

**Exemplary Worksite Learning  
Programs: Building the  
Workforce of the Future**

This report highlights exemplary educational programs bridging the gap between students' school years and their lifetimes as adult workers. Although much of the information provided here is specific to the programs described, many of the problems encountered and solved by the programs' administrators and staffs would be encountered in any worksite learning program. Thus, the report should provide useful guidelines in the planning and implementation of virtually any new program.

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## ***Introduction: Building the Workforce of the Future— Today***

Time has been the key to establishing worksite learning programs in schools around the country. Educators have needed time to understand the needs of employers. Employers have needed time to understand how to define their needs to educators. Students and parents have needed time to adjust to the programs becoming the new link between children's school years and their lifetimes as adult workers.

Worksite learning programs make education more than the responsibility of only school administrators, teachers, and parents. Where the working future of today's students is concerned, the burden rests also on employers. This is evident in part from the many reports, articles, and data from employers showing a growing need for more skilled employees. The jobs of tomorrow require more sophisticated technology and communication skills. Secretary of Labor Alexis M. Herman said in her Labor Day 1998 message that the new global economy is unlimited for those with the right skills and unforgiving of those without.

Employers began taking these demands to educators. If employers were unhappy with the pool of potential employees graduating from America's schools, the schools must make changes with employers on board. What skills did employers want the would-be employees to have? What courses in school could be altered to provide these skills? Was there a way for employers to teach some of these skills to the students? All of these

questions were addressed in building new partnerships between education and business. New ground was broken and educators and employers began to lay new track for the students to follow.

Having identified necessary skills, the educators and business partners developed programs to teach the students what it takes to be the kind of workers successful business people want to hire. Workplace skills are different from the exercises in textbooks with answers in the back of the book. Employees must learn by doing. Students needed to begin to learn by doing just as new employees are expected to do. They had to start while still in school, so the programs were woven into the school schedule. This enabled these students to get a head start. Now students could attend classes and also be apprentices or participate in mentoring or jobsite training programs all in the same day. Students in the programs could learn while still in high school what many do not learn until they reach college or their first jobs.

When the first graduates of such programs began to emerge onto the workforce scene, the proof was positive. The partnerships and new worksite experiences paid off more than anyone could have predicted. Brave new ideas had produced the hope that, with the right changes, the education system could meet employer demands. Today this hope should not only brighten the future of students and employers but also strengthen families, renew communities, and revitalize America's ability to compete in the global economy.

While worksite learning programs continue to grow and improve, how will the new millennium affect the current course? July 1998 marked the signing of the Workforce Investment Act into law. Its presence in worksite learning programs will certainly have an impact on the continued development of the worksite learning trend, and will affect what schools can do. Worksite learning programs have the momentum to continue to better prepare students to be trained and professional employees.

## ***Exemplary Worksite Learning Award Winners***

This is the second report published by the National Tech Prep Network (NTPN) on successful programs in which students learn by participating in hands-on classroom activities and by taking part in worksite experiences. The three featured programs are Exemplary Worksite Learning Award (EWSLA) winners. The EWSLA was established by the Center for Occupational Research and Development (CORD) and NTPN in 1994 to encourage Tech Prep/School-to-Work consortia to integrate meaningful worksite experiences into their curricula. Recipients of this award, which is funded by Caterpillar Inc., must meet criteria determined by a national committee of academic and business representatives in four areas: (1) program overview—encompasses curriculum-based activities, assessment methods, and documentation of time spent at the worksite by students; (2) professional development and experiences; (3) business involvement; and (4) results—must include measurable student improvement rates, such as grades and retention, and measurable benefits to business partners and the community.

The three EWSLA winners from 1997 and 1998 featured in this report are Foodservice Management (Illinois), General Motors Technical Academy (Michigan), and the AMP Incorporated Registered Youth Apprentice and Other STW Initiatives (South Carolina).<sup>1</sup>

Following is a brief description of each winning program. These are followed by

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<sup>1</sup> Three other programs received the 1997-1998 award as well; these will be highlighted in a forthcoming report.

narratives written by representatives of each program's consortium about how the program was developed and how it came to be an award-winning program. The Appendix contains a "Building Your Own Program" section that provides questions that should be addressed before beginning a worksite learning program, a glossary, and URLs for web sites that provide information on starting a worksite learning program.

- The Foodservice Management Program was submitted to the EWSLA competition by the Northwest Suburban Education to Careers Partnership in Arlington Heights, Illinois. Foodservice Management was established in 1994 to serve the demand for skilled managers in the foodservice industry. The program consists of a program of study beginning in the ninth grade and continuing through an A.A.S. degree and a series of five paid internships.
- In the fall of 1994, the General Motors Truck Group put the finishing touches on the first phase of its Centerpoint Campus for Design and Engineering, called the Truck Product Center, in Pontiac, Michigan. The Truck Group approached Oakland Schools with the idea of jointly developing a program that would help to fill the projected employment shortage with local people. Five local school districts indicated their willingness to participate in the development of a pilot program; thereby General Motors Technical Academy (GMTA) was launched.
- The AMP Incorporated Registered Youth Apprentice and Other STW Initiatives is a program from the Catawba Technology Education Consortium (CTEC) in Rock Hill, South Carolina. In 1989, the president of York Technical College formed committees to determine the need for a cooperative effort between the public schools and the college to help high school students interested in technical careers. Today CTEC is one of sixteen consortia in South Carolina. It is a cooperative endeavor involving eight institutions. The consortium serves approximately 22,000 students.

