of one or more courses in math, science, and communications that use work-related situations as the context for teaching content and ways of thinking. The second is the coordination of high school with community college programs—hence their popular name, "2+2 programs." Tech Prep programs try to smooth the transition into post-secondary programs in the same field by coordinating course requirements, reducing duplication, and, in some cases, granting advanced standing. While only a few Tech Prep programs incorporate worksite learning, interest is growing among Tech Prep practitioners in adding a structured work component to this model.

Pickens County School District, Easley, South Carolina

Ben Davis High School, Wayne Township (Indianapolis), Indiana

Occupational-Academic Cluster Programs: These large-scale programs offer all students in a high school a choice of several distinct career pathways, each based on a sequence of related courses tied to a cluster of occupations (e.g., allied health, service, manufacturing, or engineering occupations). Each cluster offers students occupation-specific courses or training in vocational skills after they complete introductory courses. The clusters integrate academic and vocational instruction, and they sometimes use applied-learning techniques. Work experiences enable students to explore different career options. Because students may take several courses in their cluster each year, the clusters resemble schools-within-schools.

Crater High School, Central Point, Oregon

Dauphin County Technical School, Harrisburg, Pennsylvania

Roosevelt Renaissance 2000, Roosevelt High School, Portland, Oregon

*indicates program described in appendix; other programs are profiled in the companion MDRC report *Home-Grown Lessons*.

Career Academies: The Career Academy is a "school-within-a school," organized around a broad occupation or industry theme (e.g., health, electronics, graphic arts). This multi-year model, which serves about 50 entering students a year, typically begins in the tenth grade, although some programs start in grade nine. Academic and occupation-related learning are integrated in a curriculum built around a single industry cluster and delivered by a group of teachers. Teachers coordinate their efforts closely and often teach as a team. Students take many of their courses together and may stay with the same teachers for several years. Employers usually play a role in developing the curriculum and also donate time as mentors. Students work in internships during the summer between junior and senior years and, in some programs, during the last half of senior year. Some career academies target "at risk" youth in danger of dropping out of school, some seek college-bound students, and others serve a wide range of students.

Academy of Finance, Lake Clifton/Eastern High School, Baltimore, Maryland

King-Drew Medical Magnet High School, Los Angeles, California

Health and Bioscience Academy, Oakland Technical High School, Oakland, California

Socorro High School for the Health Professions, Socorro High School, El Paso, Texas

Youth Apprenticeship: Over several years, this ambitious approach to linking learning in school and the workplace uses the latter as a place to enhance a student's competencies in both technical skills and related math, science, communications, and problem-solving skills. Students "learn by doing" in paid employment and training, with close guidance from an adult mentor or supervisor. Youth apprenticeship programs generally begin in the eleventh or twelfth grade and provide a structured bridge into post-secondary programs. Youth apprenticeship models also emphasize the importance of industry-recognized credentials of occupational skill mastery.

Fox Valley Printing Youth Apprenticeship, Appleton, Wisconsin

West Bend Printing Youth Apprenticeship, West Bend, Wisconsin

Metropolitan Vocational Center, Little Rock, Arkansas

Pickens County School District, Easley, South Carolina

Craftsmanship 2000, Tulsa, Oklahoma

Project ProTech,* Boston, Massachusetts

Pennsylvania Youth Apprenticeship Program,* multiple sites statewide in Pennsylvania

Cornell Youth Apprenticeship Demonstration,* Broome County, New York

Children's Hospital Fenway Collaborative,* The Fenway Middle College High School, Boston, Massachusetts

*indicates program described in appendix; other programs are profiled in the companion MDRC report *Home-Grown Lessons*.

Warning: Good Programs Are Not Enough

This guide is intended to provide practical advice and assistance to people who design and implement programs. It is a practitioners' guide to work-based learning, focusing on "best practice" sites and what their efforts can teach.

Nevertheless, it is also important to think "beyond programs." As a nation, we are quite accomplished at creating effective, successful *programs*. However, American political culture and institutions make it more difficult to create coherent, integrated policy *systems*—particularly in the fragmented areas of education, training, and economic development. Yet it is a nationwide, systemic effort to improve the school-to-work transition for large numbers of young people that is needed.

Improving the school-to-work transition for young people will require new relationships between and among key institutions at the local, state, *and* national levels. Local consortia of firms, schools, colleges, unions, and community groups are obviously critical, but changes at the state and federal levels are likely to be equally important to creating—and sustaining—high-quality initiatives.

State and federal legislation can alter the incentive structures for employers and schools and increase the likelihood of broad employer participation. State and federal action can also facilitate the creation and diffusion of curriculum, assessment, staff-development, and credentialing efforts that are far beyond the capacity of any individual program. As an example, the federal government has already funded more than a dozen nationwide consortia to develop industry-recognized standards for occupational skills. Anything less than national coordination of that initiative would lead to a confusion of overlapping, contradictory standards with limited relevance to other communities or states.

Ultimately, institutionalizing effective, replicable school-to-work transition *programs* depends on putting in place the building blocks of *systemic* change where they are currently weak—at the district, state, and national levels. As you read this technical assistance guide, focused firmly on the challenges of designing and implementing local efforts, remember that only so much can be accomplished at the program level.

At the same time, this is still a period of experimentation and innovation, a time when local successes—"visions of the possible"—play a critically important role. From promising local programs, we can distill lessons about essential program elements, about more—and less—effective ways to organize and implement programs, and about challenges that will demand national, state, or local policy changes.

Learning Through Work is designed for those who are creating, strengthening, and sustaining these "visions of the possible." We hope that the following pages will ease your work a little—and help you forge opportunities for young people to advance toward fulfilling lives of work and learning.

Section II: Recruiting Employers

Introduction

A successful school-to-work transition program requires strong buy-in from two groups that have often kept their distance from each other: school personnel and employers. This may seem obvious, but it goes to the heart of what makes these efforts different--and new. You can't link school and work without one or more active business partners willing to commit time and resources and willing to provide work opportunities for program participants. Without work, there is no work-based learning component.

For this reason, this guide begins by focusing on strategies for recruiting and maintaining meaningful employer involvement.

Typically, local partnerships between employers and schools are limited in scope—and in employer commitment. "Adopt-a-school" initiatives tend to ask employers to contribute new technology (e.g., computers or other equipment) or supplies for extracurricular programs (sports uniforms, awards, banquets). Other common employer interactions with schools include participating in career days, sponsoring workplace tours, and establishing scholarship funds.

Most school-business partnerships have shied away from asking employers to play a significant role in either the instructional program or in providing work opportunities. Employers—even those critical of the readiness of high school graduates for work—seem content to let schools design the learning program. And few have worked directly with schools to identify good employment opportunities for in-school youth.

This guide highlights programs that take a very different approach. In each case, employers play an active role in partnerships with schools that demand time and resources. Commitments are of extended duration. Employers tend to be formally involved in planning and governing the programs, and, to varying degrees, they join school personnel in shaping what students learn. Employers also provide opportunities for young people to learn about careers, experience different work environments, and, in many cases, earn money.

How easy is it to involve employers in a school-to-work transition program? To a great extent, that depends upon early choices that program designers make concerning:

- **Employer roles:** What roles are employers asked to play? How intensive a commitment is required? How early in the design process—and how fully—are employers involved?
- **Employer targets:** How many and what kinds of employers are recruited to participate? Are they large or small firms? In growing or declining sectors of the local labor market? Do these firms have a history of partnerships with schools or is it new territory?

- **Recruitment strategy:** How well has the program designed and implemented an outreach strategy that appeals to targeted employers?

Strategic planning for involving employers can be organized around four basic but critical questions:

- *What* are employers asked to do?
- *Which* employers are targeted?
- *Why* should employers participate?
- *How* are employers recruited?

This section of the guide addresses each of these questions, based on the experiences of the many programs we have visited and studied.

In a number of programs studied, employers took the lead in creating a work-based learning program. The Oakland Health and Bioscience Academy has its origins in a 1984 decision by local hospital CEOs to see if the school district would create a program to prepare youth for entry-level employment in health care. Craftsmanship 2000 is the creation of some of Tulsa's largest metalworking firms. When the private sector reaches out, schools generally respond eagerly, because employers bring scarce resources to the table—money, time, expertise, and jobs.

Quite often, though, the prime movers are schools, school districts, or intermediary organizations involved in education or economic development. A school might decide that employers in its cooperative-education program should provide more structured opportunities for worksite training. Or a school district might feel the need to strengthen a career-exploration initiative by adding work experience and training, requiring a more intensive and demanding relationship with local employers. In these instances, developers often woo employers to join or deepen their role in the program.

Obviously, it is easier to get employers to staff a booth at a career day once a year or open their shops for occasional job-shadowing days than it is to convince employers to provide paid employment and training opportunities for high school youth. And it is less of a challenge to find firms that will provide low-skill, low-expectation summer jobs than it is to identify employers who will invest time and staff, and over an extended period, on curriculum and instructional strategies.

Yet the world is changing, and the traditional employer calculus of costs and benefits may be shifting as well. For a host of reasons—short-term and long-term, economic and political—an increasing number of employers seem less willing to accept "schooling as usual" and more eager to develop new, more intensive relationships with local schools and students. This provides an opening for schools and employers to build new ways of collaborating. It is not a very big window right now: weak economic growth has made many employers hesitant about working closely with high schools in coordinating school- and work-based learning. But the opening exists—and the programs we studied have exploited it to build impressive partnerships.

The following pages are designed to help practitioners develop and implement efficient and effective strategies for engaging, recruiting, and keeping employers. Through lessons from the field, we provide advice that can help new programs:

- **Define appropriate roles and responsibilities** for participating employers, consistent with program goals and basic design;
- **Design a strategic plan for recruiting employers,** so recruitment activities are efficient and well-targeted and have a high probability of engaging motivated, quality firms;
- **Approach employers with a convincing, professional appeal** that anticipates their needs, wants, and concerns; and
- **Keep employers active in meaningful ways** so both participating and non-participating employers stay invested in the program's evolution and success.

This guide highlights two distinct aspects of recruitment. On the one hand, employer recruitment is a *technical challenge*. As for any marketing task, tested techniques and strategies can help you maximize results for a given level of effort. Even more important, recruiting employers is a *political process* of building relationships of mutual obligation and accountability. Like any long-term relationship, the partnership at the heart of a school-to-work transition program requires attention, nurturing, and a commitment to understanding each others' needs, expectations, language, culture, and ways of doing things. Attention to this aspect of the partnership can make the difference between a program that sinks deep roots in a community and one that blossoms briefly and fades.

I. Clarify the Expected Roles and Responsibilities of Participating Employers

Every program designed to improve the links between school and work must begin by asking what roles employers will play in developing and delivering worksite learning opportunities for young people. In the programs we studied, the commitments of time, money, and staff expected from participating employers varied greatly—as did the nature of the activities employers undertake. The research team identified a wide range of roles that employers can—and do—play in school-to-work transition programs:

- **Initiate the program:** As in the Oakland and Tulsa programs noted above, employers can take the lead in proposing or designing a new program.
- **Exercise executive decision-making authority:** Employers frequently serve on or lead program policy, management, and oversight bodies.
- **Provide input into the school and workplace curriculum:** Employers can help define work-related competencies, set learning goals, and design course sequences or learning activities. The involvement can range from a brief annual review of course offerings by an employer advisory committee to active involvement in designing the curriculum for a single course

(as in the Fort Collins co-op education program) or for an entire course sequence (as in the Wisconsin youth apprenticeship initiative).

- **Recruit other employers:** One of the most important roles that employers can play is convincing their colleagues to join the program and provide work-based learning opportunities.
- **Screen program applicants:** Sometimes employers interview applicants and play a key role in the admissions process. In other programs, they interview students already enrolled to determine who is ready for a worksite placement. Employers participating in Baltimore's Academy of Finance interview three prospects for each intern they select. (Students also get a choice: each one interviews at three firms and accepts the best one offered). Even in programs that leave the admissions process to schools, employers frequently play an indirect screening role by specifying minimum attendance, grades, and other criteria that students must meet.
- **Create work-based staff-development opportunities for teachers:** Employers can provide workplace experiences to teachers as well as to students. To develop lesson plans for teaching academic concepts in more applied contexts, teachers in Ben Davis High School's Tech Prep program have visited local high-tech manufacturing plants and observed their approach to solving problems on-the-job. Baltimore area computer firms have worked with Academy of Finance faculty during the summer to upgrade teachers' knowledge of industry standards and methods.
- **Provide work-based learning opportunities for program participants:** The most central and critical role for employers is providing learning experiences and opportunities at the worksite. The kinds and duration of experiences program participants get "on the job" can be grouped into four categories, reflecting different intensities of worksite learning experiences:

  Career exposure: Many school-to-work transition programs expose students to a range of workplaces and occupations. *Job-shadowing* enables students to observe first-hand what an adult worker does in a typical work day. Participating in several such experiences during a semester or school year enables students to compare the responsibilities and activities that are part of different jobs. *Rotations* through different departments in a workplace expose students to different careers in a single industry, as in Socorro High School's arrangement with El Paso's largest hospital or the junior year of Project ProTech's youth apprenticeship program involving seven Boston hospitals.

  Workplace as classroom: A few programs we studied have used the workplace for academic study normally delivered in school. Staff of the Los Angeles' M.L. King Jr. Medical Center teach students in the King-Drew Medical Magnet High School program certain biology and physiology topics. The Health Occupations class for students in Kalamazoo's Health Occupations Program is delivered on-site at a local hospital. Vocational students at Cambridge's Rindge School of Technical Arts, who are working at Polaroid or in the Careers in Education program, conduct research for their academic courses at the worksite.

Work experience: In almost all school-to-work transition programs, employers provide jobs during the school year or summer. This can take the form of unpaid internships, as in each of three schools-within-schools at Crater High School, or paid co-op or youth apprenticeship positions, as in Dauphin County Technical School's co-op program and the Little Rock youth apprenticeship program. From the job itself, students learn a set of behaviors, attitudes, and generic and job-specific skills necessary to perform effectively. However, the value of work experience alone is debatable: too often, as in many traditional co-op programs, no significant learning or career exposure augments the work experience.

Structured work-based learning: In most school-to-work transition programs with more intensive relationships between employers and young people, employers provide not just a job but a range of structured learning opportunities. Employers are responsible for making sure that students meet specific learning goals and master entry-level or more advanced skills—both generic and job-specific. Programs frequently provide workplace mentors to participating students to help them learn in more informal ways about their jobs and about work. Youth apprenticeship programs are more likely than other models to provide advanced job-skills training, training in diverse industry-wide skills, and certification of mastery of specified core competencies.

Given this range of options, how should practitioners decide which roles to ask employers to play, and in which combination and sequence? From our assessment of how a variety of quite different programs have answered these questions, three factors emerge as likely to play defining roles. They are *program goals*, *program scale*, and the *priorities of leading employers*.

Consider these different *goals*. Each one, or several in combination, might motivate the creation and design of a school-to-work transition program:

- increasing the awareness of potential career options among all students in a school;
- rewarding and providing incentives for a school's most accomplished vocational students;
- improving motivation and academic performance for program participants;
- responding to local employer concerns about specific labor shortages; and
- restructuring a school's learning program to be more applied and contextual.

Each goal provides a good rationale for introducing work-based learning into a high school. But these varied objectives argue for different kinds and intensity of employer involvement. For example, a few well-designed days of job-shadowing might suffice for a career awareness effort. Paid work with little interaction between school and firm personnel might be appropriate for rewarding school achievement with employment and income. A program to meet labor-market needs will likely require employers to provide both work and training over an extended time, particularly if labor shortages are at the technician level.

Program scale frequently derives from program goals and objectives. It, too, can have a significant impact on the kind and intensity of involvement asked of employers. How many students does the program hope to serve? Will every student be involved in worksite learning or only a certain portion of the participants? How many employers will be involved? How many schools and school districts? Consider the following programs. Each is committed to a very different scale of operation, and each places different demands and expectations on local employers.

- The West Bend Printing Youth Apprenticeship Program in Wisconsin began as a partnership between one mid-sized printing firm and two high schools. The two-year program, designed to bring quality young people into the firm and the local industry, involved twelve students in the first year.
- The Socorro High School for the Health Professions in El Paso, Texas, a partnership between the school's magnet program and local health-care employers, enrolls over 150 students in grades nine through twelve. Employers provide part-time jobs to participating twelfth graders to expose them to the range of jobs available in the health field and to motivate them academically so they can advance in desired health occupations.
- In Portland, Oregon, Roosevelt High School's Roosevelt Renaissance 2000 involves hundreds of employers in a partnership to restructure the entire 1200-student high school into six career-pathway clusters offering work-based learning experiences to each and every student. A school-wide effort this large requires ambitious and creative outreach to engage enough employers.
- The Pennsylvania Youth Apprenticeship Program was created as a statewide partnership: 78 metalworking employers in four regions provided work and training for over 100 students last year. Because program design, governance, and implementation have both local and statewide aspects, employers assume a broad range of advisory and decision-making roles.

Employer needs and desires constitute the third factor likely to shape the nature of employer involvement and participation. Because employer commitment is so central to successful programs, key employers must participate early in program design and must have significant influence over the kinds and intensity of work-based learning experiences that employers provide.

Early involvement of a core group of key employers can allay their fears that the program will fail to meet business needs or that too much may be asked of participating firms. (For more on this point, see the sidebar on the early experience of the Pennsylvania Youth Apprenticeship Program.) Involving employers early can provide a reality check: Just how much time and energy are employers willing to give to a new effort? Are employers likely to provide the proposed work-based experiences or not?

Early involvement of employers can have another important benefit. In many of the programs we studied, once employers became actively involved, their understanding of the effort's value to both students and

employers shifted—as did their assessments of which worksite experiences were most important to provide and the extent to which they were willing to train young people at the worksite. In partnership with school personnel, engaged employers can contribute significantly to the evolution and improvement of a school-to-work transition program. But it is difficult to get to that stage if a program fails to enlist strategically important employers at the earliest design stages, when they can help shape the program to fit their perceived needs.

The Importance of Early Employer Involvement

Every new program confronts various pressures to launch into implementation before it has laid enough groundwork with key partners. Funding deadlines and other factors can compel a program to move too quickly, forcing practitioners to do significant design work in a vacuum. Then, when funding is secured, the program can find itself out ahead of those it is supposed to serve.

The Pennsylvania Youth Apprenticeship Program faced this problem several years ago. A federal grant, expected in the summer, was delayed until halfway into the school year. Not wanting to wait until the next school year to launch the multi-site metalworking program, program staff began recruiting employers.

Program staff worked hard to recruit employers. They "cold-called" firms from a list provided by a trade association and set up one-on-one meetings with CEOs of interested firms. And they organized high-visibility breakfast and dinner meetings for local firms.

They succeeded in involving several motivated and committed employers in a well-conceived, inclusive planning process at the state level. But at the local level, in the four regions where the program was to be sited, haste led the staff to present employers with a program that seemed quite loose in its design—and in its demands on participating firms.

Similarly, when educators asked their important questions—who is responsible for student cost? Where is the completed curriculum? How does portfolio assessment transfer into a standard grade back at the home school? What are the program's exit provisions?—the answers were equally vague.

The result: the program had difficulty recruiting schools and employers. Only one demonstration site enrolled students in 1991-92. The remaining sites pushed back program start-up to the 1992-93 school year, allowing time to offer employers and educators a more active role in program design and to provide them a greater comfort level with new program concepts and components. Supporting employers were called upon to work closely with educators to "sell" them on work-based learning and the importance of employers and educators working together.

II. Target Employers Who Are Most Likely to Participate

Recruiting employers to participate in a school-to-work transition program usually takes time and effort. Strategic targeting of employers can save a lot of staff time, financial resources, and frustration.

As with any marketing effort, successful employer recruitment requires getting the message right and targeting the message to the right audience. Engaging employers to participate in intensive programs that link school and work requires both an appeal that clarifies and emphasizes the benefits of participation, and a plan for getting the message to employers most likely to make the required commitment.

Understanding Employer Motivation: Labor Market Needs and Civic Responsibility

We're not doing this for civic responsibility. There are always benefits that come out of these programs, but we're doing it for purely selfish reasons. . . . The schools are not producing a product we can use.

—representative of American Airlines, Tulsa, Oklahoma

There should be more involvement between business and industry and the schools. Here at the bank we see our involvement as part of our commitment to the larger community. It is an investment in our youth that we believe will pay dividends in the long term.

—bank manager, Central Point, Oregon

Asked why they participate in school-to-work transition programs, employers generally point to two motives. Employers often say they are concerned about the quality of the available workforce and that they fear future shortages of qualified workers. Sometimes, they emphasize the needs of their particular firm and sometimes those of the industry as a whole. Just as frequently, employers note their commitment to the community and their desire to improve the lives of young people.

These two motives—labor market considerations and community responsibility—are part of employers' calculus as they consider new and more intensive relationships with high schools. Efforts to recruit employers should address both motivations—and be framed in terms of the *benefits* that will accrue from participation.

Labor market needs: Firms in certain industries are especially concerned that they won't be able to find capable new employees for entry-level or skilled technician jobs. This can apply to either short- or long-term needs. For example, the printing industry has grown rapidly and undergone dramatic technological change, altering and broadening the range of skills employees need. On the other hand, the metalworking industry has contracted in absolute terms, but the average skilled machinist is 57 years old; the industry projects significant shortages once this generation retires in the next five to ten years. And in the health-care industry, the demand for allied health technicians has been strong through the 1980s and into the early 1990s, leaving city hospitals concerned about their long-term labor supply.

As these examples show, a variety of factors can lead employers to fear a mismatch between their need for entry-level or technician-level workers and the quality of the available supply. These factors include:

- High growth in the industry as a whole or in certain occupations;
- An aging workforce;
- Rapid technological change demanding new and different skills;
- The reorganization of work in ways that stress high performance, increased responsibility to front-line workers, and teamwork; and

- The decline of traditional training pipelines for non-baccalaureate employees.

Any of these trends—or a combination of several—can make firms in a particular industry more receptive to new workforce development strategies. When crafting the message to take to employers, try to anticipate the concerns that are foremost in the minds of your audience. Prepare materials and a "pitch" that explains how participation in your program might address the most pressing of those concerns. *(See the sidebar on Project ProTech for some suggestions.)*

It is relatively easy to identify industries that feel the threat of labor shortages acutely. You can get useful anecdotal evidence—probably all you need to get started—from chambers of commerce, other local business organizations, or state-level business organizations and trade associations representing particular industries or sectors, such as manufacturing, high tech, or health care. Private Industry Councils usually know local trends, as do economic-development agencies. State and federal labor departments track employment patterns and publish regular reports on occupational employment trends. While there are rigorous ways to quantify employment trends and projections by industry and occupation (see, for example, *Where the Jobs Are* by William McKee and Richard Froeschle, published by the W.E. Upjohn Institute in 1985), you don't need that level of quantitative detail and exactitude. A general understanding of trends in the local labor market will enable you to develop a list of high-priority industries.

Knowing that a particular industry is concerned about workforce quality and availability does not tell you which firms to target or how best to reach firms in that industry. Understanding broad labor-market trends can aid initial targeting strategies and help you sharpen the marketing message, but other strategies will ultimately be more useful in setting priorities for recruiting employers.

Civic responsibility: The second, and perhaps more common, motivation for employers to enter into intensive partnerships with schools is the desire to be a good corporate citizen. Many firms want to play a visible role in helping young people, strengthening local institutions, and "doing good." Often, the motive is altruism. A company might be owned or managed by individuals who feel a deep concern for the future of their city and its residents. A CEO might remember fondly the first employer who gave her a break or the worksite mentor whose practical wisdom changed her life.

Other factors can motivate employers to be good corporate citizens as well. Employers in not-for-profit industries such as health care, social services, and government have an explicit mission to serve the community.

Good community relations can also make good business sense. Visibility as an innovator in human-resource policy can improve a firm's reputation as an employer and expand its pool of quality job applicants. Firms that depend upon the loyalty of local customers can generate good publicity and good

Highlighting the Benefits of Employer Participation: How One Program Does It

Tom Bryan, a retired bank executive, has been working with the Boston Private Industry Council to organize employer support for Project ProTech's health-care program and its new initiative in financial services. In presentations to local employers, he anticipates employer concerns and acknowledges their frustrations over past collaborations with Boston schools. Assuming that most employers think primarily about the benefits of corporate citizenship when they consider school-business partnerships, Bryan stresses economic benefits to employers. He tells them that ProTech:

- is a new source of skilled minority employees, enabling employers to build a workforce more representative of the diverse backgrounds of patients and customers;
- offers a more economic and efficient means of developing such employees than in-house training or moving a business to another locale, and it allows employers to leverage their tax investments in the public schools more effectively;
- bridges the gap between occupational skill requirements and high school graduate competencies, improving the quality of entry-level workers;
- gives employers a higher return on investment than most other student jobs programs because it is an employee-development program over which employers have considerable quality control;
- provides employers with a vehicle to improve classroom education through an integrated curriculum developed and maintained by teachers and employers;
- requires minimal administration by employers;
- is run by an executive committee of participating employers and schools, relatively free of the bureaucratic problems of many education programs.

In other materials, ProTech emphasizes additional employer benefits:

- Over time, the development of a stable supply of local workers for traditional shortage occupations can reduce the advertising and employee-recruitment staffs at the city's larger hospitals.
- It rationalizes community service investments.
- Student contributions to production offset wage costs within the first six months on the job.
- It improves the supervisory skills and motivation of workers who get to train and mentor young people in their fields.

Some of these benefits are relevant only to programs that provide students with intensive work experience and training. Others are more relevant to programs in troubled urban schools; still others pertain to firms in the health-care industry. Yet, this list of potential benefits can serve as a starting point for any new program developing its own strategies for reaching employers with a message that business owners and managers will respect and understand.

feelings in the community. And participation in an intensive work-based learning partnership can help a firm simplify and rationalize its community commitments. Several employers we interviewed had been frustrated with chaotic, ad hoc relationships with local schools. A job-shadowing day with students from one school, a worksite tour for a class from another district, a staff physician visiting a health occupations class at a third: none of these seemed to have much impact, yet they ate up significant staff time.

As with employer assessments of their labor needs, corporate decision makers will find certain appeals to their civic responsibility more compelling than others. And you will rarely be able to predict which arguments will sway which employers. Thus, it is important to prepare a marketing message that incorporates both labor-market and community-responsibility themes—and that stresses the range of benefits that employers might derive from participating. One such marketing campaign, prepared by Boston's Project ProTech, is outlined in the adjacent sidebar. While not all these arguments are transferable to other school-to-work transition programs, ProTech's approach provides a good illustration of how to organize your message for employers.

Strategies for Identifying Potential Business Partners

Employers are not a monolithic group. Even within an industry and in a single community, firms differ significantly along many dimensions, including corporate strategy, corporate culture, labor-management relations, hiring practices, leadership, size, and economic health.

These different dimensions can serve as useful "screens" as you set priorities for recruitment activities. This section provides a checklist of promising indicators that can focus your efforts on firms more likely to participate in a new school-to-work transition program—and to encourage other employers to join, too.

- **Prior involvement in school-business partnerships:** The best place to start is to identify firms that are already actively involved with schools and other youth-development programs. If their experience has been positive, they might want to extend that participation. Many of the programs we studied recruited firms that already served on vocational-education advisory groups, had other partnerships with local schools, or were involved in district-wide or city-wide education-reform committees.
- **Tradition of leadership in community affairs:** Every community has its corporate leaders—firms that see it as part of their corporate strategy to join almost any significant community quality-of-life initiative, particularly if other firms in their circle are signing on. Usually, these firms are large, not very footloose, have a stake in a responsive public image, and depend upon the good will of local consumers. Banks, hospitals, and public utilities fit these characteristics. On the other hand, certain businesspeople may exert leadership more because of the force of their personality and drive than because of corporate strategy. These individuals, too, can be powerful allies.