## ***Foodservice Management, Northwest Suburban Education to Careers Partnership***

The development of the Northwest Suburban Education to Careers Partnership's Foodservice Management Program began in 1993 when projections indicated that the number of foodservice jobs in the United States would grow from nine million to twelve million by the year 2005. Industry employers already were having difficulty finding workers, let alone qualified ones, and the Illinois Restaurant Association was forecasting a national need for 76,000 additional foodservice managers every year for the next ten years. The need to attract and develop a skilled workforce to handle these enormous growth opportunities spurred the development of Northwest Suburban Education to Careers Partnership's Foodservice Management Program.

Experiencing a labor shortage in his own operation at the time, Richard Ysmael, vice president of the Motorola Hospitality Group, decided to do something to alleviate the problem. As an officer of the Illinois Restaurant Association and a member of its foundation's board of trustees, Ysmael convened a meeting of Chicago-area foodservice leaders. He sold them on the idea of developing an industry-driven, school-to-work foodservice program with multiple work-based opportunities for students.

To fund this initiative, Ysmael and ten business/industry partners (ARA Services; Boston Market, Inc.; Canteen Corporation; Home Run Inn; Lettuce Entertain You; Marriott International; Motorola; Oscar

## ***Building the Solution***

Mayer Foodservice; Levy Group; and TGI Friday's) raised \$64,000 and helped secure a two-year, \$50,000 Tech Prep grant from the state of Illinois. In addition, they convinced the Educational Foundation of the National Restaurant Association to assist them in developing the curriculum for a model school-to-careers foodservice premanagement program that could be replicated across the nation.

Subsequently, a state advisory council called the Foodservice Industry Alliance was formed to provide industry input concerning program content. This council was composed of representatives of ten major restaurant and foodservice organizations, the Illinois State Board of Education, the National Alliance of Business, the Illinois Restaurant Association, the Educational Foundation of the National Restaurant Association, and five Illinois educational sites led by the Northwest Suburban Education to Careers Partnership.

After identifying the skills and knowledge that managers in the industry need, the foodservice employers met with local educators every six weeks for about a year to develop the school-based curriculum and the work-based competencies and to address identified needs. The partnership's executive director, high school foods teachers, and a representative of the local community college edited the curriculum modules as they were printed into consumable workbooks and tested them with students in foods classes.

Throughout the two-year pilot period, the

state advisory council supported and monitored the program. Foods teachers met once or twice each semester to discuss program implementation and areas for improvement. Each participating teacher received a stipend funded by the state Tech Prep grant.

***The foodservice premanagement curriculum was the first industry-driven, secondary-level program aimed at teaching the fundamental business skills needed to manage a foodservice facility.***

Designed as a two-year program for high school juniors and seniors, the foodservice premanagement curriculum was the first industry-driven, secondary-level program aimed at teaching the broad base of fundamental business skills needed to operate and manage a foodservice facility. Written at a tenth-grade reading level, the curriculum is organized into three major components: customer service, food preparation, and business management. It assimilates accepted foodservice-industry skill standards for premanagement from a variety of sources including a nationwide survey of 5,000 foodservice managers; the Council on Hotel, Restaurant, and Institutional Education; the National Department of Labor; and the report of the Secretary's Commission on Achieving Necessary Skills (SCANS).

Each curriculum unit is cross-referenced to highlight pertinent academic competencies in mathematics, verbal and written communication, and computer skills. Professional program and curriculum developers from the Educational Foundation of the National Restau-

rant Association assisted in developing and writing the curriculum.

“This school-to-career program is different from traditional work programs because it was based on input from business and industry,” says Pamela Block, executive director of the Educational Foundation of the Illinois Restaurant Association. “The industry told us the skills it needed for the future, and we built those into the curriculum competencies as the program for the schools was developed.”

“While most curriculum development starts in school, this started externally in industry,” Block adds. “Industry took the direction and leadership to initiate the program and used funding from its own members and the state to bring in educators to develop it.”

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***Pamela Block, executive director,  
the Educational Foundation of the  
Illinois Restaurant Association***

Articulation agreements hammered out among the administrators of the partnership’s three member high school districts, William Rainey Harper College, and Roosevelt University stated that students would receive dual college and high school credit for the

Foodservice Management Program. Students who complete the full two-year program earn nine college credits and place out of three college courses: introduction to hospitality, food and beverage operations, and an internship practicum. Awarding that much college credit for a high school course was a new concept, and college administrators approved it only after close scrutiny of the program. The Foodservice Management Program is directly articulated with Harper College, Roosevelt University, and Johnson and Wales University. Articulation agreements with other major college and university hospitality programs are expected later this year. Students who complete Harper College's two-year A.A.S. degree program in foodservice can transfer all their credits to Roosevelt University's baccalaureate degree program in foodservice.

The availability of industry scholarships encourages students to pursue postsecondary education. The National Restaurant Association, the Illinois Restaurant Association, and the Society for Foodservice Management all support the Foodservice Management Program by providing qualifying students with scholarships ranging from \$500 to \$10,000. To date, seven graduates of the career partnership's member high schools have received sizable college scholarships from these industry sources.

To prepare instructors to teach the Foodservice Management Program curriculum, the Educational Foundation of the National Restaurant Association provided regular staff training during the pilot period. During one day out of every six weeks for two years, the program teacher, a Harper College faculty member with extensive foodservice industry experience, was in-serviced with teachers from the four other Illinois pilot sites. During these sessions, instructors developed competency testing, portable credentials, and the student competency checklist.

Facilities and equipment needed for the program already were in place at Harper College. Its commercial kitchen lab has twelve stoves, a large bakery, walk-in freezers, three-compartment sinks, and large commercial equipment. Student textbooks and workbooks, teacher materials, and a student workplace-competency checklist

## ***The Program***

were funded by the program's seed money and distributed by the National Restaurant Association.

The Foodservice Management Program was first offered in the 1994-1995 school year to students in the career partnership's twelve member high schools. Nine students enrolled in the program, which was taught by a teacher at the local community college. To date, twenty-two students have completed one year of the program, and twelve have completed the full two-year program. The incoming class this fall numbers sixteen—eight high school juniors and eight seniors. Replicated throughout Illinois, the program today includes twenty-nine schools, 667 students, and 100 companies. In all, 150 Illinois high school students have graduated from the program. Fourteen other states are using the program model as well.

Jointly developed by educators and industry leaders, the Foodservice Management Program links academic learning in hospitality classes with three differently paid internships to help high school students sharpen their technical, academic, and work-readiness skills; strengthen their communication, problem-solving, and decision-making skills; demonstrate their ability to work as part of a team; learn the many career paths available to them; and gain the skills needed to succeed in the workplace.

Additionally, students learn business skills in the classroom, become acquainted with career opportunities through field trips

and job shadowing, and gain practical experience during hands-on internships at local foodservice establishments, where they are supported by trained worksite mentors.

The yearlong Foodservice Management I course meets at Harper College for an hour and twenty minutes three days a week. Transportation is provided between the high school and the college. Students earn 1.5 high school credits as they learn about the many career opportunities available in the foodservice industry and develop food-preparation and business skills. In the course's second semester, they participate in a paid 15-hour-per-week internship on nonschool time with a local employer trained by the Illinois Restaurant Association to teach industry skills. In Foodservice Management II, students build on skills learned the previous year and complete two additional one-semester internships, earning two high school credits and nine hours of college credit. This yearlong course meets for three hours twice a week.

High school counselors assess whether students are potential candidates for the Foodservice Management Program. To qualify, a student must be a high school junior or senior and at least sixteen years old, be eligible for employment in the United States, have taken a foods or business class, be recommended by his or her school's education-to-careers coordinator, and have at least a C average. On a typical day, students attend four academic classes at their home schools and then are bused to Harper College for Food Management I or II. Topics addressed by the two-year curriculum include developing successful customer relations, preparing and serving safe food, preventing accidents and injuries, mastering kitchen basics, operating foodservice equipment, exploring nutrition, experiencing different foods, working with people, applying business math, controlling foodservice costs, purchasing and inventory control, standard accounting practices, marketing and the menu, practicing the art of service, communicating with customers, and relating tourism and the retail industry. Applied academics are infused throughout as students learn to extend recipes; calculate tips; determine food costs and profits; and write menus, recipes, and

business letters. Students spend two-thirds of their time in the classroom and one-third in the kitchen lab.

“This is not a culinary arts program,” says Ardu Bradley, Foodservice Management Program instructor. “We are preparing students for management positions in the foodservice industry, giving them the knowledge and skills they need to run a business.”

“The business today is more difficult than it was twenty to thirty years ago,” says Kevin Brown, vice president of operations for Lettuce Entertain You. “You need more education to understand money, finance, economics, sanitation, and management of people.”

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Guest speakers from industry regularly perform classroom demonstrations of everything from filleting fish to sharpening knives to garnishing foods. Through worksite tours, students gain an overview of house operations at a variety of foodservice establishments and related operations, including a butcher shop. Job-shadowing experiences enable students to spend time on the job with professionals working in their areas of career interest.

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***Kevin Brown,  
vice president of operations, Lettuce Entertain You***

Classroom learning and worksite experiences are coordinated to help students master ninety-two competencies in the following eight core areas:

- Basic skills—reading, writing, arithmetic and mathematics, speaking, and listening
- Thinking skills—thinking creatively, making decisions, solving problems, seeing things in the mind’s eye, knowing how to learn, and reasoning
- Personal qualities—individual responsibility, self-esteem, sociability, self-management, and integrity
- Resources—allocating time, money, materials, space, and staff
- Interpersonal skills—working on teams, teaching others, serving customers, leading, negotiating, and working well with people from culturally diverse backgrounds
- Information—acquiring and evaluating data, organizing and maintaining files, interpreting and communicating information, and using computers to process information
- Systems—understanding social, organizational, and techno-

logical systems; monitoring and correcting performance; and designing or improving systems

- Technology—selecting equipment and tools, applying technology to specific tasks, and maintaining and troubleshooting technologies

The Foodservice Management Program’s rotational internship component is key to its success. The internship provides students with a broad understanding of the foodservice industry and hands-on experiences in both food preparation and business management. Scheduling internships on nonschool time was a new concept, different from the way traditional work-program assignments are scheduled. Guidelines and procedures had to be adapted to gain school district approval.

Over the program’s two years, students complete three paid internships at different types of foodservice sites, including quick service, casual dining, fine dining, corporate or institutional foods, and catering/specialty/hotel. Employed in a variety of positions, interns develop the knowledge, skills, and attitudes that will enable them to become productive adults.

“Students get a chance to see the industry, what they like about it, and the different areas of the industry they like,” Brown says. “They don’t get penned in doing just one set thing while they’re in our industry. They not only get a chance to work in several different areas, but, while they’re working, they get to see other areas of the business as well.”

A trained worksite mentor and the program teacher work closely with each student on the practical application of skills taught in the classroom. Mentors provide interns with the advice, guidance, and examples that help them make the transition from school to work as smooth as possible. They not only demonstrate and teach the kind of work that students are expected to do but also provide real-life examples of how the work is to be done. Students and employers are encouraged to extend winter/spring internships through the summer.