- **Commitment to being a "learning organization":** Firms that have invested in worker skills and continuous improvement as a critical component of their competitive strategy are more likely to understand the value of an intensive worksite learning program. They are also more likely to have the vision and organizational capacity to provide quality learning experiences for young people. Some indicators of such commitment include basic-skills and English-as-a-second-language training for employees, quality management programs, and tuition-reimbursement plans.
- **Hiring practices that include high school graduates:** In many industries, employers prefer workers with some employment history and post-secondary training, passing over recent high school graduates. Yet many co-op education and other school-to-work transition programs serve students who do not plan to continue their formal education beyond high school. For these young people, the program goal could be placement in a permanent job with career potential. Such programs may target those employers who tend to hire high school graduates. In Dauphin County Technical School's co-op program, a number of employers use placements as a way to identify young people they would like to hire upon graduation.
- **Cooperative labor-management relations:** Effective work-based learning programs require the support and cooperation of existing workers, who are likely to have legitimate concerns about how a program might affect their job security, wage levels, and access to training. Firms with strained labor-management relations may not want to risk further conflict by bringing in young people. Moreover, if the front-line workforce feels threatened, their uneasiness may take the form of overt or covert hostility to program participants. Cooperative labor-management relations can exist in both union and non-union workplaces, and while unions have resisted participation in some school-to-work programs, they have been active, constructive partners in others.
- **Friendly competition with other firms in the same industry:** Some programs generate a "bandwagon effect" by capitalizing on competition among employers. In a small community or in an industry with a few leaders, one firm's participation can pressure others to jump on board. In Kalamazoo, Michigan, a Bronson Hospital administrator recruited the president of cross-town rival Borgess Medical Center into the Health Occupations Program. The administrator hinted that Bronson would have an advantage in recruiting non-professional workers if Borgess stayed out. Fear of a rival's gaining prestige, publicity, or community approval—or access to a quality labor pool—can be a powerful motivator.
- **Familiarity with U.S. and European work-based learning models:** A surprising number of employers involved in youth apprenticeship and other intensive work and learning programs have first-hand knowledge of either U.S. apprenticeship programs or work-based training systems in Germany or other European countries. This familiarity with experiential approaches to learning can increase employer receptivity to new programs *(see sidebar)*.

Two additional "screens"—firm size and economic health—are important to consider when mapping a recruitment strategy, but they send signals that can be complex and contradictory and easy to misread.

- **Firm size:** Large and small firms are often driven by different needs when considering participation in a school-to-work transition program. In the programs we studied, large firms predominate. This is due in part to the large number of health-care programs in the sample. But there are other reasons.

  Large firms are more concerned with public image. They also need to hire more people for a more diverse range of jobs, have staff who can devote time to partnerships, often see the needs of the industry as parallel to their own needs, and tend to think in terms of longer planning cycles and investment payoffs. At the same time, large firms do not tend to hire young people into permanent jobs right out of high school, preferring to recruit college graduates.

  Small firms tend to look for a more direct return on their investment of time and wages. They tend to see their self-interest as distinct from the interests of the industry as a whole. For example, they often fear that another firm paying higher wages will steal someone they have trained. They tend to be more concerned about costs—both in terms of wages and staff time devoted to the program. Anecdotal evidence also suggests that small firms tend to be more interested in wage subsidies or tax credits to offset some of the costs of school-to-work transition programs. On the other hand, owners of small establishments can become highly invested as individuals. Some employers have said that they can see the youngster they used to be in program participants—and they want to make a difference in a young person's life.

- **Economic health:** It may seem self-evident that more successful firms will be more likely to have the resources—and the interest—to participate in a school-to-work transition program. Firms struggling to survive generally cut back on their community responsibilities and civic contributions. However, economic change and belt-tightening can spur creative responses to labor market challenges that might include changing a firm's relationship with high schools and students. In Kalamazoo, Bronson Hospital decided to participate in the Health Occupations Program while in the throes of downsizing. Hospital managers began to see the need to develop a new kind of cross-trained, flexible worker for entry- and technician-level jobs in order to be able to keep costs down and still provide quality care. They see work-based learning as one piece of that strategy.

European Work-based Learning Systems and "Visions of the Possible"

Familiarity with apprenticeship and other work-based learning programs, either in the United States or abroad, often makes employers far more receptive. These employers can also be a program's most supportive partners.

In a surprising number of programs, knowledge of European youth-training systems seems to have helped solidify employer commitments. Perhaps employers who have European customers or subsidiaries—who are themselves products of European training systems, or who have participated in study tours to Europe—know the advantages that a large-scale, high-status national system of work-based learning can have for both young people and employers.

Craftsmanship 2000, Tulsa's employer-driven youth apprenticeship program, is a case in point. The catalyst was Andre Siegenthaler, who was transferred from Switzerland in 1989 to take over as vice-president of human resources for the local manufacturing facility of Hilti, Inc., a Liechtenstein-based maker of construction fasteners. After assessing the skill levels of Hilti's Tulsa workers, Siegenthaler proposed that the firm create a new training and recruitment program based on the Swiss youth apprenticeship model.

Realizing that the program would need more industry partners, Siegenthaler approached other local metalworking firms. (One firm that signed on early was represented by a Scotsman who had spent much of his own working life in Europe.) In the spring of 1990, Hilti organized a study tour to Liechtenstein for the mayor of Tulsa and top Chamber of Commerce officials, an experience that was important for building a shared "vision of the possible" among local business and political leaders.

Other programs have also found that a European connection makes it easier to recruit and motivate employers. Several small firms in Pennsylvania's youth apprenticeship site in the York-Lancaster area are run by skilled craftsmen who had gone through the German apprenticeship system in their youth. In Wisconsin, CEOs of several printing firms joined state education and labor policymakers on a 1991 trip to Germany and Denmark. Less than a year later, Wisconsin's first two youth apprenticeship pilot programs—both in printing—were launched.

In Oklahoma, the exposure to European training systems has extended beyond Tulsa. Hilti helped organize a study tour of Germany and Liechtenstein for the heads of nine area vocational high schools and staff of the state vocational education department. Recently, a group of leading employers, state legislators, and educators spent two weeks in Europe. One result: Oklahoma has enacted state legislation creating a youth apprenticeship initiative.

III. Approach Employers in Ways They Trust

Employers are often skeptical that schools can deliver a quality product. They don't trust the language of educators, which seems fuzzy and preoccupied with process over product. And many businesspeople feel that the schools just aren't doing a good job of preparing young people—academically, technically, or socially—for today's workplaces. As a result, a school-to-work initiative must not appear to employers as a school-driven effort that presents them with a pre-scripted part. If employers are to take a school-to-work transition program seriously, they must feel it is *their* program, too. The more intensive the program's worksite learning component, the more critical this sense of "ownership" becomes.

We found remarkable consensus on the most effective ways to establish credibility with employers:

- Involve employers early in a partnership that gives them significant responsibility;
- Anticipate and be able to answer the concerns of employers clearly and convincingly;
- Use business leaders to recruit their peers; and
- Use the networks and credibility of a business intermediary organization to assist in recruitment.

Involve employers early in a true partnership.

The earlier employers and employer groups get involved in planning and design, the more likely they will be to provide a range of work-based learning experiences for students.

Securing employer "ownership" is important in a youth apprenticeship, co-op, or other program providing extensive work experience and training. Employers interested in these programs generally hope to secure new skilled employees from among participants and will make a significant commitment of time and money. Multi-sector committees that had significant and direct employer involvement designed Wisconsin's youth apprenticeship pilot projects in the printing industry. A project steering committee, comprised of CEOs and upper-management personnel from the state's major printers, made many of the early and key decisions. When employers providing training slots were asked why they supported the new program, all but one pointed to the direct involvement of industry in the design phase.

Early employer involvement is equally critical for initiatives that are less industry-specific and that emphasize broad career exploration. A key element of Fort Collins' PaCE program to restructure its vocational program was a new one-semester Career Development course designed to teach skills in career exploration and work readiness to a wide range of high school students, particularly those in tenth grade. Rather than create the curriculum in a vacuum, the school staff worked with the Chamber of Commerce, the Employment and Training Services (JTPA), and local businesses. As one coordinator put it, "We felt we had an opportunity to involve the business community from the start."

The joint business-school committee created a course with three curriculum units: personal growth, career analysis, and resource management. By the end of the course, students will have volunteered at a community agency, researched at least two careers, engaged in at least one job-shadowing experience, developed a career plan, gathered letters of recommendation, and prepared a resume, job-application letters, and a portfolio of their work.

Employers feel they have helped shape a course that addresses their concerns. Completion of the class with a "C" grade or better is now a prerequisite for participation in PaCE's work-experience component. Employers seem eager to provide work opportunities for PaCE students because they know they helped shaped a course of study that prepares students for entering the workplace.

Involving employers early has at least two other useful benefits. The first is political. Business leaders can greatly strengthen a program's political base, increasing its clout with the school district, teachers' unions, and state officials. Support from key business leaders can lessen some of the inevitable turf fights and cut through some bureaucratic inertia. It can provide important credibility when it is desperately needed, before the program has achieved a firm footing.

The second benefit concerns learning. Employers may come to a program with a preconceived set of biases and perceived needs. Through learning about the needs and perspectives of other partners, and by becoming more aware of ways their own views might be unrealistic, employers that are involved early can become articulate spokespeople for the program as it finally evolves. They can become advocates among their peers for different—perhaps more student-centered—program designs.

Anticipate and be prepared to answer employer concerns.

Employers want to hear clear, concise explanations and answers. They respect those who respect their time and experience. They want to see materials that answer their concerns about program administration, design, costs, and benefits. They want to know if other communities, other industries, other firms have tried—and succeeded with—similar programs. The more you anticipate the needs and fears of prospective business partners, the more your recruitment efforts are likely to succeed. And the more you frame your arguments in logic and language that employers understand, the better you will be received.

One way to prepare your "pitch" to employers is to answer the following questions, which represent typical concerns expressed by interested employers:

- What roles and responsibilities are being asked of my firm?
- What will this program cost my firm in wages, training time, and other costs?
- Will my staff have to do a lot of paperwork?
- Will my liability insurance and workers' compensation costs rise?
- Where will ultimate responsibility for program administration and governance lie?
- How will I know that my firm will get adequate program support once students are coming to my workplace?
- What kinds of students will be recruited?

- Will I be able to choose which students are placed at my worksite?
- If my firm experiences attitudinal or disciplinary problems with students, who is responsible for addressing these problems?
- What assurances or evidence will I have that the schools will keep up their end of the partnership?
- Why should I believe this program will succeed?

Being prepared with answers to these questions will go a long way toward persuading hesitant employers to give you a careful hearing. However, there are many reasons why employers decide *not* to participate in programs that require them to work closely with high schools. And you are likely to find that more employers will say no to you than yes, particularly among smaller firms and those with no history of working with school-based programs.

Knowing in advance the most common reasons employers give when they decline to participate can help you anticipate their fears and craft a stronger appeal. In our field research, employers have given a number of explanations for their resistance to joining a school-to-work transition partnership. These include:

- No prior experience working with or supervising young people;
- No time to devote to training young people;
- No staff capacity to provide mentoring and coaching;
- Bad experiences with one or more youth-employment programs in the past;
- Familiarity with "horror stories" from other employers about their experience with other youth-employment programs;
- Fear of bringing "at risk" youth into the workplace;
- Lack of faith in the competence of the school system;
- Lack of confidence in program design, development, and implementation strategy;
- Mistrust of anything that might seem like a "government program;"
- Fear of resistance and hostility from incumbent workforce;
- Fear of a negative impact on the collective-bargaining climate in unionized settings;
- Resistance to incurring extraordinary costs in staff time, wages, insurance.

Use business leaders to recruit their peers.

A good recruitment pitch, presented in a professional way, can only accomplish so much. It can help employers see more clearly the pluses and minuses of getting involved, but it cannot make them take the plunge. Nor can well-produced materials alone overcome negative perceptions that might be

circulating in a firm or among local employers. Ultimately, it is their peers who have the best chance of convincing employers of the value of participation.

The most effective recruiting strategy is to have CEOs and other top managers champion the program. A few powerful boosters in the business community can make a real difference: these leaders can gain access to and command respect from their peers. Usually, they have a set of established working relationships with the leaders of other firms. They share a common culture.

In Boston, the CEO of the New England Medical Center, and chair of the Private Industry Council, has been one of the most vocal and active supporters of Project ProTech and its spinoff program in financial services. In Fox Valley, the vice-president for human resources at the Banta Corporation used his personal connections to recruit other companies, inviting his counterparts to an informational meeting and speaking personally with most of them before the meeting.

The Academy of Finance at Lake Clifton/Eastern High School has cultivated senior executives from most of Baltimore's financial-services firms to serve as liaisons to the program. By targeting top managers from the start, the academy could recruit other CEOs and CFOs to take an active role. In addition, this strategy generated strong support from middle managers and supervisors. When explaining why they got involved, mentors and internship coordinators at several companies emphasized the leadership role of senior management.

In small firms, the decision to invest staff time and financial resources in a school-to-work transition program is made by a CEO who is often the human-resources professional, technology expert, bookkeeper, and "chief cook and bottle washer" rolled into one. In larger firms, the vice-president of human resources is usually an important ally. People in this position are acutely aware of the firm's hiring concerns about workforce quality. They are also familiar with existing relationships the firm might have with local high schools.

In either case, large firm or small, access to a company's decision makers is limited. For this reason, it is important for program planners to take advantage of existing connections with leading corporate executives in the community or target industry. Identify a few employers who will serve as aggressive recruiters among their peers.

Some programs have found that employer-to-employer recruitment can have a grassroots component, too. Workers who mentor or supervise young people in one firm can sometimes influence friends in other firms to lobby their supervisors to propose that the company become involved. This is an explicit strategy used by Roosevelt Renaissance 2000. Recruitment strategies should target department heads as well as senior management. The Socorro High School for the Health Professions program, for example, found that the director of volunteer services at a local hospital could provide entree to key department heads who were in a position to hire young people. At the

middle-management level, personal objectives—such as enhancing personal and professional networks or finding more satisfaction and a better sense of efficacy at work—can complement a firm's public rationale for participating.

Several other recruiting strategies have been effective, including recruitment by teachers, students and their parents, and political leaders at the state level *(see sidebar)*.

Use the connections and resources of a business-related intermediary organization.

One of the striking findings of our survey of programs is the important role played by "third party" intermediaries with strong roots in the local business community. The quasi-public, regional Industrial Resource Centers coordinate the multi-site Pennsylvania Youth Apprenticeship Program. In Boston, the Private Industry Council manages Project ProTech. The Tulsa Chamber of Commerce established an independent non-profit organization to run Craftsmanship 2000. Roosevelt High School's Renaissance 2000 effort has relied heavily on the Business Youth Exchange (BYE) for recruiting interested employers *(see sidebar)*. The Partnership for Academic and Career Education (PACE) in Pickens County has facilitated the development and implementation of local Tech Prep and youth apprenticeship efforts by developing curricula, training teachers, and negotiating agreements between secondary schools and the local community college.

Invariably, intermediary organizations play a major role in recruiting employers. They have played other roles as well, including taking part in initiating new school-to-work efforts, managing programs, developing the curriculum, and, in some cases, recruiting students.

These organizations can have very different histories, memberships, and missions. They may be the creation of government or an association of firms in a given industry or metropolitan area. They can be non-profit organizations created expressly to link schools and employers. Or they may be long-standing civic institutions for whom the school-to-work transition is only one focus.

Using Other Recruiters That Employers Respect: A Few Suggestions

While peer recruiting is clearly an effective way to involve new employers, programs use a range of other approaches as well. What makes any recruitment strategy effective or not is the amount of trust and respect the employer has for the person making the appeal. This respect can be personal, professional, or political.

In many programs, particularly those in vocational high schools, teachers familiar with the employers in a given industry can be effective recruiters. Wayne County shop teachers have recruited a significant number of employers. In Dauphin County, too, the vocational teachers used their networks to find employers willing to expand their relationship with the school and its students and alumni interested in supporting the program that helped them get a start.

In a few programs, students and their parents have identified employers who might be interested. In the Crater High School and PaCE programs, students who already worked in certain companies after school or on weekends suggested that their employers be approached. In Little Rock, at least one firm that now trains heating, air conditioning, and ventilation youth apprentices was suggested by the parent of a student enrolled in the program.

A very different strategy—but one that can often be quite successful in enlisting employer participation—is a direct appeal from a state's governor. In Wisconsin, Serigraph's CEO received a recruiting phone call from Governor Thompson. In Portland, Maine, Governor McKernan personally approached several firms that are now participating in this year's youth apprenticeship pilot program. The first informational packets distributed to Pennsylvania metalworking firms were signed by the governor.

In states where the chief executive has identified the school-to-work transition and workforce quality as priorities, programs might seek to enlist the active support of the governor's office. This strategy may become even more significant—and common—if (as expected) federal funding for school-to-work transition initiatives begins to flow to states in the next year or two.

Whatever their differences, these intermediaries also have much in common. They have credibility with business and industry that schools often

lack. They have a history of working with groups of firms, usually across industries. They understand the culture of the local employer community and know the best techniques for getting the attention of busy employers. Most important, they have staff and financial resources to undertake the recruiting and coordinating functions that schools generally lack and that individual businesses would not assume on their own.

Ongoing participation and leadership from an effective intermediary can make a real difference in a program's ability to take root and flourish. Among the programs we studied, a number of those that have had the most trouble recruiting employers did not use an intermediary organization to help with recruitment and coordination. Falling back to the resources of the school, the district, or a small program within a larger school, they lacked the money, personnel, and credibility to organize an aggressive recruitment effort that could win employer trust and commitment.

How a Business Intermediary Can Facilitate Employer Recruitment

Roosevelt Renaissance 2000 (RR2000) is an ambitious effort to restructure Portland, Oregon's Roosevelt High School into six career-pathways clusters, each of which will provide a range of work-based learning opportunities. The school's leaders believed that the effort would only succeed if it could enlist large numbers of employers to provide job-shadowing, unpaid internships, and paid apprenticeships. To help with outreach, they turned to Business Youth Exchange (BYE), a private non-profit created in 1983 by the CEO of US Bank. BYE brought desperately needed credibility, connections, history as an intermediary between schools and business, and resources.

An independent organization, BYE is affiliated with the Chamber of Commerce and supported totally by donations from Portland businesses. It was initially formed to address the perceived need for a better educated entry-level workforce, primarily in banking and insurance. During the mid-1980s, BYE became the focal point for new business-education partnerships for the Portland public schools.

Increasingly attracted to programs that could institutionalize career preparation in the schools and not be small add-ons, BYE was eager to help when approached for names of employers who might serve on RR2000's advisory committee. Since then, BYE has served RR2000 in many capacities. The lead staffer has recruited employers for planning work groups, participated directly on program committees, helped write grants, and set up summer externships in business for the school's teachers. She spends a lot of time "mediating" between business and school partners, explaining each side to the other and resolving misunderstandings before they get out of hand.

Staffed by people with business backgrounds, BYE capitalizes on their professional contacts, organizational savvy, and marketing experience. The staff knows how to approach CEOs and middle managers. And they do not have to convince employers that they understand the constraints and pressures facing Portland businesses. Moreover, employers already know and trust BYE because of its prior efforts to build local school-business partnerships. BYE's network of contacts and its credibility have been a major factor in the ability of RR2000 to enlist the participation of large numbers of Portland employers.

IV. Maintain and Deepen Employer Participation

Recruiting employers to participate in school-to-work transition programs is not a one-shot affair. Employers who say no should be contacted periodically to see if their decision might change. You can encourage firms that commit to one level of participation to extend that involvement over time. And

employers who are deeply involved at the outset must never feel unappreciated or ignored: they must be involved, engaged, and rewarded for their participation. This final section provides some suggestions for keeping employers actively involved.

Involve employers in structures for governing the program.

One way to maintain employer co-ownership is to involve a number of interested employers in the ongoing, standing bodies that govern program policy. In Boston, the human resources vice-presidents of the hospitals involved in Project ProTech are members of the program's executive committee, which meets monthly. A subcommittee structure can enable a program to engage employer representatives in areas that are of greatest interest to them or where they have expertise. Baltimore's Academy of Finance has separate subcommittees of its employer advisory board that address job-shadowing, curriculum, and program goals.

The challenge with employer advisory groups is to maintain their momentum and provide sufficient reason at each meeting for busy people to continue attending. If meetings begin to seem unnecessary, employer participation will drop off rapidly.

Reward employers for their contributions.

Employers who provide intensive work-based learning opportunities for young people are special. And they should be reminded of that. Awards ceremonies, orientation sessions, holiday parties—these are all opportunities to reward employer representatives by making them feel special as they join students, teachers, and others like themselves in this challenging, exciting initiative.

Another strategy is to invite employer representatives to workshops, lunches, or lectures that expand their intellectual as well as social horizons. Special programs related to youth development, economic trends, and pedagogical innovations can provide opportunities to learn, network, and feel appreciated. These can be organized by the program staff or by an intermediary organization with its own reasons to undertake such activity, such as a trade association, economic-development organization, or school-reform group.

Provide opportunities for employer representatives to speak for the program and for work-based learning at the local, state, and national levels.

If you are invited to make a presentation about your program at a conference or meeting, give employer representatives a chance to go. In the past year, employers from many of the programs we studied—Project ProTech, Craftsmanship 2000, the Oakland Health and Bioscience Academy, the Rindge School of Technical Arts, Roosevelt Renaissance 2000, the Socorro High School for the Health Professions, and others—have offered their views to federal and state policymakers on how government initiatives can help this young movement grow and flourish. Many have been invited to

share their knowledge and experience with others in their state or industry. A few enterprising employers have become advocates within their industry and trade associations for efforts to link school and work. Encourage employers in all these directions. They benefit the individuals involved, increase employer commitment to the program, and raise the visibility of partnership models between employers and schools.

Don't give up on employers who say no.

Employers have many understandable reasons for not participating in programs that bring high school students into their workplaces. Yet conditions change. An employer's economic health might improve, as might its assessment of the value of a particular program. A program's reputation might spread: it might be highlighted in the media or be championed by someone the employer trusts.

For this reason, keep in touch with all the employers you have contacted. Invite them to public events. If you have a newsletter, keep them on the mailing list. It may even make sense to have employers who are not providing work-based learning experiences serve on advisory committees.

Encourage employers to increase and change their commitment over time.

The enthusiasm of young people, as they find the motivation and confidence to learn and grow, can be contagious. It is not unusual for firms to become more deeply involved once they see the impact a program has on students—and on the workers and supervisors who interact with them. Several programs studied by the MDRC team have taken advantage of this dynamic to encourage employers to extend their involvement. (These cases are described in greater detail in MDRC's companion report, *Home-Grown Lessons: Innovative Programs Linking Work and High School.*)

Dauphin County employers initially saw co-op placements as a way to get quality permanent employees. Eager to please participating employers, school staff tended to send the most qualified students. Over time, managers became more involved in the program and more interested in helping the school. They became more receptive to accepting less-qualified students and providing extensive training on the job. Similarly, a number of hospital department heads in El Paso provided placements only because senior management pressured them to do so. Initially, students had make-work jobs with little learning content. However, once managers saw the productive value of participating students, they upgraded the complexity and responsibilities of job assignments.

It appears that getting employers to participate in any capacity—even as members of an advisory board, with no commitment of worksite resources—can serve as a "foot in the door" that can lead to wider levels of commitment over time. This is certainly a strategy worth pursuing, but a note of caution is in order. While the "foot in the door" metaphor is appealing, the "door you come through" may be equally powerful. That is, once a program's

Bringing Industry to the Education Table

Jan Bray, senior vice-president of member programs of Printing Industries of America, participated in the development of Wisconsin's youth apprenticeship initiatives in printing. She made these remarks at a 1992 conference on business-education partnerships.

How can exciting education-reform efforts bring industry into the process and create a long-term partnership?

Too often, educators develop programs in isolation and expect industry to support their objectives automatically. We have seen educators call for industry involvement with little regard for the needs of industry or knowledge of how industry works. Not surprisingly, such calls are met, to a large extent, with silence. To bring industry to the table, educators must learn about and understand what motivates firms, how to communicate with them, and how to make it easy for employers to become involved.

It should come as no surprise that business people are bottom-line oriented. Their focus is on producing a product or providing a service and realizing a profit. Their schedules and priorities revolve around this goal.

So what are the implications for educators and school-to-work programs? First and foremost, make sure you tell employers how their involvement will impact the bottom line. Will their commitment provide them with a better-prepared workforce, which will result in fewer mistakes made on the job, less need for basic and remedial training, and real dollar benefits? Have you explained the costs and benefits clearly? Can you provide examples of similar programs that have shown positive impact? What will it cost? Will there be additional benefits to the industry or the local economy?

As you talk with business leaders, keep in mind that for years they have relied on the schools to provide competent workers and that, for years, they have been forced to hire ill-prepared young adults with limited numerical, reasoning, and problem-solving skills. Why should they believe that schools will now graduate young adults with the skills required to operate increasingly sophisticated equipment? You need to show them your plans and how their association will translate into graduates with practical, real-world knowledge and skills.

Businesspeople are busy. They have limited time for outside projects, especially ones of which they are skeptical. Schedule a meeting at their convenience, keep it short, and prepare an agenda. Then stick to the agenda! Send a brief reminder or, better yet, make a phone call just prior to the meeting; don't assume that they will remember a meeting set up several weeks earlier.

Finally, attempt to show tangible progress as a result of each meeting. Mail minutes of each meeting with resulting actions.

Most businesspeople have neither the time nor the desire to deal with the politics of education. Their focus will be on how to improve or develop programs that address their workforce needs. Do not get bogged down in "turf issues" or political maneuvering; this is the fastest way to chase a businessperson from the table!

Solicit from employers their needs, knowledge, and expertise. Listen and respond to their concerns and suggestions. Make them feel their time is being well spent. Industry has a lot to offer schools—not only knowledge but also personnel, equipment, and materials. They will willingly share if they feel they are real partners. If they feel their involvement will make a difference, they will be more likely to give generously to help a project succeed.

basic design is set and partnership agreements are negotiated, the program is unlikely to change significantly. A broad job-shadowing program is unlikely to transform into an intensive paid work and training program—or vice versa. Thus, while individual employers might change their level of commitment, they will do so in the context of the basic program design. This reinforces the importance of developing clear, mutually agreeable program goals as early as possible.

Section III: Ten Elements of Quality Worksite Learning

Section II focused on one central challenge facing high school programs linking school and work in intensive ways: recruiting employer participation. This chapter turns to a second critical challenge: how to organize, structure, deliver, and assess quality learning experiences at the worksite.

The school-to-work transition programs we studied are all committed to using the workplace as a learning place for young people. Yet what does that really entail? In school, teachers use curricula, lesson plans, instructional methods, homework, tests, and grades as the building blocks of an instructional program that has a clear structure and sequence, can be delivered with relatively consistent quality, and can assess what students have accomplished. But when the site of learning shifts to the workplace and learning opportunities are embedded in worksite experiences, how can quality and content of learning be assured? Every workplace is different, both across and within industries. They produce different products and services, for different segments of the market, with different technologies, work organizations, and management structures. Moreover, U.S. industry has historically underinvested in in-firm training and workforce development, particularly for front-line workers. Not many firms are well prepared to be "learning firms," a term commonly used in Germany.