Using the Illinois Restaurant Association's membership directory as a resource, the partnership's employer development specialist and the program instructor arrange internship sites. These facilitators seek establishments that are close to students' homes, are members of the Illinois Restaurant Association, and have someone on staff who has completed or is willing to complete half-day mentor training through the Illinois Restaurant Association. Each mentor receives a guide to assist him or her in the mentoring role. The instructor talks and meets regularly with worksite mentors to ensure coordination between the worksite and the classroom.

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Mentors are expected to do the following:

- Identify and teach to interns a preliminary set of competencies, depending on training opportunities available at the workplace

- Interview and screen internship candidates, selecting appropriate students for the internship
- Prepare the workplace to receive students and serve as a buffer to any relationship conflict that may arise with other employees
- Assign and supervise the work of students by following the work-based learning core competency areas
- Orient students to the workplace
- Discuss the overall functions of the organization and of the particular site to which the students are assigned
- Set priorities as well as short- and long-range goals for interns
- Explain and reinforce the employability skills necessary for success
- Become friends and confidantes
- Evaluate the students' progress to determine the skills they have learned
- Keep lines of communication open with students, school personnel, and parents

Students must interview with employers for their internships. A workshop led by the partnership's employer development specialist prepares them for this process by focusing on how to develop résumés, complete job applications, dress appropriately for interviews, make good first impressions, and respond to interview questions.

Students' classroom performance and worksite performance are graded separately. The classroom teacher maintains grades for in-class work, homework, and exams. Worksite mentors check off competency items as students master specific skills. Using a five-point scale, mentors also evaluate students' punctuality, friendliness, grooming, coworker relations, initiative, dependability, communication skills, quality and quantity of work, and courtesy. The classroom teacher bases the worksite-performance grade on the mentor's

evaluation and the progress students have made toward achieving the ninety-two competencies.

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Students must maintain a C average in Foodservice Management I to return for the second year of the program and may not have more than five absences each semester. To show what they've accomplished while in the program, students assemble portfolios that include their résumés, internship evaluations, and photographs of themselves with food they've prepared.

Students who successfully complete two years of classroom and worksite training are eligible to take the ProStart exam. Those who pass are awarded certificates of mastery by the National Restaurant Association. A database of successful completers is maintained by the Illinois Restaurant Association and shared with member restaurants to facilitate the hiring of trained, experienced employees for foodservice management careers. Students also are eligible to take the certificate-of-sanitation exam offered by the state health department.

## ***Maintaining an Exemplary Program***

Marketing of the Foodservice Management Program is led by the partnership's executive director and the employer development specialist. The executive director annually discusses the program with counselors from each of the career partnership's member high schools and encourages counselors to inform appropriate teachers of its availability. In addition, counselors are provided with the Illinois Restaurant Association's four-color program flyers for distribution to students. Copies of a video are also available for checkout. The employer development specialist and the program instructor make joint presentations about the program to students in high school foods classes. A description of the foodservice management classes is published in each district's course guide. In addition, articles about the Foodservice Management Program have appeared in area newspapers.

Employers must comply with the Fair Labor Standards Act and federal and state child-labor laws. Parents are responsible for students while they are traveling to and from school and work. The school is responsible for students while they are at school. The foodservice establishment is responsible for students when they begin working. If anything happens to a student at an internship site, he or she is eligible to receive Workman's Compensation.

The Foodservice Management Program has benefited all parties involved—students, teachers, business partners, and parents. For

students, the program provides an opportunity to “try on” a foodservice career to see whether they like it. Simultaneously, they earn money and school credit. Students who find they like this school-to-work involvement have a head start in their pursuit of careers in the country’s largest and most rapidly expanding industry. Further, they are eligible for industry scholarships, which make postsecondary education more affordable. Those who decide the foodservice industry is not for them still walk away with work skills that are valued by employers in all fields, work experience that adds to résumés, insight into what college is all about, and enhanced self-esteem and a sense of accomplishment.

***B***ecause of my experience I am being placed in a job where other kids my age wouldn’t be placed.

***Heather Hughes,  
James B. Conant High School graduate,  
Hoffman Estates***

Ninety percent of our program graduates continue their postsecondary education in the area of foodservice; 5 percent continue their education in other fields; and 5 percent enter the workforce or the military right out of high school. Of the three 1996 graduates, two pursued postsecondary education in hospitality and one went on to major in nutrition at a university. Of the five 1997 graduates, three enrolled in foodservice/hospitality programs at a community college or a university, one went on to study business management, and one joined the United States Marines’ foodservice program. Of the 1998 graduates, four enrolled in college foodservice/hospitality programs and one was hired by Hyatt

Corporation as a *sous chef*. Each of our graduates has received a certificate of mastery from the National Restaurant Association and a certificate of sanitation.

Business partners benefit through their participation in the program by acquainting young people with the potential for rewarding careers in the foodservice industry, thus enhancing the industry's image and helping create a solution to one of its major human-resource challenges. The skills, knowledge, and work experience students gain through the program improve the overall quality of foodservice professionals and develop managers who can more effectively operate businesses. Illinois Restaurant Association members also gain access to the organization's school-to-career graduate database, enabling them to recruit tomorrow's managers today.

***W******e need the best and brightest kids to enter our industry. They are our future. If we can get them interested early on through training and positive reinforcement in our operations, chances are they'll continue their careers with us either directly after graduation from high school or later after graduating college.***

***Richard Ysmael, vice president,  
Motorola Hospitality Group***

“The commitment of operators to participate in the program is driven by the fact that they realize the labor pool is shrinking and they need to identify a better quality of people,” Ysmael says. “The skills students develop are transferable from one operator to another. We need the best and brightest kids to enter our industry,” he says. “They are our future. If we can get them interested early on through training and positive reinforcement in our operations, chances are they’ll continue their careers with us either directly after graduation from high school or later after graduating college.”