Yet innovative school-to-work transition programs around the United States are confronting these challenges directly as they experiment with ways to create quality worksite learning experiences for young people. Programs have developed and are combining a diverse range of work-based learning experiences. There is significant variation in the amount of time students spend at the worksite, the number of worksites they experience, the activities they undertake there, the extent and complexity of training they receive, and the centrality of worksite experiences to the entire learning program.

Despite these differences, the various programs begin from the understanding that, like classroom learning, workplace learning does not occur automatically or without planning. Simply getting students out of the classroom and into a workplace does not guarantee that they will learn anything significant and transferable. In fact, ill-designed workplace experiences, like ill-designed and poorly delivered classroom instruction, can damage and demotivate students. Aware of these high stakes, each program we studied works to ensure that its work-based components are of high quality and that all partners understand and fulfill their responsibilities.

This section provides field-based advice on how to create and sustain a worksite-learning program. It is organized around ten basic design elements that we have identified in high-quality programs around the country. The elements begin with the nature of the partnership and its goals, move through the structure and content of the workplace experiences and how they are reinforced in the classroom, and conclude with discussions of the academic, social, and administrative support systems that can make the difference between success and a program that fails to reach its potential.

This section is organized according to the ten elements. Each section contains practical design and implementation suggestions, based on the experience of the programs we studied. As much as possible, we include examples of partnership contracts, training plans, curricular materials, and other tools that have been generated and are being used at these sites.

We do not, however, suggest that every program must implement all ten elements immediately. In fact, none of the programs we studied have developed all ten to their own satisfaction. This is not surprising, given the limited experience in this country with programs that provide young people with opportunities for intensive worksite learning. Some programs might even disagree that all ten are essential, particularly those with less intensive work-based learning components.

Ultimately, every work-based learning program will have to grapple with the various challenges raised in this chapter and decide how much attention and effort to devote to each. At the same time, we encourage programs to think developmentally about their progress. Every program has its own unique dynamics, and at any moment certain issues become more compelling than others.

This chapter is not meant as a prescription, with specific ingredients to mix in exact amounts in a uniform sequence. A more appropriate metaphor is that of a map. From whatever point a program begins to wherever it wants to go in designing a quality workplace learning program, this chapter provides signposts and guidance to those navigating what is largely unexplored terrain.

The ten elements of quality work-based learning programs elaborated upon in this chapter follow:

Element 1: Partners formally agree on the goals of the work-based program and how to achieve them.

Element 2: Student learning at the workplace progresses according to a structured plan.

Element 3: Work-based experiences promote the development of broad, transferable skills.

Element 4: School-based activities help students distill and deepen lessons of work experience.

Element 5: Student learning at the worksite is documented and assessed.

Element 6: The program prepares students to enter the workplace.

Element 7: Students receive ongoing support and counseling.

Element 8: The program provides orientation, training, and ongoing support to worksite and school staff.

Element 9: Administrative structures are established to coordinate and manage the worksite component.

Element 10: Mechanisms exist to assure the quality of students' work-based learning experiences.

Element 1: Partners formally agree on the goals of the work-based program and how to achieve them.

To succeed, an educational partnership must be based on a shared understanding of goals and expectations. It is perfectly natural for schools and employers to approach work-based learning with different goals in mind as well as different views on how to reach those goals. The different perspectives that partners bring to the table is a source of strength. But partnerships falter when divergent assumptions and expectations go unrecognized and unresolved.

Many programs have built a common sense of purpose and direction through a three-step process in which the partners:

- Establish a common starting place by collectively determining program goals and how to achieve them;
- Formalize this understanding by delineating the roles and responsibilities each will assume to implement the program;
- Maintain and build upon this initial agreement by creating a governance structure to raise and resolve issues as they come up.

Collectively Determine Program Goals and Design

The first step in program development is to forge a clear understanding of what your work-based component seeks to achieve. All partners—schools, employers, unions, parents—should collaborate in determining program goals and objectives. Because the commitments required from the partners vary depending upon the goals, it is important to reach a clear understanding of the mission of the partnership.

The following questions can help frame this discussion:

- **What benefits do you want students to gain from work-based learning?** More particularly, is the work-based learning component intended to expose students to careers, motivate them to stay in high school and go on to college or post-secondary training, enrich the school curriculum, provide skills training for a career? A program can be designed to accomplish one or all of these purposes.
- **What benefits do the partners expect from investing in the program?** For example, employers may expect to gain reliable workers. Schools may want to provide a second chance to students who have not succeeded in traditional classrooms. The partners need to clarify their needs and interests and find common ground.
- **Which students should the program serve?** Questions about student selection relate closely to questions about program purposes and benefits. If the main goal is to motivate students to stay in school, students at risk of dropping out are the clear target. But most programs try to achieve multiple goals through worksite learning, complicating student recruitment and selection. When worksite placements are limited, as is common, criteria for student selection rise to the top as a critical issue.

- **What resources can each partner commit to the worksite learning program?** Discussions about program goals and priorities should be informed by frank conversations about the resources partners are willing to commit. For example, a work-based learning program for students at serious risk of dropping out may not be feasible if none of the partners can provide worksite counseling to support these youngsters.

After deciding on the mission and the resources available, the partners need to translate that vision into a concrete design for the worksite learning component. Although the program will inevitably grow and mature, it is important to forge initial agreement around basic design elements:

- How long will students spend at the worksite and what types of experiences or exposures will employers provide?
- What type of training or instruction will students receive at work and how will this be delivered?
- Will students be paid for any portion of their experiences?
- How will students be recruited, screened, and selected for worksite learning opportunities?
- What orientation and preparation will students receive before beginning their worksite placements?
- How will the worksite learning component connect to the rest of the curriculum? Will students receive academic credit?
- Will students go the worksite during the school day? If so, how will schools adjust course schedules to make this possible?
- How will the school partners support student learning at the workplace? What changes in curriculum and staffing will schools make to relate student learning at work and at school?
- How will the various aspects of the program be managed and coordinated?

In planning **Tulsa's Craftsmanship 2000,** the partners formed subcommittees to address various aspects of program design. This makes sense, particularly if the worksite learning component is extensive and involves multiple business and school partners.

Delineate and Formalize Partners' Roles and Responsibilities

The next step is to translate the conceptual design into specific tasks and role assignments. Employers, school staff, and any other program partners must fully understand what is expected of them—and of others.

Formalizing role assignments through a written contract minimizes the chances for misunderstandings among the partners, and it structures mutual accountability. A number of the programs surveyed use written contracts as a tool to codify and strengthen the working agreement among the partners. Although students usually are not formal members of partnership governing boards, they typically sign the agreement as well.

The "Mutual Expectations Agreement" developed by the **Cornell Youth Apprenticeship Demonstration Project** provides one good model (see sample contracts from worksite learning programs that are included in the appendix). While particular responsibilities may vary with the goals and design of a program, the basic framework of a mutual expectations contract can be adapted to any worksite learning partnership.

Establish a Governance Structure to Oversee Program Development

Vibrant partnerships will inevitably grow and change in response to new needs and insights. **Oakland Health and Bioscience Academy** partners originally conceived of hospital field placements as a way to familiarize students with the health industry and to develop basic work-readiness skills. As a result, there was little connection between the formal school curriculum and student experiences at the hospital. However, the goals of the worksite learning component have evolved. Now, both school and hospital partners put more emphasis on skills acquisition and incorporation of hospital-based learning into the curriculum as goals of the worksite component.

A governance structure provides a forum for partners to regularly review and modify program goals and responsibilities in response to implementation issues. Regular meetings among the partners also provide a way to respond in a timely manner to employer, student, and school concerns. By working together on issues and problems as they arise, partners build trust in each other and a shared commitment to program goals.

Element 2: Student learning at the workplace progresses according to a structured plan.

The benefits of work-based learning do not flow automatically from placing students in a work setting. As in the classroom, a well-structured, coherent learning plan is critical to making the most of the educational experience at work.

The principles for developing learning or training plans are the same across the spectrum of work-based placements—from job-shadowing to internship to youth apprenticeship. A training plan should describe:

- learning objectives for the student placement;
- activities and work tasks the student will engage in to achieve these objectives; and
- methods to document and assess mastery of learning objectives.

Sample plans from programs we studied illustrate how to adapt the basic principles of a training plan to different types of worksite learning opportunities. *(See the appendix for sample learning plans like those described below.)*

- The **Roosevelt Renaissance 2000** job-shadowing program guides student observation and inquiry by means of a questionnaire. Students are encouraged to ask the employee with whom they are matched about subjects ranging from the nature of the work and responsibilities to salary range and career paths.
- In the **King-Drew Medical Magnet High School** program, the school coordinator and hospital staff developed learning plans that describe each department's functions and detail objectives and activities for the student's clinical rotation of eight to sixteen afternoons. Activities include assisting technical and professional staff and observing department procedures.
- The **Cornell Youth Apprenticeship Demonstration Project** uses an "Apprentice Progress Report" to structure student activities and monitor achievement over two years of work-based learning. The learning objectives identified by the program—nine technical and social competencies *(see sidebar)*—are broken down into discrete work assignments. As the student progresses through the initial list of tasks, more challenging assignments are added. The progress report allows evaluation of performance on each assignment as satisfactory or unsatisfactory and encourages additional comments by the student's supervisor.

Steps to Preparing a Training Plan

1. Define the learning objectives. The first step is to identify the learning goals of the worksite component. Worksite learning objectives flow from the purpose of the worksite component in the curriculum. In the case of King-Drew Medical Magnet High School, clinical rotations are designed to help students understand the scientific aspects of their work experiences and to

expose them to various health-care careers. The learning objectives reflect these two goals. For example, a student placed in the gastroenterology department is expected to gain an understanding of scientific principles governing a variety of procedures performed there, as well as the roles of different professional groups in the treatment process.

Objectives identified by the Cornell Youth Apprenticeship Demonstration Project provide a framework to programs that want to use the workplace to teach students a broad range of cognitive and social skills. Based on lessons from European apprenticeship systems, as well as recent reports detailing the skills that workers need for high-performance workplaces, the Cornell project's staff has identified nine social and technical competencies that students should learn at work.

Cornell Youth Apprenticeship Demonstration Project Competencies: Learning Objectives for Youth Apprenticeship

Technical Competencies: Perform Work Tasks

1. **Procedures:** Follow steps to accomplish a task.
2. **Computer use:** Use computer technology efficiently and effectively.
3. **Principles:** Understand reasons for procedures.
4. **Excellence:** Commit to high standards of practice and to continuous improvement.

Social Competencies: Participate in an Organization

5. **Systems:** Understand the organizational context.
6. **Rules:** Adhere to professional norms.
7. **Teamwork:** Cooperate with others in a variety of roles.
8. **Communication:** Use written and spoken language to give and receive clear messages.
9. **Responsibility:** Act independently when appropriate, take initiative for work and learning.

(Hamilton and Hamilton 1992, 5)

Clarifying the learning objectives of the worksite component not only advances training plan development, but also strengthens the partnership between employers and schools. The process of defining what the student should do and learn at the worksite encourages partners to make clear their expectations of one another and the students. Setting learning goals collectively builds business and school ownership of the program. It also fosters a sense of shared responsibility for educating participating students.

2. Enlist employers to refine objectives and describe learning activities. After defining the overarching learning objectives, the next step is to ask employers who will supervise and teach students to help turn these broad objectives into a concrete learning plan. To flesh out their training plans, the Cornell Youth Apprenticeship Demonstration Project asked department managers in participating firms to describe the tasks a student might perform to master the nine competencies identified as learning goals. Using the competency framework as a guide, managers generated an initial list of work assignments and activities to structure apprenticeship placements in their departments.

In addition to interviewing department staff, the following two sources have helped programs identify work assignments and activities for students:

- Job descriptions, job performance standards, and procedure protocols that apply to departments where students will be placed (most large employers have detailed job descriptions and written protocols for major procedures); and
- Registered apprenticeship training plans on file with the federal and state bureaus of apprenticeship training.

When asked what a high school student can do in their department, more often than not the staff will list sophisticated tasks and competencies *(see sidebar)*. While educators often worry about placing students into a work setting without a well-honed set of technical skills, worksite staff do not tend to share this trepidation. Many expert workers are also experienced trainers and feel confident that they can teach any motivated novice.

3. Start simple and elaborate plans over time: Developing a full-blown worksite curriculum is a daunting task. Programs that start with simple draft plans and build upon these plans each year have had success in getting started and continually improving the quality of their work-based programs.

The program coordinator for Kalamazoo's Health Occupations Program describes the program's first training plans as one-page lists of objectives and tasks submitted by department supervisors. Based on their experiences with students, supervisors realized that program participants could learn many more tasks and procedures than first anticipated. They also learned that students could understand the scientific principles underlying these

Work Tasks Can Provide Complex, Challenging Learning Opportunities

The programs studied for this guide seem to contradict the conventional wisdom that U.S. employers are unwilling to provide adolescents with responsible and challenging roles. When asked what they could train a high school student to do, managers often specified sophisticated tasks. The following is a sample of the challenging tasks that employers have included in training plans for student worksite placements:

Health Programs

- Explain to a patient the purpose of a pulse-oximetry study and then perform the non-invasive procedure on the patient.
- Perform an electrocardiogram on a patient.
- Prepare and conduct lab work in the pathology lab, including accessing and centrifuging specimens, preparing staining solutions, and entering results in the computer.
- Interview patients, collect histories, and check vital signs.

Manufacturing and Printing

- Calculate cost of printing job using a computer estimating system.
- Read and interpret electronic schematics and electrical diagrams.
- Calculate and set proper speeds and feeds for a lathe.
- Perform optical microscopy, including preparing samples for defect analysis and photomicrography.
- Prepare traffic signal permit drawings.

Financial Services and Office Administration

- Prepare mortgage data for input on a computer.
- Calculate amounts for mandatory reserve calculations on an annual statement.
- Process invoices for payment.
- Write an article for the company newsletter.

tasks. As a result, the second-year training plans included more demanding task lists and specified background knowledge and principles for the student to master. Departmental projects and case studies are also included within the curriculum to test students' clinical judgment skills.

Benefits of Developing Written Training Plans

"Is it worth investing the time to create written training plans for worksite placements?" The answer is a resounding "yes" from programs that use written plans to structure student learning at work. According to program managers, several organizational benefits flow from such a plan:

- **It makes the learning goals of the work placement explicit.** A written training plan lets the student know, and forces the employer to clarify, what students will learn in carrying out a work assignment. The training plan represents a contract between the worksite supervisor and the student, making it easier to hold each party accountable.
- **It encourages formal structuring of work assignments and training.** The process of writing a learning plan encourages department staff to think ahead and prepare training activities and work assignments for the student.
- **It builds employer ownership.** Involving employees in designing student learning plans helps make the program their own. Once empowered to craft the student's experience, worksite staff often develop learning plans that far exceed the expectations of program planners.
- **It helps structure regular meetings and review sessions between the employer and student.** A written plan provides a good starting place for more in-depth discussions between the student and employer about what the student can learn and do in the department.
- **It provides a record of student activity and progress.** A written plan helps structure regular employer feedback on student performance. It gives worksite supervisors a clear list of learning objectives and work assignments for gauging student progress. By providing a record of what students have done and learned at the worksite, a written training plan makes it easier for teachers to relate classroom lessons to student work experiences. This record also provides the program with a tool to monitor the quality of the worksite experience.

Features of Good Learning Plans

Training plans that include the following features can provide the foundation for a rich educational experience:

1. The plan addresses the whys and not just the hows of a decision or technique. A good training plan is more than a list of tasks for students to perform. To understand a task, a student needs to understand the context. This includes the rationale for why a task must be performed to certain specifications, information about the business management or scientific principles underlying the procedure, and the relationship of specific tasks to other tasks and the overall productivity of the firm or organization.

Involving Employees in the Development of Learning Plans Yields Many Benefits for Boston's Project ProTech

Enrico is a 16-year-old who has just been taken to the emergency room at New England Medical Center following a softball accident. Enrico was pitching when he was struck in the abdomen by a line drive. The symptoms he is experiencing include swelling of the upper abdomen, bruising, and shortness of breath. Based on these symptoms, the medical team in the emergency room has asked for a series of tests. They suspect that he may have sustained injury to his ribs or a ruptured spleen.

—Project ProTech Clinical Rotation Curriculum

As part of their work-based learning experience in Boston's Project ProTech, students document the diagnosis and treatment of Enrico. Enrico is a mock patient created by the staff of New England Medical Center to help students explore the roles played by different health-care personnel in patient care and to illustrate the clinical reasoning skills different members of the health-care team use.

During their junior year, ProTech students spend 16 afternoons at the hospital exploring career options through a series of clinical rotations. For the first eight rotations, students visit a new department each time, learning technical and social aspects of the ProTech-targeted careers through observation and hands-on activities. Department staff assigned to mentor the student follow a written plan that specifies student learning objectives and activities for that department. A curriculum consultant developed the learning plans based on the suggestions of hospital staff.

The curriculum development process for these exploratory rotations began with a survey of hospital staff at the seven participating hospitals. Staff were asked what a student could do and see during a half-day visit, and what they would like the student to get out of the experience. After examining written responses, the consultant visited a sampling of departments and asked staff to walk her through what they would do with a student. These visits both enriched the information provided on the written forms and clarified ambiguities. Based on the written surveys and site visits, she developed a set of learning objectives and a questionnaire for students to use to help guide their investigation of each department.

After completing eight exploratory rotations, students select two departments to investigate in depth over the next eight visits. Mock patient case studies, developed by the team of hospital mentors, structure the investigation. For example, students who select the radiology department see the steps staff take to diagnose Enrico's conditions. Mentors show students how to position Enrico for diagnostic X rays and how to read the results using X rays of real patients with Enrico's condition. Students keep a detailed record of the procedures and information they learn in the process of "treating Enrico" and prepare a written and an oral report on the case.

According to hospital coordinators responsible for recruiting and managing department staff involved in ProTech, the rotation learning plans and case studies have been effective tools for structuring the student's first experience in the hospital. As one coordinator noted, "Last year, the exploratory rotations were hit or miss. Some students had great experiences. But other times, students would arrive at a department and sit most of the afternoon because the department was not prepared for them. The learning plans have helped solve this problem by giving clear direction to mentors. Involving the department staff in the design of the learning plans and case studies has been key to building their ownership and commitment to the program. The case studies were the mentors' idea, not the curriculum consultants', and they've loved putting them together."

Designing a Training Plan That Promotes Progressive Learning

Learning Work: A Critical Pedagogy of Work Education, an excellent resource written by three Canadian educators, offers a helpful set of questions to gauge the learning process promoted by the training plan (Simon et al. 1991, 61):

- Do tasks become more demanding and complex in the logical-technical sense, requiring more in the way of physical, cognitive, or relational skills?
- Do tasks become more important in the pragmatic sense? Are they a "real" part of the ongoing work process? Do they lead to more interesting or valued work?
- Is there a move toward more independence in the means by which tasks are established? Can students negotiate the terms of the task? Is a student able to initiate tasks?
- Does the student become more aware of the human and material resources available for accomplishing a task? Does the organizational context of the production process become better understood by the student?
- Does direct supervision occur less frequently? Is the student able to evaluate her or his own performance? Does the student develop a sense of competence? Is the student given more responsibility?

For example, the training plan of the **Pickens County Youth Apprenticeship Program** for electronics specifies that students should learn more than how to repair defective electrical components. They should also learn to utilize basic electrical concepts like Ohm's law to locate malfunctions. Department staff responsible for teaching students are expected to expose students to these principles in the context of demonstrating and explaining work tasks. Active questioning by students is encouraged.

2. The training plan guides students through a sequence of activities that build upon one another, increasing in complexity and promoting mastery. Whether students are in a department for a brief internship or in a multi-year program, the experience should offer students opportunities to learn and refine skills as they progress. One way the programs we studied build sufficient challenge for students into learning plans is by adding and revising the plan over the course of the training. Program staff meet every month or so with worksite staff and students to review student progress and add new competencies and tasks if warranted.

3. The training plan includes methods to document and assess student progress. A training plan should not only describe what students will learn and do in a work setting; it must also provide a record of what students have accomplished. To chart student progress in prescribed competencies, worksite staff need techniques to assess learning at work. Such techniques are discussed in Element 5.

Element 3: Work-based experiences promote the development of broad, transferable skills.

Two often-cited weaknesses of traditional workplace education are its focus on narrow, technical training for specific occupations and its emphasis on basic employability over higher-order skills. Larry Rosenstock, director of Rindge School of Technical Arts and an architect of the 1990 Carl D. Perkins Vocational and Applied Technology Education Act, presents a compelling rationale for emphasizing broad skills training.

> *Given the speed of technological change, narrow training leaves students with soon-to-be obsolete skills. Throw-away skills for throw-away workers come at the expense of academic skills and problem-posing skills for the new work-place—an environment that requires self-learning* (Rosenstock 1991).

The programs we studied are taking steps to ensure that worksite learning fosters the development of broad, transferable skills that expand rather than restrict students' career and educational options. These steps include:

- Exposing students to all aspects of an industry rather than a single occupation;
- Stressing the development of the social skills needed to work effectively in any organization (the ability to work in teams, communicate clearly, and manage one's time); and
- Providing work assignments that push students to develop higher-order critical thinking and problem-solving skills.

Exposing Students to Skills Relevant to the Whole Industry

Training students in all aspects of an industry is an important way that programs give students a broader, more relevant educational experience. The Perkins Act requires vocational programs to provide students with "experience in and understanding of all aspects of an industry." Often this instruction occurs within school walls. For example, carpentry students learn about building permits, zoning regulations, and other aspects of running a construction business in addition to learning how to work with wood.

This "all-aspects instruction" can be built into a worksite component, too. The work-based programs we surveyed reveal a variety of approaches to exposing students broadly to an industry:

1. Rotate students through departments. Rotation through different departments and roles is a powerful antidote to narrow occupational training. Students in the **Wisconsin Printing Youth Apprenticeship Programs** rotate through the business office, customer services and estimating, prepress, the press room, and the bindery department in their first semester. In the **Cornell Youth Apprenticeship Demonstration Project**, students spend six months in each of three departments, then select one of those departments for six more months of training.

If students receive pay, it is important that funding for rotating students' wages comes from the general corporate budget, not department budgets. It is difficult for departments to recoup productivity benefits commensurate with their investments in brief training stints.

2. Offer job-shadowing experiences to complement department-based training. Programs that have the students on the job site for a limited period of time (such as six hours a week) may not be able to rotate students between departments without sacrificing the opportunity for students to develop a deep understanding of and apply advanced skills in one area. Many of these programs, particularly in health care, have students complement in-depth training in one department with job-shadowing experiences that expose students to different aspects and functions of the organization.

3. Pair students with worksite mentors who have broad organizational responsibilities. Placing students under the tutelage of employees whose work involves a wide range of duties helps expose students to all aspects of a business. At **Crater High School,** students are often paired with professional employees who introduce students to the whole industry. For example, the advertising manager from a radio station serves as a mentor and has an intern work with her from the contract with a new client through the plan for the campaign and the development of an ad copy.

Instruction in Social Aspects of the Work Process

Many employers emphasize that they place a high value on interpersonal skills when they make decisions about hiring and promotion. According to these employers, technical skills alone are not enough. To perform well at work, a person has to work well in teams, communicate clearly, manage their time, and adhere to professional norms and standards.

By stressing these social skills, work-based programs help students acquire a set of competencies that will serve one well in any career. Programs promote the development of these skills in a number of ways:

1. Include social competencies in worksite instruction plans. The workplace offers a rich environment to teach teamwork, communication, and other social skills. Many programs include social competencies in training plans. Worksite trainers are responsible for deliberately structuring student work assignments to enhance these skills. This means giving students assignments that require them to communicate and coordinate with other department staff and clients. For example, students in the Heating, Ventilation, and Air Conditioning Youth Apprenticeship Program at the **Little Rock Metropolitan Vocational Center** learn human relations skills as well as the technical skills of installation and equipment repair. Students go out on service calls, and they are expected to handle customer questions and complaints about the work. Similarly, students working in clinical laboratories in Boston's **Project ProTech** don't just run tests; they also field requests from physicians and communicate the test results.

2. Select worksite trainers and mentors with expert social skills. According to program directors, it is critical to pair students with worksite trainers and mentors who exhibit exemplary social skills. To be mastered, social competencies must be observed and practiced. This requires a connection to strong, adult role models.

3. Assess student development of social skills as part of regular performance reviews. Many programs provide a structured review, with the student, worksite supervisor, and program staff member meeting regularly to discuss the student's job performance. These reviews provide an opportunity to give students feedback about their strengths and weaknesses in teamwork, communication, and other interpersonal skills. For greatest impact, reviews should center on concrete examples of a student's interpersonal behaviors, both positive and negative.

Development of Cognitive Abilities

Work-based education programs need to develop the cognitive skills of their students. Worksite activities that expand student's planning, organizing, and problem-solving abilities will do more for their occupational future than any job-specific skill. By giving students work assignments that encourage them to formulate problems and make judgments, work-based programs help students develop higher-order thinking skills.

There are many ways that programs can structure intellectually challenging work environments. Two of the most common approaches are:

1. Place students in training positions in professional work environments. Many professional and technical jobs require a person to regularly apply higher-order thinking skills to solve complex problems. By creating training positions for students in such environments, programs help students develop these skills. Students in the **Cambridge-Lesley Careers in Education Program** spend two mornings a week assisting an elementary school teacher. They have the opportunity to observe and participate in lesson planning, classroom management, and teaching. The program also encourages students to examine the enterprise of teaching and the education industry. Students reflect upon their observations and experiences in the classroom with answers to such questions as: What makes a good school? What makes a good teacher? What have you learned about classroom management? How should a school deal with students who are absent a lot?

2. Give students responsibility for carrying out a complex work project. As part of their work with local fish and wildlife agencies, students in Crater High School's **School of Rogue Ecology** have mapped a segment of Bear Creek, monitored water quality, and prepared an informational video on Bear Creek. By assigning complex projects, as opposed to isolated work tasks, employers give students the chance to develop skills in formulating problems, planning, and troubleshooting.

Element 4: School-based activities help students distill and deepen lessons of work experience.

Work-based learning need not end when a student leaves the workplace. School-based activities can broaden, deepen, and reinforce lessons learned by doing. Structured reflection, in particular, helps students generalize lessons from concrete work experiences.

The programs we surveyed have developed a range of school-based activities to reinforce and extend knowledge gained by students through work experiences. These activities fall into three categories:

- Project work, journal writing, and other customized assignments that explore work-related issues;
- Specially-designed classes that use student experiences at the workplace as the main text for the course; and
- Restructured academic classes that integrate school and work by teaching skills and knowledge in the context of work-related issues and applications.

Projects, Journal Writing, and Other Customized Assignments

Through special projects, journal writing, and other customized assignments, it is possible to integrate work-related experience into any type of class.

1. Special projects are increasingly popular tools for connecting learning at school and work. Project assignments make students reflect upon their work experiences and deepen knowledge gained through practical experiences.