***This program has been incredibly beneficial for my daughter, Melissa. She is enthusiastic and more mature and self-confident as a result of her participating in this program. Doors are opening for her as she learns excellent managerial skills.***

***Marge Adduci,  
parent, Buffalo Grove***

Instructors praise the program’s organization and benefit from its technical assistance, constant monitoring, and evaluation from the Educational Foundation of the Illinois Restaurant Association. The group also assists teachers by providing industry leads for job-shadowing experiences and internships.

“It’s really easy to teach because everything you need is there—from the teacher’s materials to the overheads to a course time line,” says instructor Bradley. “All the work is done for you—you just have to present it.” Parents appreciate that the program helps their

***The  
Future  
of the  
Program***

children develop career focus and gives them a head start on moving into a career. Additionally, they are excited by the potential for industry scholarships and value industry leadership and student support.

In 1997, the Foodservice Management Program was identified as an exemplary work-based learning program by the National Tech Prep Network. Last fall, instructor Arduus Bradley received a certificate of appreciation from Western Illinois University for “excellence in preparing the next generation for academic achievement and leadership.” The award came after Bradley was named “most inspirational teacher” by a program graduate now majoring in foodservice at Western.

Today’s Foodservice Management Program goals are the same as they were when the initiative was designed—to enhance the hospitality industry’s workforce and its image as an exciting and rewarding career opportunity and to alleviate the shortage of qualified workers. The industry-driven curriculum ensures that students learn national skill standards they can apply in any foodservice or hospitality setting.

What’s changed about the program is its scope: What began as a pilot initiative in the northwest suburbs of Chicago has become a statewide and a national program. By the year 2002, the Educational Foundation of the Illinois Restaurant Association expects the program to involve 3,000 to 6,000 students in fifty Illinois high schools. The Northwest

Suburban Education to Careers Partnership has played and continues to play a key role in this expansion by regularly sharing program materials with other educational sites throughout the nation. Additionally, program graduates attend conferences all over the state and

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the nation to speak to educators and industry leaders about the program's many benefits. The fact that these students are willing to do this speaks volumes about the program.

Prompting the program's exponential expansion is the fact that opportunities exist for many students to pursue myriad viable career paths in what has become the largest industry in the country. The hospitality industry employs more than 11 million people and creates 200,000 new jobs each year. Current estimated turnover is 100 percent, and projections call for a 30 percent increase in the need for hospitality employees by the year 2005.

Each year, industry representatives and educators meet to

review the curriculum and competency requirements to keep up with the industry's changing needs. Further, the Educational Foundation of the Illinois Restaurant Association is adding professional-development opportunities. For example, a recent workshop introduced point-of-sale software. Foods teachers will be assessing their skill levels and identifying areas of weakness to be remediated through additional education. Using adjunct professors employed in industry to teach needed courses, community colleges will elevate teachers' skill levels so they can better prepare students for the workplace. A regional weekend retreat in February 1999 will address staff-development issues, promote networking, and feature the chief executive officer of a national chain as the keynote speaker.

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Because of the high demand for trained design and engineering personnel and constant technological advances, a shortage of qualified, employable people has developed throughout the United States. The Goals 2000: Educate America Act underscores the shortage and calls for action to strengthen the connection between education and employment. The purpose of the act is to empower the educational community, with the help of industry, to provide students with relevant knowledge and skills while enabling them to make a smooth transition from school to work.

An essential component of this transition is articulation between high schools and postsecondary institutions. Articulations among the three partners—high schools, colleges, and industry—are especially important with respect to close communication, educational enhancement, and, as often as possible, cooperative work-and-study programs. By virtue of their up-to-date industrial experience and study of applicable skills, students who are successful in these programs are immediately marketable—without need for industry retraining—in high-tech, high-demand careers.

In the fall of 1994, the General Motors Truck Group put the finishing touches on its Truck Product Center, the first phase of its Centerpoint Campus for Design and Engineering. During the same time, the Truck Group approached Oakland County Schools with the idea of jointly developing a program that would train local people as well as help to

**General  
Motors  
Technical  
Academy,  
Oakland  
County  
Tech Prep/  
STW  
Partnership**

alleviate the projected employee shortage.

After several joint sessions, Oakland Schools and General Motors decided to establish an academy focused on design and manufacturing as they relate to the automotive industry. This academy would enhance local programs as well as facilitate student transition between secondary and postsecondary schools and between postsecondary schools and industry. The Truck Group wanted to incorporate the transferable processes and standards used in similar programs offered by other divisions and/or industries. Five local school districts were approached to determine interest in this concept. When these five districts indicated their willingness to participate in the development of a pilot program, the General Motors Technical Academy (GMTA) was launched.

### ***The Steering Committee***

A steering committee of representatives from the five participating school districts, two colleges, Oakland Schools, and General Motors was formed. The steering committee reviewed various options outlining mutually beneficial objectives. The key issues addressed through the spring of 1995 were the following: management of administrative processes, site and equipment, coordination and articulation of curricula between school districts and postsecondary institutions, transportation, student internships, mentorships, recruiting, and marketing.

The five school districts involved in the pilot project were represented by teachers, vocational administrators, and curriculum

directors. Their goals were to ensure the compatibility of this new program with the existing programs at their schools and to work out the logistics of transportation and administration.

The two colleges involved offered both two- and four-year degree programs. Both schools offered articulation credit in technical classes and industrial co-op possibilities.

***F*** ***or the program to succeed, it would need buy-in from educational and industrial leadership at every level.***

Oakland Schools' role was to provide educational leadership in the coordination and administration of the program. The representatives from Oakland Schools served as communication links and worked out processes for identification of success criteria and evaluation processes. Oakland Schools provided a coordinator/contact person and shared in the teacher-selection process, curriculum development, and formulation of the articulation agreements.

It was decided that Oakland Schools and General Motors would jointly participate in marketing and recruiting activities. For the program to succeed, it would need buy-in from educational and industrial leadership at every level. From the schools' standpoint, it would be necessary for teachers and counselors to understand how GMAT would affect their programs and their students. From the industry's standpoint, marketing and recruiting would need to be constant, given the ongoing need for mentors, internship locations and coordination, facilities, equipment, and access to other resources, both human and physical.

It was decided that mentor training would be a coordinated effort as well, with Oakland Schools and General Motors developing a mentorship program to benefit the GMTA students in the short term and General Motors in the long run.

The steering committee's General Motors representation came from the design and engineering community, human resources, and Electronic Data Systems (EDS).

The designers and engineers offered their expertise as subject matter experts, mentors, and internship advisors. These activities were coordinated by the engineering and designer development staff members who are involved in related activities such as college co-ops, internships, designer development programs, and other special programs for employee development.

Human resources provided an administrator for the program and worked with budget, facilities, and material acquisition as well as with staff members and students on human-resource issues.

EDS representatives accepted the role of technical advisors for educational technology. The original equipment used at GMTA was donated by EDS, and the maintenance of all computer equipment at General Motors' facilities fell under EDS's responsibility.

***Industry marketing and recruiting must be constant, given the need for mentors, internship sites and coordination, facilities, equipment, and access to other resources, both human and physical.***

## ***Advisory Boards***

After GMTA was established, an advisory board was formed to monitor and improve processes and curriculum and to coordinate activities. The advisory board is divided into internal and external advisory boards.

The internal advisory board meets monthly. Its eleven members include administrators from Oakland Schools and General Motors, GMTA instructors, and technical-education advisors from the design and engineering community. This board is responsible for developing annual objectives. It also deals with budget and curriculum development, development of mentoring processes, the capstone project, human resources issues, student recruitment, and the summer intern program.

The external board, composed of thirteen members, meets quarterly, but members are welcome to sit in on all advisory board meetings. This group acts as a discussion forum for new initiatives and provides leadership to the internal board, students, and instructors. The external board helps to develop the vision, to establish long-term goals and objectives, and to monitor the mentoring process. Individuals responsible for developing projects and for providing summer intern programs at the divisional sites serve on the external advisory board.

Another advisory group meeting once each month is composed of representatives from the five school districts. This group's purpose is to provide a communication link

between the nine sending high schools and GMTA. The primary function of the school representatives is to ensure that every GMTA student is successful. These representatives also coordinate recruitment activities and public relations at the sending schools. Further, they act as advisory contacts and mentors to the students from their districts and are responsible for ensuring that schedules and academic requirements are maintained during the students' tenure at GMTA.

## ***Funding***

As GMTA was being developed, it was understood by all stakeholders that, for the program to be successful, it needed the commitment of allocated budget items rather than funding from grants or other short-term sources.

Consequently, funding is shared by all the partners, with Oakland Schools using a countywide millage as the primary monetary source. The local school districts cover transportation costs and provide guidance and counseling from their budgets, and General Motors makes budgetary allocations from its human resources area.

Oakland Schools provides salaries and benefits for the instructors and shares in providing professional development. Travel to conferences, tuition reimbursement, and limited materials costs are also provided through the Oakland Schools Career and Technical Education Department budget.

General Motors human resources budgets funds to cover equipment purchases beyond the original EDS donation, mainte-

nance for the equipment, and facilities.

GMTA is housed in a General Motors facility within the Centerpoint Complex. This facility was specifically built for training and human resource development. In addition, General Motors University, Auburn Hills Campus, serves General Motors employees throughout its North American operations and offers many opportunities to GMTA students.

The vision of General Motors University is that General Motors will be a learning organization with a bias for action. In keeping with this vision, the General Motors University will be a network of learning opportunities that enhance General Motors' ability to conduct and expand its business by continuously improving the organization's understanding and skills. GMTA is an integral part of this vision.

Curriculum development, which was initially based on an outline provided by the original steering committee, is updated and organized by direction of the advisory board. The GMTA curriculum addresses industry-specific areas of automotive technology, along with applied communication, applied mathematics, and employability skills. To develop the technical drafting and design skill areas of the curriculum, the local colleges were consulted to help ensure the students' success with articulated coursework. The colleges provided workshops and seminars about the content of the courses for which they allowed qualified students to articulate credits. Some of the members of the advisory board are

## ***Curriculum Development***

instructors in the institutions where articulation agreements are in place, which makes the transition from GMTA to the colleges even more seamless. As the curriculum is continuously improved, advice is sought from subject matter experts throughout the auto industry so that standards and processes meet the needs of the students in this ever-changing technological field.

The nontechnical areas of the curriculum are still influenced to a great extent by General Motors and the culture that surrounds the industry. Mentors and skills-development personnel not only help students learn how to get jobs but also help GMTA students acquire skills that will contribute to their success at jobs and in careers. Some of the areas addressed in the nontechnical realm are personal organization, work habits and attitudes, teamwork, problem solving, and decision-making skills.

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Initially, General Motors employee-development personnel provided guidelines for print reading and General Motors drafting standards. Experienced in curriculum development, the instructor/coordinator was given the opportunity to spend several months developing projects and methods with designers and trainers. Further, the instructor/coordinator had completed *Principles of Technology* training provided by CORD and, for twenty-five years prior to becoming involved with GMTA, had integrated academics into project-oriented class work. These skills and opportunities facilitated the integration of industry standards and practices into GMTA.