- Seniors in the **Fenway Middle College High School's** Collaborative with Children's Hospital in Boston spend their third marking period working on a scientific research project with their supervisor and co-workers at Children's Hospital. Students determine research venues, conduct research, test hypotheses, and document conclusions. Students have studied the effect of caffeine on heart rate, and they have investigated what Children's Hospital could do to prevent a loss of revenue from incorrect insurance information or registration errors.
- In skits performed at local elementary schools, seniors in Crater High School's **School of Social Services** showed children ways to say "no" to a friend and still maintain the friendship. The students drew upon counseling techniques and knowledge of child development acquired during internships in local schools and agencies.
- The **Kalamazoo Health Occupations Program** requires second-year students to develop an educational tool of value to the department in which they trained. A student working as a nursing-unit coordinator developed an orientation and training manual to help prepare future health-occupations students for this placement. Another student developed pamphlets that explained the adult day-care unit to patients and family members.

- Projects are integral to the youth apprenticeship programs of the Rindge School of Technical Arts. Students in the **Cambridge-Lesley Careers in Education Program** must complete a project that is compatible with the needs of the classroom and investigates how children see the world. One student helped her fourth-grade students explore the concepts of racism, stereotypes, and prejudice through role-playing, writing assignments, and skits. Another student explored whether reading aloud to young children who were not read to at home would help improve their self-image and behavior. Through this project, the student discovered how the teaching process could touch children's lives—and how it could help the student change and grow. The student made these observations in her oral presentation and written report, two required elements of the project assignment.

2. Journals and other reflective writing assignments are also popular tools that teachers use to encourage students to process what they learn at work and bring these observations back to the classroom. Journal entries and other writings often serve as a starting place for discussions of important issues raised by student work experiences.

In many of the programs we surveyed, students keep journals that describe what they are observing, doing, and learning at the worksite. Teachers help structure the journal-writing process through assignments. Often, these assignments push the student's writing beyond purely descriptive reports to more introspection and analysis. For example, students in the **Cambridge-Lesley Careers in Education Program** write about what they have learned regarding classroom design and management from their experiences as classroom aides. They also write about how events at work are changing the way they see themselves and the world.

3. Other classroom activities that reinforce and build upon work-related learning goals are yet another way that teachers help students exploit the learning opportunities of the workplace. Helping students improve their communication and negotiation skills through role-playing exercises with mock clients and co-workers is one example. At Crater High School's **School of Social Services,** students hone their problem-solving and counseling skills through an oral agency report. During the report, students present and discuss client issues they are grappling with as volunteers at local social-service agencies.

Specially Designed Classes Built Around Student Work Experiences

Some programs have designed a special class to bridge student learning at school and work. Dedicating a class to exploration of work-related issues is an educational strategy first developed by co-op education programs. Many other types of work-based programs now follow suit with special classes to help students critically examine and assimilate lessons from work experiences.

Academic Classes Organized Around Work-Related Themes and Applications

The strongest links between school and work are forged in programs that restructure the student's core academic experience around themes and issues encountered in the work world. Some programs group students who work in a common industrial or occupational area in one or more academic classes that base lesson plans on workplace problems. However, many programs have established or are moving to create schools-within-schools organized around a single industry or occupational theme, such as financial services or health care.

In these schools-within-schools, students working in an industry or occupational area take most or all of their classes together. Work-based learning is reinforced and amplified through a curriculum that teaches academic and occupational competencies in the context of industry-related issues and applications. For example, students enrolled in a health-occupations school-within-a-school may learn geometric laws of angles by calculating correct body positions for x-ray procedure, and they may study political economy by debating national health insurance.

For school and work to reinforce each other, schools not only change what they teach but how they teach. If students are to master competencies valued by high-performance work organizations—such as critical thinking, planning, and teamwork—schools need to do more than incorporate work-related themes into lesson plans. Programs encourage students to be active and creative learners by adopting project-based and problem-based curricula—that is, by asking students to apply knowledge from many areas to complex work-related problems.

The following are brief descriptions of programs that are striving to meld school and work into a unified learning environment:

- Themes of health and medical science are woven through all subjects at the **Oakland Health and Bioscience Academy**. In English classes, student learn medical terminology, explore questions of medical ethics, and read and write about the medical issues they encounter in their hospital experiences. The curriculum emphasizes group and individual project work and problem-based learning *(see sidebar on next page)*.

Student Work Experiences Provide the "Text" for Specially Designed Seminars at Rindge School of Technical Arts

Students enrolled in two work-based programs at Rindge School of Technical Arts—the Cambridge-Lesley Careers in Education Program and the Technical Internship Program—explore work issues and refine job skills in specially designed seminars that combine students' English and social studies coursework.

Three mornings a week, students in the Careers in Education Program gather to examine their experiences as teaching aides in local elementary schools. Through writing exercises, readings, and classroom discussion, students explore themes of personal identity and change, making connections between their own lives and the children they are teaching. The seminar also helps students refine work-related skills. In-class exercises focus on teaching techniques and teacher-student interactions. In addition, students read and discuss articles on child development and the sociology of education. These discussions focus on examples from students' teaching experiences.

At a daily lunch seminar at Polaroid, students in the Technical Internship Program explore technical and social aspects of their work at the corporation. Led by a Rindge teacher and a Polaroid shop supervisor, the seminar features trade lectures, safety instruction, and discussions of work issues. Students publish a newsletter about their experiences at Polaroid and teach classmates about pipe-fitting and other technical skills they are mastering in their shops. Presentations from Polaroid personnel include chemical safety, labor issues, environmental issues, and engineering. Students are encouraged to talk with the presenters about the structure and operation of the corporation as well as career issues.

- In **Crater High School's** schools-within-schools of business, ecology, and social services, an integrated curriculum that features industry-focused projects and school-based enterprises joins work-based and classroom learning. Intense experiences at local service agencies provide the basis for classroom discussions and assignments during the four-period block in which **School of Social Services** students meet daily. During this block, students study English, social studies, and health through an integrated curriculum that explores human development from before birth through death. Students in the **School of Business** learn English, economics, and business concepts by operating school-based, profit-oriented businesses, including a branch of a local bank and a desktop-publishing firm. School-based work experiences complement and reinforce what students are learning and doing during the one morning per week they spend at local businesses.

- The curriculum in **Pennsylvania's Youth Apprenticeship Program** is built around student experiences as metalworking apprentices. Interdisciplinary, project-based classes mirror real problem-solving in advanced manufacturing. In a course entitled *Forces at Work*, students learn physics, math, and machine technology through a series of assignments to design, build, and operate devices that solve work-related problems. Work-related issues often drive lesson plans. For example, a student's journal entry about union issues in his workplace prompted a history lesson on collective bargaining. Local layoffs in the metalworking industry generated lesson plans on national economic policy, foreign trade, the history of manufacturing, and the unemployment-insurance system. The curriculum responds to both industry and student needs. To address employer concerns about students' lack of measurement skills, a PYAP teacher developed a math lesson on measurement, using micrometers, verniers, and other metalworking measuring tools.

Problem-Based Curriculum Promotes Higher-Order Thinking

Students at the Oakland Health and Bioscience Academy study advanced biology through a problem-based curriculum based on clinical case studies. Working in teams and relying on self-directed research in a medical library, students diagnose and develop a treatment plan for a simulated patient. The class gives students the opportunity to practice clinical reasoning skills they observe during hospital internships and to synthesize knowledge from practical and academic sources.

Teams of four or five students receive a picture of a patient, a medical record detailing the patient's symptoms, and the results of examinations and tests that would be run. Based on this information, students generate a list of hypotheses that could explain the patient's ailment. Students then "ask the patient" a series of questions and "run tests." The teacher, relying on a master text, gives the responses and test results.

When students have exhausted their initial knowledge base, the teacher points to materials that will support or disprove initial hypotheses and help students generate additional ones. Students consult medical encyclopedias, text books, and journals. Each team member is responsible for exploring an alternate line of inquiry, with everyone taking notes on their reading and recording their ideas. When each student has investigated his or her piece of the puzzle, the team reconvenes to present findings, reconsider hypotheses, and make a diagnosis.

At the end of the case study, students present their diagnosis, evidence to support it, and a recommended course of treatment. After each group has presented its diagnosis and rationale, it finds out the patient's actual condition and the "doctor's" reasoning. Student teams then compare their lines of reasoning and problem-solving processes to those of a real doctor.

Element 5: Student learning at the worksite is documented and assessed.

Assessment of student learning is a critical component of work-based education. To credit student achievements at the workplace, schools and employers must be able to measure and record progress toward relevant academic and performance goals.

The educational establishment is rethinking issues of testing and assessment, and new insights have particular relevance to work-based learning programs. Many educators have come to question the validity of traditional methods of testing and grading and are exploring alternatives that ask students to demonstrate what they know and can do, rather than what they have memorized. "Portfolio" assessment and similar methods accept a range of indicators for achievement, placing performance above test-taking ability.

In addition, it is now recognized that assessment can play an important role in transforming classroom practice as well. "Teaching to the test" doesn't have to be a pejorative expression. Tests should guide student learning by indicating what is important to practice and master. Assessments that ask students to apply knowledge, create a product, or solve a real-world problem inspire a pedagogy that does the same thing.

A number of performance-based assessment techniques—including skill demonstrations, portfolios, and producing and exhibiting projects—are emerging as alternatives to traditional paper-and-pencil tests. Performance-based assessments have many advantages over traditional tests (Far West Laboratory 1992). These assessments:

- allow students to demonstrate mastery through engaging in authentic, relevant tasks;
- can function simultaneously as a teaching tool and an assessment medium;
- provide a broader, more genuine picture of a student's development;
- convey to students that learning involves the continuous practice of higher-order skills, not the memorization of facts; and
- help train students to assess themselves through projects and activities that require students to judge and refine their work.

Worksite learning lends itself to performance-based assessment techniques because it engages students in practical yet complex activities with well-defined purposes and outcomes.

Many programs featured in this guide are experimenting with performance-based techniques to assess student learning at work. This section looks at the pioneering methods of these programs to document student progress.

Worksite Trainer Evaluation of Student Performance

The most common tool used by programs to assess student learning at the workplace is regular, written evaluation of student performance by worksite trainers. A training plan that specifies the social and technical competencies students are expected to master at the workplace structures the evaluation. After the student demonstrates that he or she has achieved a particular learning objective in the context of practical activities at the worksite, the supervisor or worksite trainer records this accomplishment on the training plan *(see Cornell's Apprentice Progress Report in the appendix).*

Deciding what constitutes proficiency can be difficult for all but the simplest tasks. One source that programs use to guide evaluations on complex, technical tasks are established work standards. Large employers and industry associations have developed detailed performance standards and protocols for some technical tasks. To achieve proficiency in such tasks as administrating an EKG test or machining a piece of metal to specified tolerance, students demonstrate that they can perform the sequence of steps specified in the protocol. However, detailed performance standards do not exist for most work-related skills. More to the point, many complex work-related competencies defy description by simple protocols or standards. For example, what constitutes proficiency in teamwork or oral and written communication?

In this sense, evaluating performance on complex work tasks is akin to the challenge of judging artistic or athletic performance. However, unlike the arts, in which subjective aesthetic criteria are paramount, functionality is the standard of the workplace. Does the work meet the specified goal? To chart student progress in communication or teamwork, a supervisor can focus on specific assignments a student carried out and ask: Was a co-worker able to follow your oral instructions? How did your work contribute to a team production goal?

To provide a broader, more genuine picture of student development at the workplace, programs supplement checklist documentation of achievements with written and oral feedback. In addition to checking off tasks and skills as they are mastered, supervisors periodically write comments that provide a more comprehensive picture of a student's skill development in each competency area.

In many programs, written evaluations of performance are tools for structuring more in-depth review conferences between student and supervisor. Program staff often facilitate this review. Regular review sessions give the supervisor and student the chance to reflect upon student accomplishments as well as areas for improvement. These conferences give meaning to such abstract but critical competencies as communication or teamwork skills. Both supervisor and student are encouraged to structure these discussions around concrete examples of student worksite behaviors. By citing instances where the student performed as an effective team member or communicated clearly, the meeting helps clarify and refine expected behaviors and standards for judging performance.

Portfolio Collection of Student Work

Portfolios are another popular vehicle for assessing worksite learning, although most programs use them primarily as a teaching tool. Through creating and maintaining a portfolio of work samples, writings, and other products, students reflect upon their work experiences, assess themselves, and demonstrate their mastery of learning objectives.

- The work-based learning programs of the **Rindge School of Technical Arts**—the Cambridge-Lesley Careers in Education Program and Polaroid Technical Internship Program—feature portfolio-based assessment. Program guidelines specify what a student should include in the portfolio "to illustrate (and celebrate) your achievement and development in the program." These guidelines specify that the portfolio should include: at least three work-log entries, preferably from different times in the program; any other material (journal entries, personal writing, handouts, photographs) that give the reader a picture of the student's goals and work in the program; for each selection, a cover sheet that explains what the piece is and why it was chosen for the portfolio; a completed course and self-evaluation form; a table of contents; and a description of something the student would have liked to include but couldn't.
- Portfolios are central to student assessments for career-technical education programs being developed by **Far West Labs** for California *(see sidebar)*. Again, work samples are an important element of the portfolio. In the Far West Labs portfolio design, the program specifies the type and number of work pieces to include in the portfolio and the skills and knowledge areas these pieces should demonstrate. For each work sample featured in the portfolio, the student writes a caption that highlights the knowledge, skills, and abilities demonstrated in the sample.

Using Work Samples to Assess Student Progress

Far West Labs, a federally funded group that works on education reform in Arizona, California, Nevada, and Utah, is developing a performance-based assessment system for work-based learning. Sponsored by the California Department of Education, the Career Technical Assessment Project's (C-TAP) primary purpose is to develop and implement a certification system for career-technical education that relies on student performance of authentic work-related tasks and projects. Both discipline-specific and general work-readiness skills will be assessed.

For their C-TAP project, Far West Labs has developed guidelines and ideas for work samples in a number of career areas. The following example from their teacher guidebook on portfolios illustrates how to develop and apply these guidelines.

The assessment system will rely on the following evaluation tools:

- *supervisor evaluation of student performance in practical work activities;*
- *a structured portfolio that includes work samples, a research write-up, and a resume;*
- *a major project related to the student's occupational area; and*
- *on-demand tests that include a written scenario and a career performance test (Far West Laboratory 1992, 31).*

For more information, contact Sri Ananda, Far West Laboratory for Educational Research and Development, 730 Harrison Street, San Francisco, CA 94107 (415)565-3000.

Assessment Project

Programs use project work to encourage students to reflect upon their work experiences and to extend skills and knowledge acquired through practical worksite experiences. Projects have additional value as assessment tools because students demonstrate their ability to apply work-related knowledge and skills through producing a tangible product. Many of the programs surveyed use projects to have students demonstrate mastery of worksite learning objectives, although some programs are moving faster than others to incorporate

worksite trainers and supervisors into the project-assessment process. In some programs, worksite and school staff jointly determine evaluation criteria and judge student projects.

Case Presentations

Clinical case presentation is an assessment technique used regularly at the college level in health-professions training. **Kalamazoo's Health Occupations Program** is adapting this technique to test high school students' understanding of the reasons for procedures they learn to perform at a hospital. For example, to demonstrate proficiency in a common procedure performed by respiratory therapists to measure patients' oxygen level, a student must not only demonstrate the procedure to the therapist who serves as preceptor or trainer but also make a presentation on five patient cases. The presentations include an explanation of why the test was performed on each patient and whether the results were valid, given the patient's condition at the time the procedure was performed. The preceptor uses the case presentations and student responses to follow-up with questions to determine how well the student understands the principles underlying the procedure.

Written Examinations

As one element of a comprehensive assessment system, testing is a good tool for evaluating workplace skills and knowledge. Many occupations require candidates to pass a national exam to gain licensure or certification. Tests derived from workplace situations are a component of the assessment system that Far West Labs is developing to certify career-related competencies.

Oakland Health Academy Students Demonstrate Work-Related Skills Through Written Scenarios

As a pilot site, the Oakland Health and Bioscience Academy is field-testing assessment techniques developed by Far West Labs for health occupations. One on-demand test included in the assessment package is a scenario representing a complex and realistic problem from their career-technical area. Students have 45 minutes to write a response to the problem. Below is a sample scenario.

Scenario for Hospital Information Systems: Serving the HIV Patient

You have been a receptionist in an out-patient clinic for a month. Steve, your co-worker, has been a receptionist for two years. He asked you to help Mr. Harry Brown, the next scheduled patient. Mr. Brown is HIV positive and Steve does not want to talk to Mr. Brown as he is afraid he might get the virus. Steve also mentions that Mr. Brown has been asking about medical record confidentiality. Steve has been evading his questions. When Mr. Brown arrives in the office, he asks you how the medical records are kept because he is worried about confidentiality.

Instructions to Students

Describe in detail what you would do and say in the situation with Mr. Brown. Describe what you would do and say in the situation with Steve. Provide reasons for what you say.

To receive a proficiency rating on this task you must show the following:

- Knowledge of medical records management, confidentiality procedures, and transmission of the HIV virus;
- Ability to propose a solution to this scenario; and
- Ability to communicate effectively in writing.

Element 6: The program prepares students to enter the workplace.

It would be hard to overestimate just how foreign the atmosphere, expectations, and norms of the workplace are to high school students. For some, such rudimentary rules as dressing neatly, arriving punctually, and calling in when sick come as a revelation. At best, school life provides an imperfect model for workplace conduct. "Students can pass their classes with an eighty-five percent attendance rate," notes one ProTech employer. "If an employee missed one day a week of work, they'd be out of here within a month."

For all students, in fact, adjustment to the world of work is difficult and complex if they are inadequately prepared for it. To avoid culture shock, programs must prepare students for the world of work. Part of this preparation is a simple introduction to what is an intimidating environment, governed by alien rules, mores, and expectations. The student needs, and deserves, to know what to expect and what will be expected.

The process of workplace acculturation can be more than an introduction. Students coming from ethnic and social groups that are underrepresented in primary labor market jobs may find it particularly difficult to adjust to workplace settings, as will students who have a history of problems with adult authority. These students may require special attention and support during the entry process.

Measures developed by work-based learning programs to help students adjust to the workplace include:

- An orientation process that introduces students to the goals and expectations of the work-based learning program and motivates investment in it;
- Workshops or short-term courses on such basic job-related skills as how to listen, take direction, observe safety precautions, ask questions and seek help, act in a professional manner, and handle interpersonal conflicts; and
- Restructured school environments that simulate the demands and expectations of high-performance work organizations.

Formal Orientation to Program Goals and Expectations

For most students, entering a work-based learning program means stepping into an alien world. The strangeness can be attractive and exciting as students "try on" adult roles and responsibilities and participate in work that has clear social meaning and value. But unfamiliarity is also frightening and confusing. Suddenly, students face demands and expectations that are a complete mystery to them.

A formal orientation that takes seriously how foreign the world of work is to most students can do much to dispel initial fears and confusion. Expectations need to be spelled out clearly, as do the rewards for meeting them.

A proper introduction can also build student commitment to the program.

Formal orientation reminds students that the program is special—and that he or she is special for participating in it. Orientation can lead students toward the goals of the program and reassure them that those goals are within their reach.

Programs create a welcoming yet personally challenging initiation to work-site learning through the following two ways:

1. Recruitment and application: For work-based programs that recruit and screen applicants, orientation begins during the application and selection process. To make informed decisions about participation, students need a clear description of the program and its goals and expectations. In addition to written materials, programs offer informational meetings for students as well as to the teachers and guidance staff who counsel students on academic and career choices.

Programs use the application and selection process to push students to explore personal interests and goals. For example, students must submit a written statement of their reasons for applying to the **Cambridge-Polaroid Technical Internship Program** and be interviewed by a committee of Polaroid and school staff. The interviewers ask students about what got them interested in the program, how they plan to use this learning experience and what achievements they are most proud of.

Informational sessions and interviews also provide an opportunity for students to meet the adults they will be working with and to ask questions about the program.

2. Orientation sessions at the start of the program: Programs vary in the structure and duration of orientation, but most provide some formal introduction that sets participation apart from traditional course work.

Programs normally give students a general introduction to the program as a whole, often geared to building a cohesive group among participants. A peer group committed to the success of each member provides a powerful support structure (See Chapter Four of MDRC's report, *Home-Grown Lessons*, for more details on school-based student support structures.) Properly designed, orientations can play an important role in creating that group identity.

Because of limited resources, most general orientations last one or two days. However, some programs, like the Pennsylvania and Pitkens County Youth Apprenticeship Programs, do more and reap many benefits from longer, more in-depth orientations *(see sidebar)*.

Students also normally get a separate introduction to their particular workplaces. Besides giving students necessary information about procedures and expectations—health and safety rules, attendance policy, and so forth—worksite orientation helps build a direct relationship of responsibility and obligation between student and employer. It emphasizes that the student has a role and function in the workplace and is not just a high school student on a field trip.

- Students from **Socorro High School for the Health Professions** placed at Thomason Hospital go through a one-day, new-employee orientation with the manager of volunteer services. This introduces students to general hospital employee policy and gives them a chance to complete paperwork, get TB tests, and so forth. The manager makes it clear to students that she is available to answer personnel questions that arise during their internship, and she encourages them to seek her help.
- Before starting their apprenticeships, students in the **Cambridge-Polaroid Technical Internship Program** tour the facility, meet their work supervisors, and get acquainted with the work environment. The Polaroid employee responsible for coordinating the worksite program describes guidelines and expectations. The day ends with a big kick-off reception for students and their families, hosted by Polaroid and attended by school and community partners.

Classroom Instruction on Basic Job-Related Skills and Behaviors

Employers do not expect students to enter the workplace with well-honed job skills. Work-based learning experiences are designed to help students learn and practice these skills and behaviors through performance of real-world tasks. But students do need some general understanding of how to handle themselves at the workplace.

In addition to general orientation, most programs give students some training in basic job-related skills before beginning a placement. This training can include how to listen and take direction, observe safety precautions, ask questions and seek help, act in a professional manner, and handle interpersonal conflicts.

For most students, this basic preparation can be covered in a few weeks as one component of an orientation or a work-related class. However, students who have trouble managing behavior and coping with adult demands need more intensive preparation. While "acting out" may be a reaction to alienating school experiences or unsupportive adults, until these students learn more constructive ways to deal with this problem, they are likely to fail at the workplace. The **Children's Hospital Fenway Collaborative** has developed a successful preparation program to help students channel their emotions in constructive ways *(see sidebar on next page)*.

Orientation Prepares Students for the Challenges and Opportunities of Work-Based Learning

Teamwork, building self-confidence, and workplace preparation are the focus of a week-long orientation in the **Pennsylvania Youth Apprenticeship Program.** Drawing on the Outward Bound model for developing self-confidence and group cohesion, students spend the week camping together, tackling a series of physical challenges and problem-solving activities that require teamwork. For example, students must find their way through the woods using only a map and compass, without the benefit of landmarks or trails. In debriefing sessions after the activities, students reflect on their own work styles and roles, as well as the team process. The group explores risk-taking and problem-solving strategies and their application to the workplace. Discussions about program rules and regulations come at the conclusion of the week. One teacher said the unity developed on the camping trip would have taken months to build otherwise.

The **Pickens County Youth Apprenticeship Program** conveyed the seriousness of orientation by paying students in its first cohort (1992-93) for participating in a two-week summer workshop. The workshop introduced electronics students to the program, participant roles and responsibilities, and rules and norms of the workplace, including proper dress, punctuality, honesty, thoroughness, responsibility, and attendance. The sessions included visits to the worksites, exercises in teamwork and self-management, a mini-course on keyboarding, and a kick-off dinner for parents and students. In addition, program directors addressed the connection between the students' upcoming apprenticeship experience and their educational and career plans.

Specially Designed Class Helps Fenway Students Develop Interpersonal and Self-management Skills

Students in the **Children's Hospital Fenway Collaborative** take a six-month Personal Career Development class before entering the workplace. This class was developed after problems surfaced in the program's first year. Students, many of whom had a history of "failure" in traditional school settings and difficulty with authority, weren't meeting basic employer expectations. Program staff found that students had to be psychologically prepared to take criticism, work through issues, and be diligent workers. Through discussion, videos, role-playing, and lectures from hospital staff, students learn and practice social skills and behaviors in the context of hospital-related issues and problems.

Conflict-resolution exercises have proven key to teaching students how to cope with difficult situations. Typical conflicts include:

- Someone you work with just made an "ethnic joke" that offended you and others from your cultural background. What would you do?
- Someone has been stealing money from the cash register. There is only one other cashier, who is one of your best friends. The manager accuses you of stealing the money. You have only worked there for two weeks and your friend has been there for three months. How would you handle this conflict?
- Sharon has worked in a very busy office for three weeks. She thinks she is doing very well, but one day her supervisor walks up to her and says, "Sharon, if your work does not improve drastically in three days, I'll have to fire you." How should Sharon handle this?

Students respond to the hypothetical conflict by recording their impressions and reactions to a series of questions, by discussing the conflict with peers, and, most powerfully, by role-playing possible resolutions.

The program also uses a panel of former students to familiarize students with the expectations of professional behavior in a peer orientation. Program director Nancy Shiels believes that "former students are the best trainers because they have just gone through the same learning process." In addition, students write a statement of their goals for the internship. This forces them to explore why they are participating and what they hope to get out of the program.

Restructured School Environments That Stress Cognitive and Interpersonal Skills Development as Keys to Work-Readiness

The workplace does not have to be a foreign and intimidating environment to high school students. When expectations at school and at work are the same, adjustment comes easily. Students who have learned to think on their feet and act as responsible team members enter the workplace well-prepared to assume new roles.

Acquisition of these cognitive and interpersonal skills does not come easily. It takes time and practice to learn to reason and think creatively, to plan and organize one's work, to be a responsible and supportive member of a team, to manage one's time and emotions. Students who have practiced and refined these skills as part of daily school experiences begin their work-based learning experiences with a strong leg up.

While all students benefit from a challenging preparatory curriculum, its value as an equalizer of opportunity cannot be overestimated. By reaching students early, preparatory programs make work-based learning accessible to a much broader slice of young people. Evidence from the programs we studied indicates that programs that start in the ninth and tenth grades can reach students who have not benefited from traditional instructional methods, improving retention of otherwise unmotivated students.

Several of the programs we surveyed use the power and depth of a restructured curriculum to prepare students to enter the workplace. Here are two examples:

- Students at Cambridge's **Rindge School of Technical Arts** are well-prepared for the work-based learning opportunities available in upper grades. The school has restructured its entire ninth- and tenth-grade curriculum to train students to be active thinkers and doers in the community. Narrow vocational training has been replaced with a curriculum that emphasizes the conceptual and critical thinking skills needed to plan and manage one's own work.

The city of Cambridge provides the learning laboratory for the ninth-grade curriculum. Entering ninth-grade students take a unified vocational and community development course called CityWorks, a combined math/science course called CitySystems (it examines skeletal systems through a comparative study of animal and building skeletal structures), and a combined English/social studies course called CityLife (it explores the history of cities and their links to students' immigrant ancestors).

Through this integrated curriculum, students learn to be both self-starters and responsible members of a team. CityWorks instruction begins with group assignments in mapping, collecting oral histories, and exploring Cambridge, with an emphasis on documentary writing about the city. The year ends with community development projects—such as designing and building a model for a new city building, planning a new museum, or pilot-testing a restaurant concept. (See MDRC's *Home-Grown Lessons* for more detail on the Rindge School of Technical Arts' revised curriculum).

The tenth-grade curriculum continues to build on community-oriented, project-based activities. Tenth-grade students rotate through three different hands-on, community-oriented projects drawing upon several of the school's vocational shops. As in the ninth grade, academic and vocational instruction will be delivered through an interdisciplinary, project-based curriculum.

- By aligning its instructional methods with the way adult workers are treated, the **Ben Davis High School's** Tech Prep Program creates a learning environment in which students practice, on a daily basis, cognitive and social skills valued in the workplace. Like employees in high-performance work organizations, Ben Davis students are responsible for completing tasks and projects, rather than for responding to questions about memorized facts. They are held accountable for work completed during the school day, with less emphasis on homework. They work in teams and are encouraged to learn from their classmates.

  Entering tenth-grade students take a course called Introduction to Technology as part of their preparation for the technology-based labor market. Assignments are simplified work tasks from technological jobs—for example, computer-assisted design and machining projects—including the computer programming that is essential for such work. Units last one to two weeks, and students are expected to be "on task" and complete the assignment in class over that period. The mix of demanding class work and no homework simulates technical jobs.

  Hands-on, discovery-learning, and cooperative-learning techniques characterize instruction in academic classes as well. For example, in chemistry and physics, students spend most of their time working on labs or other group projects. Only about one-fourth of instruction is by lecture.

Element 7: Students receive ongoing support and counseling.

Once in the workplace, students need ongoing support. They need a link to caring adults who can help them navigate the world of adult expectations, resolve interpersonal conflicts and other problems at work, and explore personal and career goals.

For students to flourish in the workplace, programs should provide students with several forms of support:

- **Ongoing support in navigating the formal and informal social arrangements that comprise the firm's culture:** Orientation programs acquaint students with formal rules and structures of the organization, yet unwritten norms and traditions govern most interactions between employees. It can be difficult for a new employee to "read" the work situation and understand how to interpret and participate in social relations. For adolescents—separated by age and often ethnicity from the adults they work with—the entry process can be particularly hazardous. Students cannot be expected to navigate this journey alone. They need adults to "take them under their wings" and initiate them into the workplace culture.
- **Counseling on career directions and opportunities:** Career exploration is an important component of most work-based learning programs. At the worksite, students are often exposed to careers that they might otherwise never have considered for themselves. However, it can be hard for students to digest and analyze these new possibilities. Worksite staff play an important role in advising students about career options by sharing their experiences in the job market and knowledge about how to gain entry into their field. Guidance or career counselors employed by the school or program help students use this information to develop formal plans for post-secondary education and employment.
- **Help in resolving problems at work:** During the process of entry and adjustment to the workplace, problems crop up. If unattended, small problems can quickly escalate into major ones. Tardiness and no-shows, improper dress, and unprofessional behavior are typical problems that employers experience with adolescents who are new to adult work environments. Likewise, students often encounter problems due to the newness of a program and employer inexperience with work-based learning. A student may find a work supervisor hard to approach or otherwise inaccessible, or the assignments ill-defined. School and work schedules may not mesh. Many successful programs have learned the hard way the importance of anticipating these problems and developing mechanisms to resolve them quickly.
- **Counseling and social supports to help cope with major personal and family crises:** Adolescence is a particularly tumultuous period in most people's lives. Many teenagers experience personal and family crises at some point along the way and can easily slip off the track. This is particularly true for teenagers who bear the additional burdens of poverty or discrimination. Work-based programs, particularly those that serve a large number of disadvantaged students, have developed crisis-intervention strategies and supports to help students.

Mechanisms to Support Students at Work

On-the-job support comes in many forms and through many vehicles. Mentors, teachers, program staff, and other classmates all have a role to play in making the worksite experience positive and productive.

1. Mentoring by adults in the workplace: A major benefit of worksite learning is the rich network of supportive adults it provides students. Programs have developed different strategies for connecting students to adults who provide guidance and encouragement. In some programs, students are assigned mentors. Others give natural relationships time to form *(see sidebar)*.

It makes sense to encourage students to develop a mentoring relationship with someone other than their supervisor. This does not preclude a supervisor from acting in that role. In fact, many supervisors take students under their wing, acting as advocate, advisor, and friend. But a supervisor cannot perform certain mentoring functions. They sometimes have to make negative decisions concerning their subordinates, and conflicts between supervisors and employees are bound to arise. In these instances, a student needs an employee to help them figure out how to resolve the issue. And non-supervisory employees are often in a better position to help students "straighten up" and meet workplace demands. An adolescent who is prone to dismiss a supervisor's admonishments about demeanor or performance as another instance of harassment by adults in power may be open to a co-worker's perspective.

Time and again in interviews, students and employees described with joy and pride the relationships they had formed with each other. Below are just a few examples of the types of support and advice worksite mentors provide to students:

- A metalworking apprentice, upset after being "chewed out" by a work supervisor, turned to his mentor. The mentor explained that this supervisor often loses his temper when under pressure and told the student not to take the criticism personally. In addition to soothing the student's feelings and providing encouragement, the mentor suggested tactics the student could use with this particular supervisor. Following that advice, the student improved his relationship with the supervisor.

Natural Versus Assigned Mentors

Two approaches can link students with supportive adults in the workplace. In some of the programs we studied, students are assigned mentors. In others, students select their own mentors as natural relationships form.

Many programs blend the two approaches. Students may be assigned a mentor in the beginning to ensure that they have someone to turn to during the adjustment period. However, these assigned mentorships often give way to relationships that form more naturally as the student becomes acclimated. While mentoring arrangements may vary, all seek to ensure that each student has at least one adult at the workplace to rely upon for help.

The **Comell Youth Apprenticeship Demonstration Project** prefers to cultivate the latter approach. The program assigns the mentoring function to the company, and the firm's training coordinator in turn is responsible for seeing that department staff participating in the program understand mentoring functions. The belief is that the mentoring relationship is best when it evolves naturally from adult and adolescent involvement in common work and interests.

The **West Bend Printing Youth Apprenticeship Program** pairs each student with an employee mentor at the beginning of the program. Selected from a pool of interested employees, mentors act like big brothers or sisters to the students. Mentors take the initiative to check in with the student, ask how things are going, and develop a supportive relationship. In some cases, mentors may also be the apprentices' trainers.

- Career advice from a mentor helped a student visit the radiology department and speak with staff about what he would need to do to become a radiologist. The student eventually secured a paid internship in the department and gained admittance to a college training program in radiological technology.
- A student who wanted to pursue a nursing career overcame her fears and took the chemistry course she had been avoiding after receiving encouragement from the nurses at work.
- Instead of chiding a student about her attire, a co-worker talked about her own difficulties finding clothing for work that was affordable yet stylish, and she offered some creative solutions she had used in the past.

2. Support by teaching and program staff: While a network of supportive adults at the workplace is vital, it is not sufficient. Students need more help than employers can realistically provide. If a student is not showing up for work or school, it may take a counselor or teacher to follow up. Students in the midst of life crises caused by serious family illness, an abusive parent, or homelessness will need special counseling and support services.

Help with scheduling and time management is a typical need as students juggle demands of school, work, and home. Some teenagers have trouble joining activities or sticking with commitments. They need reinforcement and encouragement from adults at school to stay with a work-based program instead of withdrawing after the first bump in the road. And all students need to have someone outside the workplace who will advocate for them if they are not being treated fairly at the worksite.

The programs we studied use school and program staff to supplement the front-line support provided by adults at the worksite. In many programs, a co-op or occupational-education instructor or program counselor provides a second line of support, conferring with students and worksite staff on a regular basis. Often this means going to the worksite and helping mediate a conflict between a student and supervisor. Alternatively, it can entail designing a plan of corrective action so the student can return to good standing. In programs with a large proportion of disadvantaged students, a case manager often helps students cope with work, school, and personal issues *(see sidebar)*.

School and program supports not only benefit students; they provide an important lifeline to employers as well. Worksite staff need to know that extra supports are available to students in need. A hospital administrator from **Kalamazoo's Health Occupations Program** commented on how the program's ability to "respond quickly and effectively to student issues saved the program in the first year at the hospital. It convinced us to continue in the program despite the problems." Many employers echoed those words.

3. Peer support: Many programs encourage the development of peer support networks. Clustering students in school-within-a-school arrangements encourages such networks to develop naturally. Bringing students together on a weekly basis to discuss work-related issues and problems is another way that programs encourage peer support.

Extra Supports Keep At-Risk Youth in Program

Some work-based learning programs target young people who are on the brink of dropping out of school. Others attract a substantial number in the course of recruiting a full range of students. Young people who are tied to the school system by a thin thread need extra support to transform that link into a strong mooring.

One way to think about supports for young people who are at risk of failing in the workplace is simply "more"—more of the same kinds of supports provided to all students. This means more oversight by lead teachers and program staff, more attention to students' personal needs and concerns by mentors, more attention to individualizing the education plan, and more attention to the social aspects of work. Even in the best of cases, students with average skills fall though the cracks. A work-based learning program that targets or includes young people with weak social or academic skills needs to be prepared to build a strong safety net.

The **Children's Hospital Fenway Collaborative,** which targets students at serious risk of dropping out of school, has had remarkable success turning students' lives around. For the last several years, the student-retention rate in the program (staying in school and in their placements) has been near-perfect. Hospital and program staff attribute much of this success to the support system they have put in place. The program employs a half-time job counselor to support students at the workplace. She contacts parents, tracks down absent students, and initiates student meetings with herself, the lead teacher, and hospital staff. The Children's Hospital program coordinator regularly consults with the job counselor about student issues and often asks her to mediate discussions between students and job supervisors.

While the job counselor plays a critical role, school and hospital staff supply the basic network of support for students. Hospital employees who participate in the program understand the need to provide extra encouragement and attention. The hospital coordinator carefully selects employees who are positive and supportive toward student learners, as well as being skilled trainers and supervisors. The lead teacher, who teaches science, critical thinking, and job-readiness skills, regularly visits the students at the hospital, reinforcing the importance of the hospital experience in learning plans.

Finally, the program provides tutoring to students who are having academic difficulties. This is an important component of the support system in programs serving at-risk youth. When asked about the factors responsible for the turnabout of students who entered the **Oakland Health and Bioscience Academy** with poor school records, the director stressed the importance of individualized tutoring.

- Students in the Fort Collins PaCE program meet weekly to discuss problems and issues at their work sites and to share ideas on how to work through those issues. The school's PaCE coordinator organizes the sessions. Relationships with co-workers is a common topic of discussion. For example, a student raised a problem she was having with two co-workers who were gossiping about others in the company and, she felt, about her when she wasn't in the room. The student felt extremely uncomfortable with the situation and asked the group for help. Classmates empathized with her situation and offered a number of suggestions including moving her work station to another part of the office and talking directly with the two women.

4. Career counseling: Through participation in work-based learning programs, students become more directed and motivated about career and educational goals. However, to realize these ambitions, students need help navigating the post-secondary education and training system. The college application process, particularly for students who cannot get help at home, is daunting. As a work-based learning program matures, it can expect increasingly sophisticated demands from students for career counseling and assistance. Program directors describe the hours that teachers or counselors spend helping students pull together financial aid applications, translating and explaining requirements to parents or guardians, and dealing with immigration issues for foreign-born students. Boston's **Project ProTech** employs a full-time career counselor to help the 200 high school juniors and seniors in its health and financial services programs select career paths and secure post-secondary placements.

Element 8: The program provides orientation, training, and ongoing support to worksite and school staff.

Work-based learning is a new enterprise for which all partners need to be prepared. Worksite staff must become familiar with the objectives and design of the program and the roles they are expected to play; they also need ongoing support and training for their new responsibilities as supervisors and educators of young people. Teachers need to adapt their instructional methods to help students extract and build upon the lessons of the workplace.

Training and Supporting Worksite Staff

Programs employ a range of techniques to orient and train worksite staff. Some of this variation reflects differences in the level of involvement required of worksite supervisors and trainers. Understandably, employees who structure a job-shadowing experience for students need less preparation than those who provide an intensive training experience. Other variations reflect differences in the resources available to participating employers as well as differences in training philosophies. All the techniques we observed have merit and are worth considering when designing an orientation and training plan for worksite staff.

1. Formal orientation session for worksite staff: Programs that involve more than a handful of employees from a firm have found it helpful to provide at least one group orientation session at the worksite for participating employees.

2. Orientation handbook and regular newsletter: Many programs prepare a handbook for worksite staff that organizes and reinforces the information provided at orientation meetings. A regular newsletter is another common communication tool.

Formal Orientation Session for Employees Gets Project ProTech Off to Good Start in Area Hospitals

The seven Boston hospitals participating in **Project ProTech** each sponsor a group orientation for participating employees. At the orientation session, employees learn about the program's basic design and goals, student selection and performance standards, expected student outcomes, and employee roles in helping students realize those outcomes. They also learn of the program supports available to students and to them and whom to call for help. Employees especially appreciate the chance to learn more about the parts of the program that are not visible to them, notably their students' high school program.

Project ProTech's partnership design is premised on the formation of a teaching team of high school teachers and worksite instructors. The orientation helps advance this team-building process by formally introducing employees to the teachers and program staff from the Boston Private Industry Council with whom they will be working. The council is the intermediary agency managing the partnership. The orientation also advances the team-building process within each hospital by fostering a group identity and sense of camaraderie among participating employees.

ProTech orientation sessions take place at each hospital. During the first year, ProTech tried to organize a single orientation session for all hospital employees, but attendance was sparse because of the scheduling and transportation burdens it placed on busy department staff.

3. Formal training classes on how to instruct students at the worksite: Two of the programs we studied—the **Wisconsin Printing Youth Apprenticeship Program** and **Craftsmanship 2000**—provide formal, classroom instruction to employees responsible for training youth apprentices on site.

4. Regular one-on-one coaching of worksite staff: Many programs train worksite instructors through the same method they expect worksite instructors to employ with students: one-on-one coaching and consultation.

For example, at **Socorro High School for the Health Professions**, a co-op education teacher communicated regularly with supervisors to help them refine training plans and develop effective teaching activities for their students. In some programs, such as the **Cornell Youth Apprenticeship Demonstration Project**, central staff play that coaching and consulting role.

5. Regular meetings: Some employers organize regular meetings for worksite trainers to discuss student and program issues. Employees appreciate the chance to share experiences and ideas with co-workers in the program. The group meetings also provide an important source of support for employees as they take on new roles.

Training Classes Prepare Employees to Deliver Apprenticeship Instruction

Students in the **Wisconsin Printing Youth Apprenticeship Program** spend up to three days a week at the worksite, so employers have assumed a major role in educating these youths.

To prepare printing industry employees for their new roles as apprentice instructors, a training program for employees began in the fall of 1993 with a full-day session that covered a number of instructional issues including:

- communicating effectively in an instructional relationship;
- building student self-esteem and motivation;
- giving constructive feedback; and
- using step-by-step competency-based instruction.

The training materials, developed by Fox Valley staff in collaboration with high school and employer representatives, make liberal use of case studies to provoke employees to examine and improve their teaching methods. For example, one case study describes a new employee's first day at work and asks the reader to critique the on-the-job training he received.

Preparing Teachers for Their New Roles

Quality work-based learning programs ask teachers to make many changes to help students get the most out of learning through work. These changes range from incorporating special projects that explore work-related issues into lesson plans to developing a fully integrated curriculum organized around work-related themes.

The programs we surveyed recognize the critical role that training and staff development play in empowering teachers to adopt new practices that bring the workplace into the classroom. These training and staff development activities are designed to help teachers:

- Become familiar with the industries and occupations in which their students work and the potential of these workplaces as learning environments;
- Develop and implement lesson plans that feature student-directed projects, problem-based instruction, and other applied-learning activities that encourage the active exploration of the work environment and the development of higher-order thinking skills;
- Create a supportive *teacher learning community* "that discusses new teaching materials and strategies and that supports the risk-taking and struggle entailed in changing practice . . . and sustain[s] participants in their efforts to reflect, examine, experiment, and change" (Cohen, McLaughlin, and Talbert 1993).

To achieve these three staff-development goals, programs draw upon a range of training and development activities, including:

1. Summer internships and job-shadowing days in industry: To incorporate student work experiences into the classroom, teachers need to understand what their students are doing and seeing at work. To gain this understanding, there is no substitute for first-hand exposure. Employer-sponsored internships are a popular and proven technique for giving teachers a working knowledge of industry. Through summer internships financed by employers, teachers from **Baltimore's Academy of Finance** spent time in local financial services firms, exploring all aspects of the industry.

A visit to observe the work process and interview employees about their jobs is another way that teachers learn about the work environment. Teachers from **Roosevelt Renaissance 2000** drew upon visits to workplaces to develop the career-pathways curriculum, which combines student job-shadowing experiences in industry with related class activities. According to the staff of the **Ben Davis High School Tech Prep Program,** teacher visits to workplaces played a vital role in developing an integrated curriculum based on applications from industry. By observing and interviewing technicians about their work, teachers discovered a rich array of technical challenges embedded in the work process that could be used to teach high-order thinking skills in context. Boston's **Project ProTech** curriculum development process was at a standstill until teachers began visiting the hospital departments in which students worked. Through structured interviews and observations facilitated by a curriculum development specialist, teachers uncovered many ways to incorporate student experiences into classes.

2. Training institutes and workshops: Specially designed institutes and workshops give teachers the chance to learn and practice instructional approaches for linking school and work. For example, before introducing a new course based on clinical case studies, **Oakland Health Academy** teachers

Workshops Help Pennsylvania Teachers Bring the Workplace Into the Classroom

To prepare its teachers, the **Pennsylvania Youth Apprenticeship Program** conducted a series of three two-day Fellowship Workshops. Through the series, teachers explored pedagogical strategies for linking classroom and worksite learning, and they became familiar with teaching techniques that encourage active, student-directed learning.

Teachers visited high-performance metalworking firms to observe and determine how lesson plans could be developed. They interviewed workers about their experience, industry knowledge, and what students need to know in their industry, and they reflected collectively on how to integrate workplace learning opportunities into the classroom. For homework, teachers wrote up a task analysis after interviewing a student about an after-school job.

Teachers were then asked to build a variation of a model car, based only on the layout and dimensions of the "thing." Working as a team, with one teacher recording observations, teachers realized the importance of problem-solving skills at work and the power of cooperative learning. A number of teachers proposed ways they would incorporate what they had learned about integration, cooperative learning, problem solving, and metalworking into their classroom. The workshops gave teachers valuable tools for integrating workplace experiences into the classroom, along with the opportunity to discover for themselves the educational potential of the workplace.

attended a week-long training session on how to develop and implement a problem-based curriculum. At Jobs for the Future's Annual Institute on Work-based Learning, teachers from around the country spend five days learning how to connect school and work through hands-on, student-driven activities and projects. Workshops are an important component of teacher development in the **Pennsylvania Youth Apprenticeship Program** *(see sidebar)*.

3. Regular meetings and planning sessions: A major finding of the MDRC study of school-to-work programs is the critical importance of creating *teacher learning communities* (See *Home-Grown Lessons*, Chapter 4, for a more in-depth discussion).

Teachers at Roosevelt Renaissance 2000 Change Master Schedule to Create Common Planning Period

After a struggle with school district administrators and union officials, teachers from Roosevelt High School were able to change the bell schedule to incorporate a half-hour student late arrival once a week so teachers could meet in interdisciplinary career-pathway teams to create pathway curricula.

At first, the district rejected the plan, citing union opposition. But the district reversed its position after receiving pressure from Roosevelt teachers and administrators and from state officials. The teachers union also dropped its objections after hearing from its members at Roosevelt.

These communities are created when teachers have the opportunity to meet and work together. In the programs studied by the MDRC research team, some teacher learning communities arose when teachers worked together during the summer on curriculum development. Others grew out of a teacher team in a school-within-a-school, nurtured by common planning periods and regular team meetings. As the MDRC authors note, "In all cases, the formation of teacher learning communities was preceded by a consensus-building process in which teachers took ownership of the school-to-work program, and began to discuss its effects on their work with their colleagues."

Programs support the development of these learning communities by establishing space and time for teachers to meet together and by giving teachers a strong voice in directing the program. Creating this space often requires a shift in class schedules, work rules, and curriculum priorities.

Element 9: Administrative structures are established to coordinate and manage the worksite component.

Work-based learning programs consist of multiple program elements at multiple program sites. Effective coordination need not imply a cumbersome administrative apparatus, but certain structures and practices are essential for a successful experience. The best-intentioned programs can unravel if no one attends to the details of management and coordination.

No simple rules dictate which partners should administer which aspects of the worksite experience. Different program designs suggest different administrative arrangements. Key factors that influence administrative design include the intensity of the worksite training and the number of school and business partners. For example, a company sponsoring twenty youth apprentices will face many more coordination tasks than a company providing job-shadowing experiences to one or two students.

Administering a worksite learning program includes:

- Recruiting worksite supervisors and trainers and managing their involvement in the program;
- Arranging and scheduling student work and training placements;
- Coordinating communication among the partners in the worksite training (job supervisors, teachers, program staff, students, and parents);
- Facilitating employer involvement in curriculum development and program design issues; and
- Identifying problems and organizing timely response to employer, student, or school concerns about the worksite learning component.

Hospital Coordinators Play Pivotal Role in Boston's Project ProTech

In Boston's **Project ProTech,** the seven hospital coordinators—designated by upper management at each participating hospital to manage its youth apprenticeship program—play a pivotal role. With the largest hospitals sponsoring thirty students and the smallest sponsoring ten, an effective administrative system is a must. The seven coordinators and central program staff meet monthly to discuss design and administration issues.

The coordinators:

- Develop and review the general design of student training experiences;
- Recruit and select hospital staff to supervise students;
- Facilitate supervisor involvement in design of student training plans;
- Help recruit and select students for the program;
- Orient and arrange the training of job supervisors and rotation mentors;
- Arrange student placements with supervisors and arrange and schedule unpaid clinical rotations; in larger hospitals, this entails coordinating more than thirty job and clinical-rotation supervisors;
- Serve as contact to job and clinical-rotation supervisors; and
- Serve as contact to schools and central program staff.

Organizing Training for Youth Apprentices in Wisconsin's Printing Youth Apprenticeship Initiative

The printing companies participating in Wisconsin's **Fox Valley Youth Apprenticeship Program** have developed a highly structured system to ensure that students receive a quality, coherent training experience.

Area coordinators—called mentors—are responsible for brokering students among trainers and workers. There are four coordinators covering the business department (office work, customer service, and estimating), pre-press, pressroom, and bindery departments. The coordinators organize a student's actual assignment each day to meet the prescribed competencies for the area. They designate which employee will provide the training and evaluate student performance. They are responsible for reviewing and helping to improve the student's training experience.

Although arrangements vary, our survey of exemplary school-to-work programs suggests some important lessons to follow when designing an administrative structure for worksite learning:

1. Firms should designate one employee to manage the worksite program. It is critical that companies providing placement to more than a few students designate an employee to coordinate the program at the worksite. Even if a business is sponsoring only one or two students, a central contact helps avoid miscommunication between the employer and school.

There is no hard and fast rule about where a work-based program fits within the corporate structure. However, the employee designated to recruit and manage department participation in a work-based learning program needs to be seen as an extension of top-level management. Because line managers are under pressure to raise output and cut costs, it can be hard to get them to commit significant time and resources without the endorsement and active support of top management. Corporate leaders need to signal that providing a quality training experience to a young person is a valued output.

PaCE Coordinators Facilitate Employer Participation

PaCE (Professional and Career Experience) involves over 550 students from four Fort Collins area high schools and 400 employers. Before PaCE, employers found contact with the high schools complicated and confusing. Sixteen faculty members at four high schools independently arranged work placements for students. It was not unusual for a local employer to get calls from two or three teachers at the same school. But when an employer had an opening, the firm would often have to call several coordinators before connecting with one who had a student available.

At the urging of the business community, the school district, in partnership with the Chamber of Commerce, established a single contact for employers and students at each high school. Each of the four schools now has a PaCE coordinator responsible for recruiting students to the program, identifying and developing job placements, and communicating regularly with participating employers and students.

2. While a student may have many different trainers, he or she should have one supervisor who is responsible for coordinating and monitoring the training experience within an area of the company. Many programs offer students the opportunity to learn various aspects of the work process by rotating them to different jobs and departments. These programs usually designate one employee in each department to coordinate and monitor the student's training experience in their area.

3. A school-based coordinator has to administer the flow of students and information from the school side. A school-based coordinator is a critical member of the administrative team in all the programs we surveyed. While the specific duties of the school-based coordinator vary with the design and scale of the work-based component, school-based coordinators typically: recruit students; help arrange student work-based placements; handle the logistics of getting the students to the workplace; and serve as the main school-based contact for students, employers, and program administrators.

4. Effective coordination of multiple school and business partners requires centralized administration. Intermediary organizations are often best suited to play this role. Orchestration of multiple school and business partners requires some form of centralized administration. Programs often turn to third-party organizations to coordinate these complex partnerships.

Building a multi-employer, multi-school partnership involves brokering a complex array of interests and needs into a coherent plan for program development. Intermediaries, especially those with a foot in both employer and school worlds, are in a position to carry out "shuttle diplomacy" among the employers, school administrators, and teachers to make complex partnerships work.

Day-to-day management of a complex partnership can overwhelm school or business organizations that are not set up for this purpose. In contrast, intermediary organizations that are well-versed in managing community-oriented programs often have trained staff and administrative structures in place. Examples of intermediary organizations serving this function include chambers of commerce *(see sidebar)*, technical or community colleges, Private Industry Councils, community-based organizations, and specially created non-profits.

Craftsmanship 2000 Relies on Intermediary to Manage Partnership

The Tulsa Chamber of Commerce has played a critical role in starting up and managing **Craftsmanship 2000,** a metalworking youth apprenticeship program that has multiple school and business partners. Drawing on its existing relations in area businesses and vocational-education programs, the chamber brokered agreements on major design and implementation issues among the six employers, public school administrators, and two post-secondary technical institutions.

A chamber staff member served as the program's first executive director, overseeing both program development and day-to-day administration. This required managing the development of work-based curriculum, facilitating school and employer involvement in curriculum design and other key issues, and recruiting and selecting students. The chamber also acted as midwife to a new nonprofit entity, Craftsmanship 2000, as the permanent home for the program. The chamber continues to play a leading role through membership on the executive committee that governs Craftsmanship 2000.

Tips for Recruiting Supervisors

A cadre of employees committed to teaching and mentoring students is the key ingredient of a quality worksite program. Worksite program coordinators offered the following tips for recruiting employees to participate:

- Use upper-level managers, especially human resource development staff, to make a presentation to department managers. This sends the message that the program is highly valued and integrated into the overall human resources strategy.
- Recruit supervisors using a personal touch. One-on-one recruitment allows you to make a private query about problems the supervisor has concerning participating in the program—and it addresses the problems without public fanfare.
- Use committed supervisors to recruit other supervisors. Build a cadre of support with those supervisors who are committed to education and are good trainers, and enlist their help in recruiting others. Good trainers tend to be good trainers whether they are dealing with adults or youth. Build on the resource that good trainers provide.
- Communicate successes through newsletters, lunch-table presentations, and supervisor seminars. Make it fashionable to be involved.
- Build in supports for supervisors who become involved. Structure regular opportunities for sharing and problem solving.

Element 10: Mechanisms exist to assure the quality of students' work-based learning experiences.

Quality does not come automatically. Establishing and maintaining a quality program depends upon mechanisms for assuring that students' work-based learning experiences meet the educational objectives of the program.

A range of techniques are used to monitor the quality of students' worksite learning experiences and to promote continuous improvement. These include:

- Careful selection at the front-end of worksite staff;
- Careful selection at the front-end of worksite placements;
- Program staff oversight of student placements—through observing students at the worksite, consulting regularly with worksite staff, and reviewing written evaluations that document student exposure to prescribed learning activities;
- Student evaluation of work placement through written evaluations, conferences, class discussions and writings;
- Regular review of program issues and student outcomes by the partners; and
- Feedback from outside evaluators.