The two colleges that were involved at the outset had similar curricula. Oakland Community College offered two-year design programs in automotive body design, machine tool design, automotive industrial modeling, and computer-aided engineering with co-op possibilities. In addition, Baker College offered students the option of going on to pursue a four-year degree at its campus.

After the first year of the program, Macomb Community College was added because of the diversity of its co-op programs and the strength of its programs in auto body, tool fixture and die design, and automated machine design. Students who choose to go to Oakland Community College can opt out of basic drafting and a basic computer-aided drafting (CAD) class with the GMTA instructor's signature. A third class, basic descriptive geometry, requires students to take a test for credit.

## **Articulation Agreements**

***Preparation  
of Teachers,  
Instructors,  
and Staff  
Members***

Students at Baker College can receive credit for their GMTA experience in five designated classes. The requirement is that they pass the next class in the sequence.

Macomb Community College requires students who seek GMTA credit to take a test and pass the next class in the sequence. Since this articulation agreement was established several years ago, one student has tested out of all four classes.

Each of these schools has established articulation in certain areas with four-year institutions. For instance, Macomb Community College has the MegaTech Academy, at which students can earn a bachelor of science degree in auto body design, granted by Central Michigan University.

GMTA instructors have been given opportunities to work in industry each summer and have been allowed to participate in General Motors employee-development classes and seminars. In addition, Oakland Schools has made reimbursement available for completing relevant classes and for attending conferences. Instructors have been involved with the Tech Prep CAD/Drafting Business/Industry/Labor Council, Young Women in Engineering and Design, and the Tech Prep CAD/Drafting Workshop series. They also have sponsored GMTA students in the annual Oakland Community College drafting contest.

General Motors personnel and GMTA

instructors and students have improved the GMTA program by their participation in activities and contests sponsored by the Society of Manufacturing Engineers, the Society of Automotive Engineers, and the American Society of Body Engineers. The students and instructors have also gained and shared experiences by presenting program information at annual National Tech Prep Network Conferences, the American Vocational Association National Conference, the Michigan and the National Association of School Boards Conferences, the Governor's School-to-Work Conference in Michigan, and the American Association of Educational Service Agencies Conference.

GMTA instructors form a team, and General Motors support personnel provide invaluable help on projects and instruction. The General Motors people—from fastener engineers to education consultants—are key components of the team. The mentoring process and the ongoing provision of expertise by General Motors personnel are also integral parts of the program. The mentors (General Motors employees who volunteer) also become a counseling resource in matters pertaining to tasks, careers, and school and GMTA relations.

GMTA has been located on a General Motors site since its inception. Because of reorganization, the original location was a design facility in Troy and then at midyear in Pontiac. The final move was made in the spring of 1997, when the General Motors

## ***Facilities and Equipment***

University, Auburn Hills Campus, was finished. General Motors is responsible for facilities and supplies. Each student is issued board-drafting equipment, a drafting layout table, and a computer station with file cabinets. With the introduction of the capstone project in the 1997-1998 school year, it became necessary to order more tools for project assembly and analysis. Students have standard tools (calipers and micrometers) in the classroom for measuring parts as well as new tools for measuring weight, analyzing electrical circuits, and assembling and disassembling mechanical parts. Most of the fabrication of materials into parts was done at General Motors mockup locations; students used the tools available to them at those locations.

To facilitate board work, General Motors has provided materials and duplication facilities for both written and drawn work. Also, the class area has a plotting station for drawings done on the computer. Equipment such as televisions and VCRs is available to GMTA, as are overhead projectors, white boards, and flip charts. For security reasons, video and photographic equipment is provided by General Motors-authorized communication personnel.

## ***The Program***

GMTA is a two-year, six-credit program that enhances the traditional high school curriculum. Students attend their home schools half days during their junior and senior years and attend GMTA at the General Motors University site the other half days. Credits granted at GMTA are design and

engineering focused. Students must apply for admission to the program during their sophomore year. The selection process is highly competitive, and admission is determined by the students' home school districts, Oakland Schools, and General Motors. GMTA is open to students entering the eleventh grade. Students who qualify after their first year are asked back for their senior year. The GMTA experience includes a paid high school and precollege co-op working assignment. The coursework is auto-industry specific, applying processes and standards used in design and engineering. Hands-on learning experiences in which real-world projects serve as teaching aids reinforce the learning process, as do videos, tours, and special seminars. As students progress through GMTA's two-year program, they develop a relationship with industry that is made easier by the coaching and encouragement of mentors, who also provide a firsthand perspective on the transition between the academic world of school and the technical world of industry. Foremost, GMTA gives students the ability to make educated choices in diverse fields that offer great opportunity.

***As students progress through GMTA's two-year program, they develop a relationship with industry that is made easier by the coaching and encouragement of mentors, who also provide a firsthand perspective on the transition between the academic world of school and the technical world of industry.***

In the fall of 1995, GMTA began with twenty-five eleventh graders. In the fall of 1996, another junior class of twenty-five was brought in and a second instructor was hired. From the first class of twenty-five, eighteen students completed the program and entered postsecondary technical programs. The students from the first class were accepted at more than twenty colleges and universities around the country. Several students in the first class received scholarships, both academic and technical, and seven of the eighteen took advantage of the articulations with local colleges. The second GMTA class graduated twenty-two students in the spring of 1998; all of the graduates were accepted at postsecondary schools.

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GMTA students consider their classroom activities to be their jobs. The curriculum is delivered in such a way that student projects resemble the work experiences offered for four weeks in the summers between the junior and senior years and between the senior year and college. Lectures are kept to a minimum, but, when there is need to introduce new concepts, students are usually taken to a conference room. The classroom environment is similar to work stations in industry, where students work on projects, define their objectives, do research, determine available resources, and process those resources into a product. The product of each project is different: It might be a technical report, an original design, detail information on parts taken from the parts themselves, layouts from General Motors, or an oral presentation.