Careful selection of worksite staff: A main strength of work-based learning is personalized instruction and attention. The relationships forged between students and department staff assigned as teachers and mentors determine the texture and quality of the student learning experience at the worksite. Selecting staff who have the interest and skills to create a satisfying experience for students is key.

Employers in the **Wisconsin Printing Youth Apprenticeship Initiative** took care to identify and recruit department staff with strong interpersonal, teaching, demonstration, and coaching skills. One printing firm did a person-by-person review to see who fit these criteria and then asked these employees to train apprentices. Another firm asked employees to volunteer, then selected the most qualified candidates from this pool.

Careful selection of worksite placements: In addition to weighing the interests and skills of departmental staff, programs have found it important to examine the structure and environment of a department when placing students. Factors such as the nature of the work performed, the level of control of work flow and schedule, and staffing patterns affect a department's ability to provide a quality learning experience.

Some programs have learned this lesson the hard way. For example, staff on a hospital nursing unit were eager to take a student. However, despite the best of intentions, unit staff were unable to provide the student with proper training and supervision. This was because during the time the student could work—late afternoons—the floor was staffed with a skeletal crew.

Before placing students, the co-op coordinators of the **Dauphin County Technical School** carefully screen employers to ensure that they will not take advantage of students and give them only menial tasks. In addition to explaining the educational purpose of the co-op experience and requiring a training plan, coordinators visit the worksite every two weeks to check what students are learning. If employers are not offering a satisfactory training experience, the coordinator will place the student with another employer.

Oversight of student placements by program staff: In the programs we surveyed, regular contact between worksite and program staff is the main vehicle for monitoring the quality of student placements. Through visits and regular phone conversations, program staff evaluate the extent to which the placement is meeting a student's educational and personal needs. Supervisor/trainer written evaluations of student progress provide another valuable source of information to assess the educational content of the placement. Early identification of issues related to the placement prevents many minor problems from growing into major ones.

The people assigned to monitor student placements vary. Co-op education teachers play that role in some programs; in other cases, this role is played by staff of the intermediary managing the program.

Student evaluation of placement: There are many ways to encourage students to give constructive criticism about the content and value of their worksite experiences. Kalamazoo's **Health Occupations Program** has had particular success with a one-page evaluation form that students fill out every few months *(see sample student evaluation of work placement in the appendix).*

Regular review of program progress and student outcomes by partners: Program oversight is a key function of partnership governing bodies. Regular review of program progress and discussions of ways to improve performance support a process of continuous improvement.

Feedback from outside evaluators: It is often very difficult for program managers to step back and analyze progress. Some demand is always more immediate, some crisis demands handling. Outside evaluators can help facilitate and structure the needed reflection on program progress. Through interviews with program participants and analyses of student outcomes, evaluators provide feedback to partners on the performance of different components and make suggestions to improve implementation.

Section IV: Common Implementation Challenges: Questions and Answers for Practitioners

School-to-work transition programs that provide high school youth with intensive work-based learning experiences run into fairly predictable implementation challenges. This final section addresses some of the most common and important of these challenges in a question and answer format:

- Recruiting and selecting students for worksite learning programs;
- Student attendance and performance problems;
- Transportation and scheduling;
- Insurance and liability;
- Child labor laws;
- Paying students for work;
- Building good relations with workers and organized labor; and
- Scale and cost issues.

Recruiting Students

In our community, vocational education has a negative image among both parents and students. How can we ensure that they see this new effort as different?

Students decide on their high school programs largely through word of mouth and, to a lesser extent, from recommendations by adults they trust and respect. If you create a good program, word will spread and the number of applications will rise; if not, recruitment may be difficult. The number of applicants to the innovative **CityWorks** ninth-grade program at Rindge School of Technical Arts went up significantly in its second year solely because of the positive experiences of the first CityWorks graduates.

Based on the sites we studied, it seems that if young people—and their parents—perceive a program as a stepping-stone to further opportunity, particularly post-secondary educational opportunity, they will not view the program as a low-status option. Students, parents, and teachers generally take a strong positive view of a program that incorporates a work-based component while still maintaining academic standards that can lead to college.

The greatest challenges are faced by programs that target industries seen as "blue collar" or where employment is declining. For these programs, such as metalworking or printing, recruitment has to be more focused, strategic,

and aggressive. It becomes critical to approach and win support from guidance counselors, who play an important role in setting students' schedules and guiding academic choices. To drum up student interest, it helps to bring employers into the schools or to plan visits to participating firms for ninth and tenth graders. To avoid stigmatization as "just another vocational program," show that your program does not cut off future options but rather enhances them. Make it clear that the learning program is broad, not narrow.

Who should decide which students participate? What is the process for matching young people with employers?

The recruitment and selection process typically entails three steps: (1) deciding on the selection criteria; (2) narrowing down the applicant pool; and (3) matching participants with employers. Both schools and employers should be involved in all three steps.

Employer representatives should be involved early and actively with school personnel in establishing the selection criteria. This helps employers and instructional and guidance staff from the schools develop a shared sense of who the program is targeting.

Schools should play a dominant role in generating the applicant pool for the program. On a practical level, teachers and guidance counselors know the students and how to reach them. Moreover, by selecting the participants, schools can ensure that the program maintains its educational mission and that participants reflect the diversity of the student body.

Employers want to be able to choose the students they will train and pay. Particularly in more intensive worksite programs, such as co-operative education and youth apprenticeship, department heads usually want some say in choosing young people who will fit well with their staff and work activities.

In the **Cornell Youth Apprenticeship Demonstration Project**, schools perform the initial screening. Each firm then establishes a committee to interview and choose youth apprentices from those individuals sent to the firm. In Boston's **Project ProTech**, a committee comprised of the program staff and the lead high school teacher make the initial decisions based on interviews with all applicants. A larger group that includes employer representatives conducts a second round of interviews. As often as possible, participating supervisors at the various hospitals can choose from among several students.

We are worried about sending students with poor school performance and attendance into workplaces. Will they be able to handle it? Will employers get the kinds of student they want?

Practitioners often ask whether programs that combine school and work can "afford to" admit students who have performed poorly in school. They are concerned that sending such students into the workplace will alienate employers, without whom the program cannot survive.

Among the programs we studied, employers generally acknowledged that poor academic performance in traditional high school programs has not been a significant factor in whether young people succeed in a worksite learning program. In general, employers appear less concerned about prior academic performance than about emotional stability, motivation, and interest. Employers generally resist bringing students with serious behavioral problems into their worksites. In the health field, disruption of patient care is a serious fear; in manufacturing, costly disruptions of production or damage to machinery are oft-cited concerns. However, if schools provide enough support and counseling, employers find that young people accept the responsibilities of spending structured time in adult workplaces. (For more on this point, see Element 7 in Section III.)

Some of the programs we studied, including the **Wisconsin Printing Youth Apprenticeship Program**, have an application process that screens for motivated, more disciplined students. A number of programs require applicants to attend an informational meeting with program staff prior to selection. This simple screening strategy can generate a pool of relatively more motivated participants: making the effort to get to a meeting demands organization and effort from students.

Other programs, however, including the **Oakland Health and Bioscience Academy** and the **Fenway Middle College High School**, explicitly gear work components to educationally and economically disadvantaged students with impressive results. Fenway reserves its paid-work collaborative with Children's Hospital for some of the program's most troubled students. In these situations, one-on-one tutoring and case management have provided supportive compensation for earlier deficiencies.

Student Attendance and Performance Problems

We are afraid that asking young people to perform well in two different environments—school and work—is asking too much of many high school-age youth. Won't we see a rash of attendance and performance problems among participants?

Every program that links school and worksite experiences runs the risk that the student will become, as one practitioner has put it, the "slender thread that links two environments—school and work—which are often hostile to young people." However, programs we studied have found ways to minimize some of that risk.

A common strategy for easing young people into increased responsibility is to expose them to "graduated stress." That is, the expectations for behavior and performance must be raised gradually—and articulated clearly at each step along the way. Programs that ask too much too quickly of young people who are used to failing in school encourage participants to take the easy way out—to act out and fail once again rather than grapple with the demands being placed on them. On the other hand, programs that do not make it clear that work requires a narrower set of behaviors and attitudes than those typically tolerated in school will also lose participants.

Programs that have minimized the amount of dropping out from intensive work-based learning components have combined the following strategies:

- Careful orientation and preparation before students begin the workplace component of a program;
- Clear explanation to participants of the expectations at the worksite and the consequences for not meeting them (e.g., what happens the first time you are late or absent, then the second, etc.);
- Thoughtful matching of supervisors with students, so that personalities are compatible and supervisors who are better equipped to deal with challenging teens are matched with more demanding students;
- Regular performance evaluations at work that serve as a diagnostic tool for the student and his or her supervisor; and
- Assignment of case managers at school who are responsible for each participating student, encouraging and reinforcing positive behavior patterns and taking much of that pressure off the workplace supervisor.

At the Children's Hospital Fenway Collaborative, school-based counselors intervene when there are attendance and performance problems at the worksite by meeting with both the supervisor and the student. A contract is negotiated that spells out the expectations and the progression of work-related responsibilities. Ultimately, positive interpersonal relationships are the key to minimizing behavioral problems.

When young people begin to see the consequences of their actions *for others*, they are more likely to alter problematic behaviors. As one human resources vice-president explained, "I want to be able to ask a student 'What happens when you don't show up?' and have the answer be 'I let the people in my department down,' not 'I get in trouble.'" That kind of maturity requires supportive, but demanding adults—at the worksite and in school—whose behavior signals that they care.

Transportation and Scheduling

The logistics of getting students to and from the workplace can be a serious cost and time constraint. How do different programs deal with this challenge?

There is no question that moving high school students out of the classroom into workplaces during the school year creates logistical and financial challenges. Many programs find their recruitment strategies constrained by the distance from school to the workplace. For this reason, programs often begin by targeting firms who are on major public transportation lines. This is one reason why downtown employers in the health and financial services industries are frequently targeted by programs in urban areas. Ironically, more rural areas may be less constrained by location and transportation. More young people seem to have access to cars—and while distances might be greater, transportation itself poses less of a dilemma.

Most schools that have intensive work experience components to their program have moved to some form of block scheduling for those students.

Programs tend to carve out time at either the beginning or the end of the school day for students to be at the worksite, concentrating the classroom component so that students do not have to spend unnecessary time traveling back and forth and back again.

The cost of transportation is sometimes an obstacle for worksite learning programs. In urban areas, bus passes can keep costs low. In programs where a number of students travel to the same employer, employers sometimes provide vanpools, absorbing the costs themselves. **Kalamazoo** is an interesting case: transportation costs have been paid by the Intermediate School District that runs the vocational program. Because the district does not have a separate regional vocational center building, the system can afford to subsidize transportation to worksites.

Insurance and Liability

We hear a lot of concern from employers about insurance coverage and liability for injuries or accidents to students in a worksite learning program. They are afraid their costs will skyrocket and they may be exposed to civil law suits. How can we minimize the risk to employers, particularly small businesses?

The issue of insurance and liability does not appear to be as significant an obstacle to employer participation as many fear. Students in work and learning programs must be insured at school, at work, and while in transit between school and work, but there is a wealth of precedent and experience in co-op education and other programs with providing such coverage. Most of the legal issues are straightforward, and the additional costs are small. Insurance coverage for in-school activities does not require special insurance, because they are included in the regular liability policy for the school or district.

The more complicated issues are liability while at the workplace and while in transit to and from work. In general, liability for accidents and injuries during transit rests with the party responsible for transportation. If the school is transporting the student, the normal school-bus coverage applies. If the employer provides a van, the employers' insurance coverage applies. If the student drives, the student's insurance should apply.

There has been some variation. In the **Oakland Health and Bioscience Academy**, student self-transportation during school hours has been treated like a school field trip: the school district provides coverage. In other cases, students sign an agreement at the beginning of the program specifying that the school is not liable if the student chooses to transport him or herself. In the **Kalamazoo Health Occupations Program**, the school system's insurer covers participants when they are not on the job, protecting students during self-transit if they do not have their own insurance. Obviously, program staff must find out from a school or district's legal department how these issues are generally handled.

Employers may cite workers' compensation costs as a reason for not participating. Many employers, particularly smaller ones, fear that their experience rating, and therefore their premiums, will go up if a student is involved in an accident on the job. In programs where young people have limited and unpaid exposure to workplaces, workers' compensation is not an issue: school districts routinely purchase an insurance-policy rider to cover students in unpaid worksite experiences.

When students are paid for work or operate equipment and do productive work, workers' compensation coverage is required. Employers typically bear this responsibility. In Tulsa's **Craftsmanship 2000**, though, a nonprofit organization set up to administer the program provides this coverage. In **Pickens County**, the youth apprenticeship program intends to provide the workers' compensation coverage for small employers under the State School Board Association's policy. In the past, co-op education students have been added to the policy for no extra charge. Again, several approaches are possible, depending upon the needs and concerns of participating employers.

Child Labor Laws

Do child labor laws apply to our program? Should they affect the way we design the worksite learning component?

Child labor laws apply to work-based learning programs that place students in authentic work settings. These laws are confusing and differ from state to state and between the federal and state levels. However, based on the programs studied here, these laws and regulations should not pose a serious obstacle. The greatest challenge is employer fear and misperception about child-labor restrictions as they apply to young people still in school.

The federal Fair Labor Standards Act and a myriad of state laws, regulations, and orders cover:

- minimum ages for general and specific types of work;
- night work;
- certain kinds of hazardous work;
- registration of minors in employment (work certificates); and
- maximum daily and weekly hours of work permitted.

The multiplicity of laws and regulations, the special exemptions for different categories of youth and work, and overlapping federal and state provisions make it difficult to know which provisions apply under which circumstances. One rule in clear: for businesses covered by the Fair Labor Standards Act, any conflict between federal and state provisions is resolved by applying the more restrictive of the two.

In general, restrictions on hours and occupations apply to people under the age of sixteen. For sixteen- and seventeen-year-olds, the most significant restrictions apply to work in hazardous occupations. For example, people

under eighteen cannot operate some power tools and cooking equipment. Once a youth is eighteen, he or she is considered an adult and can work in any occupation for any number of hours.

Minors enrolled in certain kinds of education and training programs are exempt from certain provisions of state and federal laws. These include fourteen- and fifteen-year-olds in approved work-experience and career-exploration programs, sixteen- and seventeen-year-olds in an apprenticeship program registered with the federal Bureau of Apprenticeship and Training or the state equivalent, and student/learners enrolled in a co-op vocational program and employed under a written agreement that specifies the extent of work in hazardous occupations, the provision of safety instruction, and student work tasks that follow an organized progression.

A clear introduction to federal and state child labor laws, *Minor Laws of Major Importance*, is available from the National Institute for Work and Learning in Washington, D.C. Address specific questions to the Wage and Hour Division of the U.S. Department of Labor (202/523-4670) and to your state labor department.

Paying Students for Work

How important is it for students to get paid?

It is obviously easier to interest employers in work-based learning experiences that are unpaid. Moreover, young people *can* have significant learning experiences in workplaces without being paid. In fact, these are by far the most common worksite experiences for high school students today.

Yet there are important reasons to consider a paid component in a school-to-work transition program. Paid work is motivating. It creates a real-world incentive for performing well and taking responsibility seriously. Paid work also heightens the sense of mutual responsibility employers and students feel. Employers feel great ownership of a program if they pay wages. They are more likely to identify and create quality work experiences for paid workers.

In addition, remuneration is often a practical necessity. If a program extends beyond normal school hours, students may have to choose between a learning-rich unpaid work position and a low-skill job to make money. Paying students, especially for time on the job after school hours, allows a more diverse population to participate.

Can my program begin with unpaid work and move toward paid work?

A number of programs we studied move toward paid work over time. There is some evidence that incremental involvement of employers with young people can strengthen employers' interest in providing paid opportunities. **Roosevelt Renaissance 2000**, for example, has begun with job-shadowing experiences for ninth graders. Participating employers have since expressed more receptivity to providing paid work opportunities for older students.

Dauphin County Technical School sometimes arranges for a student to begin his or her co-op position with a brief unpaid trial period as a way to entice employers to take a student into the shop. For similar reasons, **Socorro High School for the Health Professions** uses Job Training Partnership Act funds to pay co-op students during an initial "try-out" period.

There are other reasons to start with unpaid worksite experiences. **Project ProTech** in Boston has moved away from its original design of providing paid part-time training jobs to first-semester eleventh graders. Students felt entitled to their jobs and acted accordingly. Now, first-semester juniors have a series of unpaid rotations through different hospital departments and begin paid work in the second semester, after demonstrating academic performance in the first semester.

What should students be paid for their part-time jobs?

A 1992 survey of thirty-nine work-based learning programs for high school youth conducted by the National Center on Education and the Economy found wages ranging from the minimum wage ($4.25 per hour) to $8.00 per hour. The amount varies, depending upon the industry and local prevailing wages. In general, students receive less than entry-level, full-time employees. Multi-year programs usually have a schedule of raises tied to performance, as with regular employees.

Under the Fair Labor Standards Act, employers must pay the minimum wage. However, Section 14 of the act provides an exemption for "student learners." Student-learners, if enrolled in a co-op vocational program and employed under a written agreement that specifies a schedule of progressive work processes linked to the participants' school program, can be paid a subminimum wage. Such cases must be certified by the U.S. Department of Labor, which grants certificates only if the student's work is seen as part of their education. Some programs we studied pay students a stipend that is less than minimum wage if calculated on an hourly basis.

Building Good Relations with Workers and Organized Labor

Employers in our community work hard to maintain good relations with their workforce. They do not want participation in a youth employment program to upset labor-management relations. How can we make sure that participating students are well-received by existing workers?

The key to minimizing employee resistance is to involve workers and their representatives in planning, designing, and implementing the program—from the outset. This is important in both unionized and non-union workplaces. The sooner workers can articulate their concerns and fears about bringing young people into the workplace, the more likely their concerns will be addressed adequately and fairly. Many programs include representatives of organized labor on their steering committees and other decision-making bodies.

One thing employees and their unions frequently request is a "non-displacement agreement"—a written statement that bringing young people into the workplace will not cause the layoff of existing workers or the elimination of adult worker jobs. The **Pennsylvania Youth Apprenticeship Program**, located in a state with a strong manufacturing-union tradition, worked closely with the United Steelworkers of America to design an "agreement of understanding" about displacement and other concerns.

Employees are likely to be more receptive to a school-to-work transition program if their firm has already made a commitment to training opportunities for its adult employees. That is, if the existing workforce feels that young people are getting more opportunities for quality learning than they are, there may be significant resentment. To avoid this problem, the Machinist Lodge representing American Airlines workers made the creation of an adult apprenticeship program for machinists a precondition of its participation in Tulsa's **Craftsmanship 2000**.

We recommend paying particular attention to this issue in unionized firms. In general, start conversations with unionized firms as early as possible. If an employer is unionized, it often takes longer to secure its participation, particularly if the question becomes the subject of collective bargaining. One solution, pursued successfully by the **Oakland Health and Bioscience Academy** in its program with unionized Kaiser Permanente, is to keep participation as a "side agreement" outside the collective bargaining contract.

The industry we are targeting has suffered layoffs locally. Will we still be able to interest the existing workforce in our program?

Obviously, downsizing puts all employees on edge. And many employers will not want to risk further tensions by bringing in young people on the heels of a layoff. But that does not mean that some employers will not choose to participate—or that the existing workforce will not welcome young people. In programs that are less intensive, where the threat of displacement is non-existent, bringing young people into the workplace can improve morale. Even in programs that offer paid work, if the non-displacement pledge is taken seriously, the introduction of young people into certain departments may appear as separate from cutbacks in others—and might even come as a bit of relief from increasing workloads at a time when new hires are out of the question.

In general, relations with union officials are easier if you indicate that you have some knowledge of their concerns and constraints. You may want to read the AFL-CIO's official position statement on *Skill Training and School-to-Work Transition in the 1990s and Beyond*, available from the AFL-CIO public affairs department in Washington. You might even want to bring a copy along when you first meet with local union leaders.

Scale and Cost Issues

How fast can we plan on having our work-based learning program grow? How many students can we plan on adding each year?

There are no simple answers to these questions, since scale is dependent to a great extent upon program design and such factors as: intensity of workplace component; whether work experience is paid; and how many employers are involved. However, a few general conclusions can be drawn from the programs we studied.

First, regardless of program design, it takes time to build the required partnerships and work out program details. It was not uncommon among the programs studied for it to take two years of planning before the first students were enrolled. Second, it is possible to start small and expand incrementally; but it is a labor-intensive process to identify and recruit new employers and programs have to allocate sufficient staff to the task. Third, a program's goals and ambitions have a significant effect on the potential for rapid expansion. If, for example, a program is organized to introduce students to a single industry, the pool of potential employers will be smaller than if any interested employer can sign on. Similarly, if the workplace component is relatively intensive and seen by employers as a way to identify potential workers for their firm or industry, then local labor market realities will be a more serious limiting factor than if employers see no direct connection between the provision of workplace experience and their own employment needs.

The challenge we face in our community is this: we just don't see enough employers willing to get involved with young people and their schools. We don't think we can ever get a program running at a scale that is economically feasible. What do you suggest?

Different programs we studied have different goals. Many programs do not want to grow big: their purpose is to serve the particular needs of a subset of local employers. However, if the goal is to provide an intensive work experience to a significant percentage of a school's or a district's students, then a range of different approaches will probably need to be assembled into a kind of "portfolio" of possible work-based learning opportunities. The challenge of finding enough employers to participate is particularly great in rural areas with thin employer bases and in cities that have been losing jobs steadily in the past few decades.

It is helpful to consider a number of different kinds of worksites, each of which might figure into your program design:

- **Employers who provide "good jobs"** with career advancement ladders—but who usually do not hire young people for those positions (e.g., financial services, health, and high-tech knowledge-based industries);
- **Employers who primarily hire young people,** but into low-skill, low-paying service jobs with few if any career ladders (retail and hospitality industries);

- **The public and non-profit sectors**, which may not be able to pay, but can provide significant opportunities for community service and learning (e.g., government, human service agencies, and schools themselves);
- **School-based enterprises** that generate new employment opportunities focused on serving local community needs; and
- **Large public works and economic development projects** that can provide employment and training opportunities (e.g., neighborhood revitalization, infrastructure repair and new airports).

None of these options should be dismissed. If a program's goal is to reach significant numbers of students in a school or a district so that linking school and work is part of systemic school reform rather than a small add-on program, it will be critical to look not just for where the "good jobs" are, but also for where teens work; not just for where the private sector employers are, but also for where possible work and learning opportunities in public and community-based institutions might exist. A school or community might develop a range of school-and-work programs with different goals and structures—from intensive paid-work partnerships with individual employers to less intensive unpaid experiences with a broad group of firms to service learning efforts spread across the local community. Some opportunities may be paid and others not. Some may lead to certification of occupational skills; others may be generic in orientation and content. The important thing is that they be linked in their administration and coordination—and that they be presented to students as different pathways toward the same clearly-stated learning objectives.

Our school district, like many, is in financial straits. How can we design a work-based learning program that has a reasonable per-pupil cost?

Many of the programs we studied are start-ups, using extraordinary funding from foundations, government, or the school system to compensate for high developmental and operational costs. The challenge will be whether, within a few years, they can reach sufficient scale and discover other ways to reduce costs so that they can be institutionalized in the schools for the long run. Some strategies for moving toward lower per-pupil costs can be seen in a number of the more mature programs we studied.

The clearest message from the programs we studied is that work-based learning programs will only be able to "compete" on per-pupil cost if they are of such significant scale and centrality to the school that they are not simply added on over and above the existing cost structure.

- Scale is obviously a factor in program cost. A program with fifteen participants, for example, cannot justify a full complement of teachers dedicated to those students. But a program that reaches 25 or so sophomores, juniors, and seniors each year in a single school—like many career academies—can be organized as a school-within-a-school that can afford its own team of teachers without significant subsidy. Programs will have to find a way to serve sufficient numbers of young people at a given school if they are to keep costs down.

- Costs can be cut if there is some flexibility and creativity in the award of credits. If courses can double-count for academic and vocational requirements, there can be savings to the program. Similarly, if workplace learning is awarded credits and substitutes for some in-school time, then the program can in effect shift some costs off the school cost structure.
- Some programs find that, by having employers teach the more technical skills, they are able to avoid some of the high costs of maintaining and upgrading in-school equipment. This is by no means universal: in Tulsa, for example, the school-based technical training program is the core of the youth apprenticeship program. But in the **Cornell Youth Apprenticeship Demonstration Project** and in **Project ProTech,** employers appear happy to provide the technical training at the worksite as long as the schools send them young people who have seriousness of purpose and basic work-readiness skills. And in **Kalamazoo's Health Occupations Program,** holding the classes at the participating hospital means the school system can reallocate those savings to staff and other expenses.
- Another place to look for cost savings is in the administrative structure of new programs. Staffing patterns that emerge during the development phase can sometimes be redesigned and streamlined once implementation is under way.

This is not to say, however, that work-based learning initiatives will ultimately be similar in cost structure to existing school-based programs. For one thing, employer costs for wages and training time, while not included in the school's cost structure, are significant. Perhaps more important, though, the costs of recruiting employers, of maintaining their involvement, and of maintaining the partnership between schools, employers, and others, will not disappear. Over time, these costs may be shifted off the schools: in programs where intermediary organizations play a significant organizing and recruiting role, this is already happening. But these costs are associated with building a new local labor market infrastructure and institutionalizing new relationships: different strategies for configuring the administration and staffing of innovative school-to-work programs will not be able to eliminate them.

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Appendices

Sample Contracts

Learning Plans

Assessment Tools

Student Evaluation of Work Placement

Program Descriptions:
The following five descriptions complement the sixteen case studies in MDRC's *Home-Grown Lessons: Innovative Programs Linking Work and High School:*

Pennsylvania Youth Apprenticeship Program

The Cornell Youth Apprenticeship Demonstration Project

Project ProTech

Children's Hospital Fenway Collaborative

Kalamazoo Health Occupations Program

Sample Contracts

Learning Through Work:

Sample Contracts

CORNELL YOUTH AND WORK PROGRAM
PREPARING YOUTH FOR THE FUTURE

Mutual Expectations Agreement

Cornell Youth Apprenticeship Demonstration Project

1. Parties to the Agreement

APPRENTICE NAME _____ SCHOOL _____

APPRENTICESHIP TITLE _____ EMPLOYER _____

PARENT/GUARDIAN _____

2. Expectations for Apprentices

The apprentice agrees to

- complete assigned work tasks
- abide by company policy (e.g., to notify manager if late or absent)
- seek assistance for personal and workplace problems
- participate in the academic components of the apprenticeship offered by the school and the workplace, including to:
  - continue to pursue related *academic courses*
  - participate in an *advisory group*
  - complete a *special project* in the senior year
  - maintain a *journal*
  - maintain a *training notebook*

3. Expectations for the school

The school agrees to

- offer a school-based curriculum for apprentices that enriches their learning including:
  - academic courses related to the apprenticeship
  - special project help
  - regular meeting with advisory group
- assist with course selection, time use, scheduling and career pathway decisions
- assign a school apprenticeship coordinator who will foster effective communication links among the school, parents and guardians, and the apprentice
- assist in solving problems

4. Expectations for the employer

The employer agrees to

- structure learning by assigning appropriate work tasks
- enable the apprentice to learn the occupational area described in an attached training document
- evaluate the apprentice's progress periodically each year, sending at least one progress report to the school and to Cornell each semester
- accord the apprentice equal opportunity in all phases of the apprenticeship employment and training, without discrimination because of race, color, religion, national origin, age, sex, disability, or marital status

5. Expectations for parents and guardians

The parent or guardian agrees to

- support the apprentice's effort
- help him or her meet the terms of the contract (e.g., attendance, attire, academic courses, etc.)

6. Termination

- The employer may terminate an apprentice for any reason.
- An apprentice may terminate his or her employment for any reason.
- Ordinarily, termination will only occur after serious efforts by all parties to resolve difficulties.

7. Special Arrangements

The following documents are attached:

- Apprenticeship training document _ yes _ no
- Employer policies and procedures _ yes _ no
- Orientation materials _ yes _ no

8. Hours, Duration

Start date _____ Program length _____ Hours per week _____

Holidays _____ School vacation _____ Summer hours _____

- Apprentices may choose not to attend work during special exams (e.g., SAT), snowdays, etc. They should notify their employer about schedule changes, in advance.

9. Compensation

- Pay and progression [Pay progression is not automatic; it depends upon apprentice's skills and increasing value to employer.]

  1st year _____ 2nd year _____ 3rd year _____ 4th year _____

- Other compensation (benefits, tuition assistance, etc.) _____

_____

_____

10. Signatures

_____ _____

APPRENTICE SCHOOL APPRENTICE COORDINATOR

_____ _____

ADDRESS ADDRESS

_____ _____

DATE DATE

_____ _____

PARENT OR GUARDIAN FIRM APPRENTICE COORDINATOR

_____ _____

ADDRESS ADDRESS

_____ _____

DATE

9208330 JUNE 1993

Training Agreement

The Pickens County

Youth Apprenticeship Initiative

Student (Youth Apprentice) Name

School Year

As a part of a comprehensive Tech-Prep program developed to improve school-to-work transitions, the *Pickens County Youth Apprenticeship Initiative* is designed to benefit the students, employers, schools, and colleges. In a collaborative effort to achieve a successful educational program all parties jointly agree to:

Business/Industry Site

1. Provide apprenticeship opportunities for the above-named student enrolled in the _____ program during the senior year of high school and during the postsecondary segment.
2. Assist educational agencies (secondary and postsecondary) in designing the curriculum for the _____ program.
3. Provide the youth apprentice paid work experience and guided learning opportunities of the total manufacturing enterprise.
4. Provide the apprentice with a mentor and participate in appropriate training for workplace mentor/supervisor (s).
5. Monitor progress of the apprentice and work with all partners in evaluating effectiveness of the initiative.

Instructor/Coordinator - Career Center

1. Provide student with technical instruction related to apprenticeship and work with postsecondary institution to obtain maximum articulation of course work.
2. Coordinate adequate staff development for all parties.
3. Provide adequate counseling and advice to apprentice and to all participants including parents.
4. Monitor progress of apprentice and assist mentor as requested.
5. Act as contact/liaison for all parties named in this agreement.

Postsecondary (Technical College)

1. Participate in the design and/or refinement of the Pickens County Youth Apprenticeship Initiative.
2. Expand opportunities and ensure smooth transition into postsecondary curriculum.
3. Provide flexible scheduling as appropriate to support apprenticeship activies.
4. Participate in joint staff development programs and assist in the development of activities to support the initiative.
5. Assist partners in development of secondary workplace curriculum and assessment documents.

Parent (s) / Guardian

1. Grant permission and give support for the apprenticeship participation.
2. Inform instructor/coordinator of facts vital to the performance and success of the youth apprentice.
3. Provide transportation for the youth apprentice.
4. Attend any meetings or activities designed to promote or assist the Youth Apprenticeship Initiative.

Student (Youth Apprentice)

1. Be regular and prompt in attendance at school and at the workplace.
2. Obey all rules and regulations at school and at the workplace.
3. Maintain scholastic averages acceptable to school and the workplace.
4. Communicate ***honestly*** with workplace mentor regarding job performance.
5. Communicate to Apprenticeship Coordinator or Instructor any concerns or conditions that are interfering with your progress at school or at the workplace.

NAME OF BUSINESS /INDUSTRY

Business/Industry Representative

Career Center Instructor

Youth Apprenticeship Coordinator

Career Center Director

Postsecondary Representative

Parent (s) / Guardian

Student (Youth Apprentice)

Date

The School District of Pickens County does not discriminate in regard to race, color, national origin, or handicapping condition.

Learning Plans

Name:_____

Focus Class Period:____

ROOSEVELT HIGH SCHOOL JOB SHADOW PROGRAM
STUDENT QUESTION SHEET

The following guidelines should help you to get the most out of your job shadow experience. You should try to ask as many of these questions as possible, but feel free to ask other questions that might also be appropriate.

1. What is the primary mission of this organization?

_____

_____

2. What are the responsibilities of your department ?

_____

_____

3. What are your responsibilities?

_____

_____

_____

4. How does your job relate to the overall organiz on?

_____

_____

_____

5. What other people do you work most closely with?

_____

_____

_____

6. Are computers used on the job? If so, in what capacity?

_____

_____

_____

7. What type of education and/or training does one need to do the job? What type of education/training have you had?

8. How did you decide to do this type of work?

9. What do you see as the demand for jobs like yours in the future?

10. What do you like most about your job?

11. What do you like least about your job?

12. What is the salary range for someone working in this field? (What is a typical starting salary?)

13. Do you have any advice for me as I consider career options?

14. Anything else that you find interesting! (Write on back if necessary.)

****

_____ has successfully completed a job shadow with me today.
(Student Name)

_____
Employer Signature

_____
Date

_____
Title

_____
Organization

CORNELL YOUTH AND WORK PROGRAM

PREPARING YOUTH FOR THE FUTURE

Apprentice Progress Report 1992–93

Raymond

Apprenticeship: **Administration and Office Technology**

Evaluating Departments: *please check*

- ___ **Accounting**
- ___ **Change Control**
- ___ **Custom Products**
- ___ **Human Resources**
- ___ **Leasing**
- ___ **Marketing**
- ___ **Office Resources**

Apprentice _____ Evaluator _____

Evaluated period is _____ through _____

Date _____

Directions

1. **Evaluate.** Circle the response that best communicates the apprentice's competence at the time of the rating.

   Satisfactory Progress The apprentice *has met* the learning objectives for this stage in the apprenticeship.

   Unsatisfactory Progress The apprentice *has not met* the learning objectives for this stage in the apprenticeship.

   Not Applicable This was not a learning objective, or there was no opportunity for progress.

2. **Add competencies.** Add specific competencies the apprentice has been developing during this placement that are not listed.

3. **Comment.** At the end of each section, there is space for you to comment on the apprentice's progress. Note in that space outstanding achievement, problems, or other special remarks.

4. **Discuss.** After completing the report, discuss it with the apprentice. Both the evaluator and apprentice should sign it.

5. **Mail.** Please send copies of the Progress Report to the apprentice's school coordinator and to Cornell.

6. **File.** Please add this original and work samples to the apprentice's portfolio.

Apprentice's signature _____ *Evaluator's signature* _____

Youth Apprenticeship Demonstration Project
Cornell Cooperative Extension
March 5, 1993

Technical Competencies: Perform work tasks

1. Procedures: Follow steps to accomplish a task	S	U	NA
Administration and Office Technology:			
1.1 Organize work tasks			
a. Determine job priorities			
b. Meet productivity standards			
c. Report status of task			
d. Recognize an unusual occurrence and respond appropriately			
1.2 Use office equipment to carry out tasks:			
a. Fax			
b. Phone (proper phone techniques, take messages, forward calls, get information)			
c. Copier (make copies, put together copies)			
d. Mail (inter-office, Federal Express, U.S. Post)			
e. Typewriter (letters, memos)			
f. Files			
1.3 Process work orders:			
a. Assemble records (learn order, components for worksheets, packets, codes)			
b. Calculate (billings, rates)			
1.4 Organize meetings:			
a. Arrange space			
b. Prepare handouts			
c. Take messages			
d. Coordinate schedules			
Accounting:			
1.5 Process invoices for payment			
a. Perform purchase order inquiry			
b. Extract data			
1.6 File processed invoices			
a. Become familiar with suppliers, purchases			
b. Become familiar with invoice types			
c. Know when to take discount			
d. Calculate discounts			
1.7 Assess sales tax due			
a. Determine taxable items			
b. Recognize account numbers			
c. Calculate sales tax (with PC file database)			
1.8 Observe month-end closing			
a. Understand purchase distribution			
b. Understand check register			
c. Understand journal entries			

	S	U	NA
1.9 Identify unpaid invoices on vendor statements			
1.10 Research purchase distribution			
1.11 Reconcile accounts using RIE database			
1.12 Research accounts payable system			
a. Reconcile suppliers' statements			

Comments:

Change Control:

1.12 Use filing systems (Active, CR and deviation, obsolete, backups)			
a. Microfilm			
b. Drawings			
1.13 Use and maintain departmental machines (fix jams, load)			
a. Copiers			
b. Microfilm readers			
1.14 Collate MAPS and drawings in product structure			
1.15 Shadow input clerk for customer product			
a. See how system helps generate paperwork			
1.16 Read through change requests			
a. Summarize well written requests for change analyst			
b. Analyze rejections (e.g., lacking dimensions, change on inactive part)			

Comments:

Custom Products:

1.17 Process customized requests			
a. Estimate time and costs			
b. Use Paradox			
c. Use Lotus			
d. Use WordStar			
1.18 Observe CAD system drafting of customized parts			

Comments:

	S	U	NA
Human Resources:			
1.19 Help in special projects			
a. (e.g.) Synthesize survey data on management style and leadership capability			
b. (e.g.) Set up a filing system with categories for applications and resumes			
1.20 Write article for newsletter			
a. Create and organize questions			
b. Identify whom to interview			
c. Decide photos, arrange photographer			
d. Schedule interviews (phone, timing strategies to contact people)			
e. Write story (with word processor organize thoughts on paper, choose quotes)			
f. Rewrite (Work through emotions of editing process)			
1.21 Use desktop publisher			
a. Learn desktop publishing			
b. Layout and process publications			
1.22 Modify layout of Personnel Practice Manual			
a. Edit for consistency in all policies			

Comments:

Leasing:			
1.23 Record Leases and Sales			
a. Record bookings on PC file			
1.24 Verify calculations			
a. Check present value, interest rate, unearned, monthly payment			
b. Enter data on CRT			
1.25 Contribute to current projects (e.g., instructional brochure: type, layout, test)			
1.26 Process cash receipts			
a. Balance statements			
b. Post entries on CRT			
1.27 Extract and record data			

Comments:

	S	U	NA
Marketing:			
1.28 Conduct market research survey (e.g., compare load wheels)			
a. Design study			
b. Gather information (e.g., library, magazines, other resources)			
c. Analyze information and write report			
d. Update dealer forecast file			
e. Update established statistical files			
f. Update dealer truck population reports			
g. Update customer database			
h. Update vehicle database			
i. Prepare statistical data for monthly Industrial Truck Association reports			
1.29 Review, copy and/or clip periodicals for market information			
a. Competitive markets			
b. Target markets			
c. Copy, and/or clip articles for file			
1.30 Maintain magazine and competitive information library			
1.31 Determine and assign codes to new orders, using established procedures			
a. Standard industrial classification codes			
b. Customer codes			

Comments:

Office Resources:			
1.32 Process special requests			
a. Use Lotus Always			
b. Access data through mainframe			
c. Produce final reports			
1.33 Put information together (in notebooks, memos, collectives)			

Comments:

2. **Computer Use: Use computer technology efficiently and effectively**	S	U	NA
2.1 Master basic computer skills			
a. Handle/store disks			
b. Boot machine			
c. Input data			
d. Store data			
e. Retrieve data			
f. Print reports (understand printer)			
g. Shut off machine			
h. Format disks			
i. Copy disks			
j. Generate labels for disks			
k. Know keyboarding			
2.2 Use software (understand specific functions)			
a. Use Wordstar : word processing, letters, memos, meeting minutes, documentation)			
b. Use DOS			
c. Use PC File (create a database)			
d. Use dispatcher CRT (use for financial data)			
e. Use Paradox			
f. Use Lotus 1-2-3			
1. Use spreadsheets (retrieve files, erase, copy formulas, save)			
2. Create spreadsheets, set up			
3. Work on budgets			
4. Manipulate data with calculations (add, subtract, multiply, divide)			
5. Use "Always" program			
6. Exit from system			
2.3 Access mainframe			
a. Log on			
b. Extract information			
c. Use software			
d. Log off			

Comments:

3. Principles: Understand reasons for procedures

	S	U	NA
3.1 Understand workplace ethics, codes of behavior			
3.2 Understand importance of department's work			
a. Goals and functions			
b. Relationship of task to client			
c. Adverse effects of incorrect information			
3.3 Understand document purposes			
a. Types of records			
b. Products			
c. State regulations			
3.4 Understand basic accounting			
a. Purchase distribution			
b. Check register			
c. Journal entries			
d. Account numbers and their definitions			
e. Taxation			
f. Terminology (e.g., discounts, leasing, calculate, valuations, terminations, amendments, restatements)			
3.5 Understand principles of leasing			
a. Use "The Leasing Coach" PC self-paced study guide			

Comments:

4. Excellence: Commit to high standards of practice and to continuous improvement

4.1 Commit to professional ethics			
a. Be trustworthy and honest			
4.2 Commit to professional behaviors			
a. Be efficient			
b. Ask questions in timely fashion			
c. Adhere to dress code (hygiene, style)			
d. Commit to accuracy at all levels (Quality Control)			
1. Check information (e.g., input, feedback, reports)			
2. Handle products properly			
3. Maintain study/specimen integrity (label correctly)			
e. Report problems, discrepancies, etc.			
f. Acknowledge need for accountability (follow procedures)			
4.3 Respond to suggestions for improvement; seek and accept constructive criticism			
a. Know what to do if you have a problem, a jam, etc.			

Comments:

Social Competencies: Participate in an organization

5. Systems: Understand the organizational context	S	U	NA
5.1 Understand the roles and responsibilities of people in the present department			
5.2 Understand connections between departments within the firm			
5.3 Understand relations among patient, client, or customer, the firm, and outside organizations			

Comments

6. Rules: Adhere to professional norms			
6.1 Maintain confidentiality			
a. Protect product (industrial secrets)			
b. Protect company (employer's proprietary rights)			
c. Protect client's privacy			
d. Use discretion			
6.2 Observe safety precautions			
a. Around chemicals			
b. In laboratory			
c. Around machines, equipment, vehicles (know restrictions)			
d. Wear safety clothing when specified (jacket, gloves, mask, shoes)			
e. Know accident procedures			
f. Attend safety courses			
6.3 Observe good workspace techniques			
a. Clean			
b. Restock supplies (e.g., parts, solutions)			
c. Dispose of waste properly (recycle)			
6.4 Adhere to schedule			
a. Be punctual (e.g., use time card)			
b. Inform supervisor if late or absent			

Comments:

	S	U	NA
7. Teamwork: Cooperate with others in a variety of roles			

7.1 Work with others in professional manner

7.2 Cooperate with others to complete team goal and help others to meet their goals

7.3 Contribute to and participate productively in group meetings

Comments:

8. Communication: Use written and spoken language to give and receive clear messages			

8.1 Use appropriate technical, medical, or business **vocabulary**

8.2 **Write** messages, reports, letters, documents, using clear, concise, and accurate language

8.3 **Listen** actively; receive and understand information or directions

8.4 **Ask questions** to learn, to solve problems, and to clarify

8.5 **Communicate effectively** with coworkers

8.6 **Communicate effectively** with clients

Comments:

9. Responsibility: Act independently when appropriate; take responsibility for learning			

9.1 Know when and how to ask for help; desire to learn more and improve

9.2 Work independently; identify tasks to be done

9.3 Suggest improvements appropriately; identify potential problem

9.4 Respond well in emergencies

Comments:

Resource:	Gastroenterology
Location:	Martin L. King, Jr. Hospital 12021 South Wilmington Avenue Los Angeles, California 90059 Room 41-6
Phone:	603-4206
Site Supervisor:	Ms. Catherine Gibson
Overview:	The Gastroenterology Department deals with diseases of the intestinal tract. Working with the personnel in this unit, the King/Drew scholars will learn how intestinal disorders are diagnosed and treated. The scholars will have the opportunity to familiarize themselves with the tools used in the unit and to observe the treatment of patients.

Your experiences in the Division of Gastroenterology should help you to answer the following questions and perform the following tasks:

1. What is the function of the Division of Gastroenterology?
2. Describe what a Gastroenterologist does. What education and training is needed for this job?
3. Identify at least two major parts of the stomach and explain the functions. Draw a diagram of the digestive system, labeling the major parts and describing the function of each part.
4. Explain the use of a fiberscope. Draw a diagram and label its parts.
5. Why are biopsies performed? How are the results used?
6. Interpret and read at least three endoscopic films and describe body parts involved. Explain projected diagnosis for each film.
7. Explain gastric analysis and the purpose of performing this procedure.
8. Define the following procedures and explain the major purpose for each:
   a. Esophagogastroduodenoscopy
   b. Colonoscopy
   c. Procto sigmoidoscopy
9. Attend a faculty conference, if possible, on Endoscopic Film and describe what it was about.

You will be expected to take notes and to write a brief summary of what you have learned each day on the evaluation sheet.

Added Activities for the Hospital Program. Each of the following activities must be completed by the end of your rotation.

DUE DATE

_____1. List & Define twenty-five (25) vocabulary terms unique to your site.
_____2. Submit and summarize two articles from a newspaper, magazine, or medical journal relative to the site.
_____3. Submit a Career Options Data sheet at the end of each rotation.
_____4. Interview at least two (2) people at your site and trace the "educational path" taken by each.

Learning
Through Work:

Assessment Tools

Target Skills in Business Education: Computer Science and Information Systems

Your final portfolio will contain a minimum of four samples of your work. Together these work samples must demonstrate your ability in all four **Required Skills** and two of the **Selected Skills** listed below.

Required Skills

You must demonstrate all four of the following skills (1–4):

1. **Computer Applications:** Utilize business software; understand current technology and trends.
2. **Business Records:** Analyze, complete, and process source documents and use appropriate software.
3. **Computing System:** Use computer hardware, operating systems, components, and peripherals.
4. **Information Resources:** Locate, access, and retrieve information manually and electronically.

Selected Skills

You must demonstrate two of the following skills (5–8):

5. **Document Processing:** Create, edit, format, and produce documents efficiently.
6. **Documentation:** Utilize available manuals and other documents to solve problems.
7. **File Management:** Sort, verify, classify, and categorize data both manually and electronically for easy retrieval.
8. **Global Society:** Demonstrate skills for communicating orally, electronically, and in writing in an international, multicultural business environment.

Ideas for Work Samples in Computer Science and Information Systems

Below are ideas for work samples. In some cases, documentation (photographs, for instance) would be included in the portfolio, rather than the product itself.

- On-the-job information processing simulation (target skills 1, 2, 6, 7)
- Printout of a file management system used for organizing computer files along with a short explanation of the system (target skills 3, 7)
- Printout of sessions using an electronic bulletin board to send and receive electronic mail and upload and download files (target skills 4, 6, 8)
- Newsletter produced using desktop publishing software (target skills 1, 3, 5, 6)
- Mailable letter that contains merged information along with the letter showing the merge codes and a printout of the database used (target skills 1, 2, 5)

Example of a Caption

Name: Kim Chu **Date:** May 13, 1992

Title: Information Processing Simulation

This work sample is an on-the-job information processing simulation. The documents are the information processing work for several business days. In order to complete all the tasks, I had to use many features of WordPerfect 5.1. I used graphics, font changes, merge, macro heading and signature, block, modified block, and two-page letter styles, and outline. I also had to manage files and consult manuals to get answers to questions. Everything that I produced had to be free of all errors. I would always double check my work for spelling, punctuation, capitalization and grammar mistakes in addition to typos.

This simulation helped me to see what it would be like to work in a business. I liked having many different things to do, but I realized that I had to learn to set priorities in order to get the right things done on time.

Student Evaluation of Work Placement

Learning Through Work:

Student Evaluation of Work Placement

Kalamazoo Valley Consortium
HEALTH OCCUPATIONS PERFORMANCE EVALUATION

Student	School	
Facility	Preceptor/Supervisor	Date of Review

Evaluation of General Performance Measures

INSTRUCTIONS
Evaluate students performance in terms of the following performance measures by checking the box which best describes the student. Include comments as necessary.

		Unacceptable 0 - 59%	Minimally Acceptable 60 - 74%	Acceptable 75 - 84%	Commendable 85 - 94%	Excellent 95 - 100%
		0	2	3	4	5
Service Excellence:	Demonstrates effective interpersonal relationships with staff, physicians, patients and visitors so as to achieve a perception of superior service, teamwork and communication.					
Safety:	Employs safe practices in activities, procedures and use of equipment, recognizes unsafe situations/practices and reports to supervisor/preceptor.					
Productivity:	Willingness to accept assigned responsibilities; utilizes time efficiently to complete assignments, offers assistance when assigned duties completed.					
Organization:	Structures tasks, outlines activities and determines appropriate steps to follow.					
Communication:	Listens and follows directions.					
	Keeps supervisors and staff informed about progress, problems or developments.					
Attendance:	Follows current policy, consider: absences, tardiness and use of break periods.					
Professional Appearance:	Follows current policy, consider: dress, name tag, jewelry and makeup, nails and hair.					
Professional Growth:	Attends inservices when appropriate, reads communication book and educational materials, views videos.					
	Assesses own strength and weaknesses and develops plan for improvement, pursues educational activities to maintain or improve skills.					
				Section Totals: _____		+ 10 = _____

Comments:

Student Comments:

Student Signature _____ Preceptor/Supervisor Signature _____

EQUAL OPPORTUNITY STATEMENT
It is the policy of the Kalamazoo Valley Consortium that no person, on the basis of race, color, religion, national origin or ancestry, age, sex, marital status, or handicap will be discriminated against, excluded from participation in, denied the benefits of, or otherwise be subject to discrimination in any program or activity which it is responsible or for which it receives financial assistance from the U.S. Department of Education.

White - File Yellow - Facility Pink - Student

Learning
Through Work:

Program Descriptions

Pennsylvania Youth Apprenticeship Program

Community Setting: In the 1992-93 school year, the Pennsylvania Youth Apprenticeship Program (PYAP) operated at six sites: Williamsport in Lycoming County, a rural community with a large, healthy manufacturing base; York and Lancaster Counties, the heart of Pennsylvania Dutch country and historically a manufacturing center; Pittsburgh; and two sites in Philadelphia. All four regions have economically viable, modernizing, metalworking industries. In the Philadelphia and Pittsburgh regions, however, most of the firms have moved to suburban and rural counties twenty to thirty miles outside the city.

Origins: In the late 1980s, Pennsylvania created the Manufacturing Innovation Networks Initiative (MAIN) to address economic challenges facing small and mid-sized manufacturing firms. Jointly sponsored by the Department of Commerce and the Department of Labor and Industry, MAIN worked closely with organizations representing concentrations of smaller firms in four regions and industries, in an effort to help them improve their competitiveness through cooperation and networking. As state personnel assessed the needs of the networks-in-formation, one critical problem surfaced consistently: the shortage of skilled workers in highly technical and complex production positions. Employers in the state's metalworking industry, represented by the industry's trade association, the National Machining and Tooling Association, cited workforce quality as a particularly serious obstacle to long-term growth.

State officials observed European apprenticeship models and were impressed by the nations' abilities to train highly skilled workers in a broad range of metalworking and manufacturing industries. Exploration began concerning whether Pennsylvania could develop a youth apprenticeship system and what industry would support a demonstration initiative. Metalworking firms around the state expressed a desire to support a youth apprenticeship demonstration program to create new career pathways for young people while building a pool of skilled workers for their industry. With funding from the U.S. Department of Labor, Pennsylvania Department of Commerce, the Alfred P. Sloan Foundation, and the Howard Heinz Endowment, a demonstration project in metalworking was launched with a pilot site in Lycoming County in 1991. Five additional demonstration sites were implemented around the state in 1992.

Following successful implementation of the demonstration project, the Pennsylvania Department of Education recently funded 10 new PYAP sites around the Commonwealth, affording Pennsylvania a total of 16 PYAP sites. Expansion to new career fields includes manufacturing, electronics, equipment maintenance, cellular manufacturing, and health careers.

School Elements: In 1992-93, PYAP was offered in six host high schools which, in turn, drew students from more than forty other schools. In 1993-94, the number of host schools has increased to sixteen. Students apply and are selected upon successful completion of their sophomore year.

The youth apprenticeship program begins in the eleventh grade and provides a four-year academic/skills training experience for students.

Students learn in school three days a week, where they are taught by a team of academic and vocational teachers using an innovative project-based curriculum which integrates academic, technical, and occupational education. The project-based curriculum was developed by a team of Pittsburgh-area teachers working for PYAP on a part-time basis. The team is coached by Dr. Martin Nahemow of the University of Pittsburgh Learning Research and Development Center.

The curriculum framework is organized around six broad knowledge and skill development categories:

- job-relevant skills learned at the worksite;
- enabling skills, including mathematics, science, and literacy;
- worker "smarts," including systems analysis;
- self-management skills, including reflection on and self-management of the learning process;
- personal interaction skills, including teamwork, leadership, and adaptability; and
- humanities/social studies, the basics of a liberal education.

Specially recruited teachers work together as a team. An educational coordinator as well as the academic teachers maintain communication with students' employers, and monitor their worksite experience in order to remain aware of ways their teaching can reinforce and complement what students are learning on the job. Academics are "wrapped around" the skills training occurring at the worksite. The curriculum revolves around themes relevant to careers, the workplace, and the industry. For example, layoffs in local metalworking firms formed a starting point for several lessons about national economic policy, foreign trade and its effects on the domestic economy, the history of manufacturing, and the unemployment insurance system.

Workplace Elements: Beginning in the eleventh grade, students work two days a week at the worksite of a participating employer. They work as a student learner under the guidance of an assigned mentor.
In York/Lancaster, a group of local employers developed a "training matrix"—a system of identifying competencies students must demonstrate. This matrix was shared with employers and program staff in other regions to assist them in developing their own training plans. The statewide PYAP Worksite Advisory Council, which includes representatives from participating businesses across the state and schools plays a central role in developing standards and assessment guidelines for the program.

The mentor-student relationship is a key element of PYAP. Each student is assigned a mentor at the workplace. In most areas, the teaching team

considers the mentor an extension of the team. For example, the worksite mentor gives the student his or her report card, reinforcing the connection between maintaining good grades and keeping the job placement.
All mentors receive orientation and training in order to effectively work with students in the workplace. Instruction on issues such as communication, effective listening techniques, and how to relate to teenage student learners is critical to a successful mentoring experience.

Post-Secondary Element: PYAP is presently working with the following post-secondary institutions to develop articulation agreements and to assure PYAP students a smooth transition between high school and post-secondary learning:

Lycoming County: Pennsylvania University College of Technology,

Pittsburgh: Community College of Allegheny County, California University, Pennsylvania State/McKeesport;

Philadelphia: Bucks County Community College, Montgomery County Community College, Community College of Philadelphia, Delaware Community College, Drexel University;

York/Lancaster: Pennsylvania State/York.

Recruitment: PYAP targets a broad range of students and is committed to gender and racial equality. While the program is targeted toward general track students, participants include high achievers who would continue on to college without PYAP support. Of the 105 students enrolled, during the 1992-93 school year, there were 90 white males, 13 black males, 1 Hispanic male, and 1 white female. (Philadelphia and Pittsburgh participants are predominantly minority and those at the other two sites are predominantly white, reflecting the composition of the school population.) Recruitment has not been easy; obstacles include the "college-bound" mentality of schools and society, negative images of manufacturing and vocational education, and pulling students from their peer groups at their home schools.

Cost Factors: No reliable information is available. Funding from the U.S. Department of Labor, Pennsylvania Department of Commerce, and two private foundations enabled PYAP to invest heavily in the development of four separate regional programs and a wholly new integrated curriculum for the program. It remains to be seen how much a large-scale PYAP program will cost in a single school.

Scale: In fall 1991, 12 students entered the first experimental PYAP class in Lycoming County. During the fall of 1992, five additional demonstration programs began operation in the three other regions of the state targeted for participation, totaling 105 students at seventy-six different manufacturing firms. Expansion to ten new sites for 1993-94 school year will increase student enrollment to approximately 350.

The Cornell Youth Apprenticeship Demonstration Project

Community Setting: Broome County, New York, is an area of upstate New York that has a strong manufacturing base. It benefits from the location of a State University Campus in Binghamton, the county's largest city, and from proximity to Cornell University in Ithaca, about an hour away by car. Because of the rural nature of the region, population densities are low. To reach sufficient scale in the first few years of the program, six separate school districts have been invited to participate. These are: Binghamton, Susquehanna Valley, Union Endicott, Whitney Point, Green, and Windsor. Students are recruited within the high schools in each district. The Cornell Youth Apprenticeship Project currently places apprentices in 10 firms in Broome County.

Origins: The Cornell Youth Apprenticeship Demonstration Project began as a research and development project of Cornell University's Department of Human Development and Family Studies, directed by Professor Stephen Hamilton. Professor Hamilton's extensive research on apprenticeship programs in Europe inspired and now guides this experimental effort to structure learning at the workplace for young people and to integrate school-based and work-based learning.

Like the European models from which it borrows, the Cornell Youth Apprenticeship Demonstration Project uses structured work experiences to teach both academic and job-related competencies and to help students see direct connections between school learning and paid employment. In 1991-92, its first year of operation, the program provided 22 youth apprenticeship positions at four firms. Apprenticeships were grouped into three broad occupational areas: health care, manufacturing and engineering technology, and administration and office technology.

School Elements: Learning at work is the core of the apprenticeship experience and the focus of the program's curriculum development efforts. Because of this, and because of the small number of students participating at any single high school, the Cornell program began focused more on structuring work as a learning experience than on changing participants' schools dramatically.

A School Coordinator has been designated at each school to recruit students, arrange schedules, plan and conduct teacher in-services, develop curriculum and adapt instruction. Each Coordinator meets regularly with a committee whose membership represents teachers, counselors, administrators, apprentices, and parents. The committees advise the Coordinator and help with tasks such as recruiting and selecting applicants, improving advising, assessing academic courses, and building support for apprenticeship.

In addition to assuring that students were enrolled in regular courses that were appropriate to their placement and emphasizing college-preparatory academic courses, the program made some special instructional arrangements during the first year, such as enrolling one apprentice in an electronics

course at night. In the second year, academic teachers assigned "special projects" to senior apprentices. These projects are extended academic activities through which an apprentice explores in depth an issue that is relevant and important to his or her work. Participating teachers, along with counselors and administrators from the high schools, receive orientation and training in the design, delivery, and assessment of the projects. At least one academic teacher is responsible for working with each apprentice on his or her special project. The student's workplace coach also provides supervision and assistance.

Spring 1993 projects included: production of *The Pyramid*, a newsletter that addressed apprenticeship issues; explanation of a quarterly performance report an apprentice completed for a hospital; a case study of a Guillan-Barre syndrome patient; and interviews to define the concept of "quality." Special projects culminate in an "exhibition" before a panel of school faculty, administrators, and people from the workplace.

Advisory groups have been set up in each school to give apprentices in that school—combining grade levels, employers, and occupational areas—a chance to meet together and talk with a teacher or counselor about their experiences. In practice, some groups meet more frequently than others, but those that meet regularly give apprentices a chance to reflect on the demands and opportunities of work.

Two more changes were effected in schools in the fall of 1993. Binghamton High School now offers a course in anatomy that was designed to meet the needs of health care apprentices, but enrolls other students as well. Susquehanna Valley High School has eliminated its "basic" biology course because employers told staff there that students who took that course were not adequately prepared. They are considering eliminating other science courses at that level and offering only "Regents" (i.e., college preparatory) science courses in the future.

Workplace Elements: The pedagogy of apprenticeship assumes that, within a structured work-based learning environment, trainees will extract general principles from practical learning contexts. This approach emphasizes the deliberate structuring of the apprentices' work assignments to promote mastery of both general and occupationally-specific competencies. Tasks build upon one another, increasing in complexity, gradually exposing apprentices to both technical and social dimensions of the work process. The Broome County program is organized according to these principles. Working with program staff, firm managers have developed original work-based curricula that organize apprentices' work activities around a core of competencies identified for each of the program's three broad occupational areas.

Project staff have provided participating employers with a general list of competencies, based on their prior research on workplace teaching and learning. Competencies are grouped into two general categories: (1) technical (procedures, computer use, principles, and commitment to excellence);

and (2) social (understanding systems, following rules, teamwork, communication, and responsibility). The Firm Coordinator and Department Managers at each worksite use this competency list as a guide in designing the apprenticeships, and to provide feedback and a permanent record of the apprentice's progress.

This Apprentice Progress Report has proved to be a useful curriculum tool. Originally intended to document what apprentices learned on the job, the report now serves to identify and specify in advance the competencies an apprentice will learn in a given department and in the firm as a whole. It enables employers and researchers to assess an apprentice's learning plan in each department, across a firm, and for the program as a whole. This assessment tool has also encouraged participating firms to think proactively about their future work force needs.

Post-Secondary Element: The Cornell Youth Apprenticeship Demonstration Project is designed to take students through high school graduation into two- and four-year colleges. Project staff work with Broome County Community College to mark the path from the last two years of high school through an associate's degree and make sure apprentices are able to follow it. The first cohort to graduate from high school, in 1993, has remained closer than anticipated to the occupational area in which they had their apprenticeship but also followed more diverse paths than anticipated.

As of June 1993, all 20 apprentices who graduated planned to continue along career pathways as they started in the program. One apprentice redirected her interests toward architecture as a result of her special project. Six graduating apprentices will continue in the program, five while enrolled at Broome Community College and one at Binghamton University. Eight apprentices will leave the area to enroll in four-year colleges; one will enroll in a two-year college out of the area. Four will enter Broome Community College programs leading to professional certification (three in health care, one in engineering technology). These programs provide adequate career preparation and, therefore, do not require continuation in the apprenticeship. A fifth graduate plans to enter Broome Community College's liberal arts program.

Recruitment: Recruiting of students is done in the spring of the sophomore year. Each school is responsible for recruiting and they do it differently. Often it involves current apprentices describing the opportunities. Students who express interest in becoming apprentices and whose parents are favorable next examine position announcements prepared by firms. They then prepare applications for specific positions. These applications are screened initially by the in-school committee to assure that applicants meet the criteria specified by employers. They then undergo a second screening by a subcommittee of the entire project's Steering Committee, which balances applications from the six schools. Each employer then receives as many applications as they have requested.

Employers provide orientation for all applicants and make the final selection of their apprentices, whom they treat as employees. Although the program targets students who do not expect to enroll in four-year colleges, it does not exclude college-bound students. Apprentices' grade-point averages (the mean GPA has been C) indicate that the program has successfully recruited middle students.

Cost Factors: The New York State Assembly has funded the Cornell Youth Apprenticeship Demonstration Project's first two years with grants of $180,000 for a planning year and $130,000 for the first year of operation. These state monies, along with private foundation funds, support program administration and Cornell's research and development activities.

Employers pay students' salaries and contribute all staff time. Similarly, the schools finance any staff time spent on the project. The project provides consultation, in-service training, planning, coordination, and communication.

Scale: The first apprentices were enrolled during the fall of 1991. Twenty-two juniors from five high schools were placed with four employers. Twenty completed the school year satisfactorily and enrolled for their second year in the fall of 1992. (Of the original twenty-two, 13 were female and 9 were male. Four were minority.)

Twenty new apprenticeships were created in 1992-93. One new high school and two new employers joined the project. As of September 1992, there were 12 apprenticeships in Manufacturing and Engineering Technology; 13 in Administration and Office Technology; and 15 in Health Care. In 1993-94, the program will expand by adding 31 apprentices.

Project ProTech

Community Setting: Project ProTech/Health Care is a collaborative effort of the Boston Private Industry Council (PIC) and its partners—Boston City Hospital, Brigham and Women's Hospital, Massachusetts General Hospital, New England Baptist Hospital, New England Deaconess Hospital, New England Medical Center, St. Elizabeth's Medical Center, the Boston Public Schools, and Jobs for the Future. ProTech is designed to meet the hospitals' needs for skilled technicians and the students' need for an engaging, structured pathway from school to high-skilled employment. ProTech combines classroom learning, clinical internships, and paid work experience in a 2 + 2 youth apprenticeship model that links the last two years of high school with two years of community college.

Political and economic factors combined to make the hospital industry the logical choice to pilot the ProTech youth apprenticeship model when start-up funds became available from the U.S. Department of Labor in late 1990. The hospital industry is by far the city's second largest private employer, with banking the largest. While size was an important factor, the hospital industry's exceptional financial health in the midst of a deepening regional recession made it a prime candidate. Entering the 1990s, the Boston hospital industry was one of the few sectors still enjoying growth in employment and revenue despite the worsening economy.

Origins: Project ProTech/Health Care began in the fall of 1991 as an extension of the Boston Compact partnership agreement between Boston's business community and the schools. In 1982, the business community agreed to provide summer and after-school work opportunities and gave hiring priority to Boston Public School graduates. In return, the school system promised to improve student academic performance and reduce its dropout rate. In 1989, the compact agreement shifted its emphasis to helping high school students secure high-skilled employment. Through Project ProTech, participating hospitals satisfy both civic obligation and self-interest by training students to meet a shortage of highly skilled technicians. The hospital partners have selected occupations for ProTech based on projections of future human-resource needs.

An interest in reforming and revitalizing vocational education also spurred development of Project ProTech as a model program. Many of the ProTech partner organizations became familiar with and attracted to apprenticeship-style models of reform through their participation in the New England Council for Integrated Work and Learning, which formed following a 1989 conference entitled "Pathways from School to Work: What Can We Learn from the German Dual System?" Today, many ProTech partners are involved in plans to reform Boston's vocational education program, through the combination of more academically rigorous classroom programs and more extensive work-based learning options, including community economic-development strategies and apprenticeship-style programs.

The success of Project ProTech/Health Care has spurred the creation of Project ProTech/Financial Services, which will open in the fall of 1993 with seventy-five students. As in the health care program, students in this new initiative will participate in ProTech/Financial Services for four years, combining the last two years of high school with at least two years of post-secondary education and training. During high school, students will work part-time at some of the largest and most prestigious banks and insurance companies in Boston and gain exposure to many areas of the financial services industry through scheduled worksite rotations.

The classroom curriculum is specifically designed to integrate worksite learning and academic material. After high school, students will continue their training while focusing on a selected area of interest and pursuing the required degree or certification at an accredited local institution. Graduates will be qualified to enter high-demand occupational areas in the financial services industry. Partners include the Bank of Boston, Fleet Bank Massachusetts, Fleet Services, Inc., John Hancock Financial Services, Liberty Mutual Life Insurance Company, State Street Bank and Trust Company, and three high schools (Boston High School, Charlestown High School, and English High School).

School Elements: Project ProTech/Health Care operates at three different high schools. Each school adapts the program to its distinctive educational mission and reform goals. Teachers at each school modify their curricula to reinforce the concepts and skills students learn at the hospital.

Guiding curriculum development efforts at each high school is a set of common educational resources developed by teachers and hospital staff, with the help of World Education, Inc. This curriculum introduces students to theoretical concepts and technical skills used in the different ProTech occupations. It connects theoretical and hands-on learning experiences, classroom instruction, and clinical rotations through individual and group project work. For example, the unit on the EKG technician requires students to identify the parts of a normal EKG tracing, relate them to what is occurring in the human heart, and match activities from a patient's diary to the EKG tracings from a twenty-four-hour halter monitor test. In the first year of the program, hospital staff taught this curriculum during weekly hospital-based classes and clinical rotations. In the second year, the classroom portion of the curriculum was delivered by school teaching staff, allowing hospital staff to focus on hands-on training.

Brighton High School is integrating ProTech into the school's health magnet program. Students are clustered for classes in health occupations, science, math, and English. Teachers meet weekly for an after-school planning session. English High School has designed a new science class for ProTech students based on the interdisciplinary, problem-centered teaching approach of the Coalition of Essential Schools. Using concrete problems and projects related to the health field, a two-period "Advanced Topics in Science" class weaves together concepts from biology, physics, and chemistry. At Boston High School, a work-study high school, ProTech students

are clustered for English and science classes. Specially designed science classes help students make the connection between scientific concepts and health-related applications encountered in hospital-based learning experiences. Students receive work-study credit for afternoon jobs at the hospitals.

Workplace Elements: During their junior year, students attend introductory hospital seminars and rotate through a number of different clinical departments. Hospital staff assigned to mentor a student during the three-hour rotation follow a training plan which specifies learning objectives and activities for that department. The rotations are designed to give students a broad exposure to the workings of a hospital and the interconnection between different departments and occupations. In the second half of the junior year, students develop work-readiness skills in part-time hospital jobs. Hospital-based training becomes more occupation-specific as students progress through the program. In the senior year, part-time paid positions and clinical rotations ground students in a dozen targeted occupational fields. During the senior year, the part-time job becomes the focus of the hospital curriculum. Under the tutelage of hospital staff, seniors pursue their occupational interests and develop marketable skills while contributing as productive employees.

Paid work also becomes an increasingly integral part of training. By the third year of the program, students' paid positions are directly related to their occupational choices. An example of this continuum of paid, occupation-specific training starts with a ProTech student who is interested in working in a lab. The student might first work as a messenger or clerk in the lab in junior year, progress to lab assistant or phlebotomist in senior year, and work as a technician-in-training while attending post-secondary courses to become a certified medical technician.

Post-Secondary Element: Project ProTech is designed to place students in about twenty post-secondary institutions throughout the Boston area, depending on a student's area of interest and the availability of quality training in that area. The post-secondary institutions include: Northeastern University, Boston University, Simmons College, Mt. Ida College, Laboure College, Wentworth Institute of Technology, Fisher Junior College, Salem State College, and Bunker Hill Community College. The relationship with these institutions is not a formal partnership. ProTech helps to place students in a post-secondary institution whose program will best meet each student's career plans. The project may develop its relationship with some of these post-secondary institutions further through formal agreements and other linkages.

Recruitment: Project ProTech targets the "neglected majority" of high school students—those likely to complete high school but unlikely to pursue college-level training without a supported pathway. Students apply in the tenth grade, with selection based on past academic performance of a C average, level of interest in the health field, interest in working after school, and teacher recommendations. The first ProTech class included both honor students and students at risk of failing. The first group was also ethnically diverse: 49 percent African-American; 28 percent Latino; 19 percent white European; and 4 percent Asian. Females were overrepresented in the first year of the program, accounting for 67 percent of the participants.

Cost Factors: Project ProTech is one of the U.S. Department of Labor's national school-to-work demonstration projects and receives the bulk of its funding from that source. Federal vocational-education funds and a grant from a state-legislated hospital industry training fund supplement Department of Labor funding. Together, these funds provide about $450,000 each year to pay for seven central staff, program overhead, curriculum development, and supporting materials. Participation in Project ProTech adds about $3,200 to existing per-pupil costs, although the hope is to bring that figure closer to $2,000 in FY94 when the program reaches greater scale. Hospital partners provide staff, space, and resources for the hospital-based instruction delivered during clinical rotations and apprenticeships. The hospitals pay full cost of student wages and will also provide scholarships to help students pay for the college-based portion of the program. The school partners receive some funding for materials, teacher release time, and teacher development. School partners finance program adaptations in school staffing and class schedules out of existing budgets.

Scale: In 1992-93, ninety-four students actively participated in and completed Project ProTech—thirty-eight seniors and fifty-six juniors. Project ProTech/Health Care plans to enroll seventy-five more students in the fall of 1993. Another seventy-five students will be enrolled in Project ProTech/Financial Services, totaling 244 in the fall of 1993.

Children's Hospital Fenway Collaborative

Community Setting: Boston's public schools suffer from high dropout rates at the same time that the need for qualified entry- and technician-level labor is rising—especially in health care. Located on the campus of Bunker Hill Community College, the Fenway Middle College aims to reduce dropout rates by integrating a high school academic program into a college environment and by incorporating career development and community service into the curriculum. A strong partnership between the two principals in the Collaborative—Fenway Middle College and Children's Hospital, one of the foremost pediatric care centers in the world—provides the base upon which this program has been built.

Origins: Children's Hospital initiated collaboration with the Fenway Middle College in 1987 when the Middle College was still called the "Fenway Program" and was housed in English High School, just around the corner from the hospital. Hospital administrators and Fenway teachers and administrators had been talking for a few years about ways to close both the labor gap at the hospital and the cultural/economic gap between the Fenway's at-risk students and the world of work. In 1987, instead of contributing financially to Boston's Linkage Program (a mechanism to bring the benefits of the downtown construction boom to the neighborhoods), the hospital submitted a proposal to the Mayor's Office of Jobs and Community Service with English High School to establish an ambitious school-business partnership between the two institutions. They proposed a program to meet the labor needs of the hospital and the employment needs of low-income youth at risk of dropping out of high school by combining work experience at the hospital with a health-occupations curriculum at the Fenway Program. Other active partners include the Dimock Community Health Center, which provides counseling, and Bunker Hill Community College, which provides access to campus resources.

School Elements: Students continue to take the Fenway Middle College's core academic courses (humanities, math, and science). Added to these are two additional courses—Personal Career Development and Basic/Critical Thinking Skills—and the worksite experience at Children's Hospital. Personal Career Development (PCD) mixes individual counseling with group activities (team building, role playing) geared toward career exploration, job seeking, and job performance.

During the first part of junior year, the emphasis is on team building, conflict resolution, and exploring the world of work, particularly the health field. Later, students develop a resume and practice interviewing skills, which they put into practice before they begin their junior-year internship. During the internship, students in PCD focus on role-playing work scenarios, exploring workplace issues, and evaluating their own job performance.

These themes continue in the senior year, with an increasing emphasis on accountability and successful work behaviors. Seniors also learn about making the transition from school to work and managing time, stress, and

budgets. Basic/Critical Thinking Skills helps students develop basic skills, including math, reading comprehension, vocabulary, and how to summarize. It also focuses on developing and applying problem-solving skills, reasoning, research and evaluation, and the presentation of facts and ideas. Where possible, applications relate to students' work and experiences at the hospital. For example, students study and debate issues in medical ethics and research and write a paper about some aspect of the hospital's operations.

Workplace Elements: The workplace component consists of a junior-year, part-time internship, a summer work-study job, and a senior-year internship.

Junior rotations: The first internship takes place in the second half of junior year. It consists of a series of two-week rotations through four hospital departments: medical records, nutrition, patient accounting, and clinical labs. Students "shadow" someone who works in the department and perform basic tasks, such as filing and retrieving records, posting bills, and so on. Students spend two hours a day at the hospital and receive $30 per week as a stipend.

Summer work-study: During the summer after the junior year, students are placed in a 20-hour-per-week paid work-study position at the hospital. The job is accompanied by a six-week, individualized remedial academic program at Bunker Hill Community College.

Senior internship: During the third marking term of the senior year, students are placed in an eight-week internship in one of the participating hospital departments. Students receive a stipend of $50 per week. To approximate the experience of a full day of work, seniors fulfill their PDC and BCTS requirements through meetings at the hospital with the program counselor and their Fenway teachers. Humanities and math courses (part of the regular Fenway curriculum) are taught at the hospital by a Fenway teacher. Students complete an independent research project using the hospital as a resource.

Post-Secondary Element: Because it is located at Bunker Hill Community College, Fenway Middle College and its students have a special relationship with that school. However, the collaborative does not try to place students in Bunker Hill programs upon graduation if students have other ambitions and desires.

Recruitment: Recruitment takes place at the end of the sophomore year in the "Advisory" segment of the core curriculum for Fenway Middle College students. (In "Advisory," about fifteen students meet with a faculty member who advises rather than teaches. The focus is on developing personal communication skills.) Teachers and counselors have the opportunity to identify students who are not performing well in school or who they think would be motivated by participation in a work-based learning program.

Cost Factors: The Boston Linkage Program provided the collaborative with $109,000 for each of three years, beginning in 1988-89. These funds covered half of the hospital-based administrator's salary, half of the collaborative's counselor's salary, and junior-year stipends. The program has also received funds from Boston's Neighborhood Jobs Trust. The Boston school system pays the salaries of Fenway staff and other basic educational costs (such as bus passes) based on a per-student formula. Bunker Hill Community College provides classroom space and access to its facilities and courses without charge. In-kind support includes about four hours of hospital staff time per student per week. Hospital staff also guest lecture at the Middle School. In addition, Children's Hospital makes an annual contribution to the collaborative to pay for students' summer salaries and transportation, field trips, identity badges, etc.

Scale: The Fenway Middle College serves 145 students in grades ten, eleven, and twelve. The Children's Hospital/Fenway Middle College Collaborative serves forty students a year, about half juniors and half seniors. Of the 86 students who have enrolled, 74 percent have stayed in the program.

Kalamazoo Health Occupations Program

Community Setting: About four years ago, intensive pressure from the business community to cut costs resulted in a downsizing and consolidation of services for two prominent and competitive Kalamazoo Valley hospitals—Borgess Medical Center and Bronson Hospital. While community service and civic responsibility initially motivated both hospitals' involvement with the Kalamazoo Health Occupations Program, the long-term need for a trained supply of labor and the need to contain costs through improving the quality and retention of entry-level employees keeps both hospitals highly involved in the program.

Origins: The infrastructure for linking high school and post-secondary training in health careers was already in place when the need for this program surfaced. The Kalamazoo Intermediate School District is the regional educational agency which provides vocational programs to the nine participating school districts. The Kalamazoo Valley Consortium/Education for Employment was formed in the early 1980s to regionalize the costs and delivery of vocational education within the intermediate district. The Consortium took the lead in developing the Health Occupations Program, which is now four years old.

The program was created when the vocational nurse's education program began to have trouble attracting students. The focus soon changed to cover all health occupations and the location was changed from a local high school to a hospital setting. Although they had not been sites for the former nurse's training program, Borgess Medical Center and Bronson Hospital volunteered to provide work-based learning positions. In addition to these two acute-care hospitals, other business partners that provide work-site learning experiences include dental offices, a long-term care facility, an ophthalmology office, a veterinary clinic, rehabilitation facilities, and community service organizations.

School Elements: Eleven high schools participate in the program and take an active role in integrating their school-based curricula with work-based learning. The three-year cycle of integrated school and work-based learning is called *Health Occupations I, II, and III.* The program includes regular academic classes at the high school level; specially designed "health occupations" classes at the participating hospitals (which help students link what they are learning at the worksite to broader academic principles); college-level courses at Kalamazoo Community College; various work-based learning experiences (shadowing, externships, etc.); and counseling support. All of the area schools now grant science credit for *Health Occupations.*

Health Occupations I: The overall goal of the first-year *Health Occupations* course is to provide exposure to a variety of health-care occupations. The class introduces students to the health field and focuses on the development of desirable employee attributes and successful job-seeking skills. Class units include: communications skills; introduction to health-care systems; anatomy and physiology; relationship of food and health; human growth and development; computers in health care; and job-seeking skills.

Health Occupations II: The goal of the second year is to provide introductory experience in a specific health-care field or advanced training and education. This course enriches the student's on-the-job work experience and helps structure the school-to-work transition. Topics include: applied communications; personal characteristics of the health-care workers; legal responsibilities and medical ethics; and skills in personnel management, team building, problem-solving, and job-seeking.

Health Occupations III: In the third year, program staff provide ongoing support to participants who have entered the post-secondary component of a health occupations program.

Workplace Elements: Job-shadowing in the junior year and a senior-year externship form the core of the work-based experience. In recent years, the hospitals have taken a more active role in developing the work-based components of the program.

- Four of eight job-shadowing experiences in the junior year are specified by the hospitals (in contrast to the past when student interest was the sole determinant of shadowing placements). Students select four of eight placements from a list of departments supplied by the hospital that reflects existing or anticipated labor shortages.

- Hospitals are developing externships in departments that are most amenable to apprenticeship because of labor needs, work organization and training philosophies.

- Hospitals are systematically reviewing vacancies and hires for the past 24 months.

- Hospitals are creating new short-term, in-house training programs to prepare students for summer and part-time/full-time work.

- Health occupations students are given preference to fill vacancies before external candidates are sought.

The structure and quality of the senior externship is a major strength of the Health Occupations Program. Every externship placement is individualized and governed by a written training plan that states clearly the skills and behaviors that students are expected to master. The program coordinator works with department supervisors and other staff who serve as preceptors/trainers to refine training plans during the course of the externship. Student journals gauge the quality of the externship experience.

The program's lead staff have spent a lot of time identifying departments and jobs with promising career ladders and have cultivated externships for students in these departments (including pulmonary services, hemodialysis, nursing, and neurodiagnostics). Although now unpaid, the senior-year externship is becoming the first rung of a progressive training and employment ladder.

During the last month of *Health Occupations II*, students whose externships are not leading to summer or permanent placement can enter specially designed training programs that provide a guarantee of employment to all who complete the training. For example, Bronson Hospital offers a four-week, eighty-hour unpaid training program for six to eight students. Bronson Hospital and Borgess Medical Center have agreed to hire all students who complete the training and provide two to three months of additional paid training.

Post-Secondary Element: The Health Occupations Program serves students with a wide range of educational and occupational goals and is trying to structure three distinctive career paths for students who stay in the local area after high school: full-time health-care employment; 2 + 2 youth apprenticeships; and 2 + 4 youth apprenticeships. The program is cultivating relationships with four-year institutions that offer programs in physical therapy, sports medicine, and occupational medicine.

It is also cultivating a relationship with Kalamazoo Valley Community College, whose long history and commitment to expanding educational and employment opportunities in the region make it a natural partner. The Dean of Health and Science is a strong advocate for competency-based certification of skills (replacing seat-time requirements), and this offers an opportunity for accommodating apprenticeship in post-secondary health programs. Kalamazoo Valley Community College offers courses to students for college credit. The college also offers an articulation agreement for its Introduction to Nursing course when a student completes the requirements of nurse's aide certification.

Recruitment: The program enrolls a range of students from high schools in the region—from exceptional to at-risk. This requires a close relationship with home school teachers in developing individual education plans. Program staff carefully screen applicants. Applicants are assigned to placements that program staff determine to be a good match.

Cost Factors: The Health Occupations Program is integrated into the existing vocational education system for the nine participating school districts. The program employs two full-time health occupations instructors, a part-time technical-skills assistant, and a part-time skills assistant. The cost of the program is about $600 per student hour, which is the consortium average for vocational students.

Scale: Seventy-five first-year students do job-shadowing at both hospitals and a number of other community-health providers. There are 28 students in the second-year program, and 12 in the third-year program.

Manpower Demonstration
Research Corporation

Three Park Avenue
New York, New York 10016
(212) 532-3200

88 Kearny Street, Suite 1650
San Francisco, California 94108
(415) 781-3800

MDRC