During the senior year, students complete a capstone project in which they are involved in the research and development of an electric vehicle for the Electrathon America Competition. Students write a business case in General Motors format, create a logo for their company, and then build a vehicle that can compete in the Electrathon races. This project is designed by the students; parts are outsourced and students assemble, test, and drive the vehicle. In addition, the project must meet technical, safety, and budgetary requirements.

GMTA is committed to developing personal and academic excellence in a diverse range of students. GMTA students are

## ***Students***

required to attain a minimum 2.5 GPA and a good attendance record through their freshman and sophomore years. Each student must have taken at least one drafting class and must have obtained recommendations from two adults as well as permission from his or her parents or guardians. When a student is accepted at the academy, he or she must follow the dress requirements at General Motors facilities and observe all safety standards. Further, applicants must review GMTA's requirements and commit to their fulfillment. Finally, students are accepted partly on the basis of their willingness to commit to GMTA standards. As previously stated, GMTA is a school of choice that is available to residents of the consortium districts. Of course, parental support and involvement are encouraged.

Applicants are considered on an individual basis and are screened by their home schools for academic eligibility. Subsequently, they are reviewed by industry and education personnel. Following this review, applicants may be interviewed and selected or rejected on the basis of their suitability to the program. Each consortium district is granted a minimum of two spaces, except when there are fewer than two qualifying applicants. When eleventh graders are promoted, twenty-five new eleventh graders are selected. Any enrolled student who successfully completes the current school year is eligible for enrollment the following school year. Successful completion of the school year qualifies students for paid work experience during the following school year. This work experience reinforces the curriculum and helps students build a network of resources.

**G**MTA is committed to developing personal and academic excellence in a diverse range of students.

Students are also responsible for various presentations to mentors, home schools, and other organizations. In addition, some of the students make recruitment presentations and participate in the interviewing of prospective students.

Student assessment is based on GMTA's student profiles. Each student's progress is evaluated every ten weeks in relation to a profile that defines acceptable levels of development of the personal attributes, foundation skills, broad knowledge, and thinking skills necessary in world-class corporate environments. Particular attention is paid to a student's progress in design-skill categories and in General Motors corporate standards.

Each ten weeks or quarterly for the school year, profiles are prepared by GMTA staff for all GMTA coursework, for long-term project progress, and for related experiences. Additionally, students may add home school information to their portfolios. A composite profile is constructed and made available to parents, students, and (with students' approval) the students' mentors. Mentors are in contact with students at least one hour each month to provide encouragement and expertise. Mentors may also examine the composite profiles with their protégés and/or their protégés' parents and, where appropriate, recommend changes in the learning plan. Each instructor/facilitator has a maximum of twenty-five students; each mentor has a maximum of two. These ratios help to ensure quality and preserve GMTA's highly personalized structure.

## ***Assessment and Mentoring***

Each student's file includes profiles and a portfolio of work. Student composite profiles and portfolio entries are maintained throughout their enrollment in GMTA.

Juniors and seniors are encouraged to work with college admissions counselors to facilitate college placement. Further, GMTA staff members and mentors work directly with colleges and universities or with counselors at local schools to explore and address students' college-placement requirements.

***Each instructor/facilitator has a maximum of twenty-five students; each mentor has a maximum of two. These ratios help to ensure quality and preserve GMTA's highly personalized structure.***

Annually, program-effectiveness surveys are completed by students and parents. The response rate has been good and the responses have been generally positive. Oakland Schools administrators regularly evaluate the program and the instructors and provide written responses with suggestions for improvement. Overall, this program has been well received by industry and has received extensive cooperation on the part of local industry inside and outside General Motors. Several students have found employment opportunities and project assistance from area businesses as a result of their association with GMTA. Summer interns are evaluated by their employers. Additionally, General Motors human resources exit interviews provide students with valuable feedback.

Cooperation with the counselors and teachers at the sending

schools has been good and has resulted in assistance with recruiting and curriculum development. Further, presentations made by GMTA students and General Motors/GMTA staff members have familiarized sending-school students with opportunities in the fields of design and engineering and the path through GMTA. Some schools have added classes, and, over the past two years, one school has added personnel to its technical-education department. Further, the school officials indicate their belief that GMTA has played a significant part in renewed interest in design and engineering areas.

GMTA has been marketed by the students, staff members, and program administrators in meetings with area schools and business leaders and, as a point of pride, by General Motors and Oakland Schools. On several occasions, schools have asked that the GMTA program be presented as an innovative and exciting option available to their students. These presentations have been made during career days, student orientations, promotional golf outings, and school board meetings.

On numerous occasions, GMTA students and staff members have presented program overviews. Presentation sites range from career camps for sixth graders to the Governor's Conference on School-to-Work and national conferences. Moreover, GMTA students have been asked to present information at business leadership meetings and Explorer post and career nights. This diverse exposure to the community has produced

## ***Marketing***

greater public awareness and enhanced possibilities for GMTA and its students.

GMTA has been nominated for and received several awards from education and business as a result of promotion from within and by its association with professional organizations.

Marketing brochures, flyers, posters, and news articles and newsletters have been disseminated by the General Motors Communications group. Most of the promotion of GMTA has been funded by General Motors; Oakland Schools has also provided funding.

## ***Legal Issues***

Because the local schools provide transportation, liability is assumed by the sending schools. GMTA is on a General Motors site, so rules for safety and procedure are dictated by building policy. When students are involved in field trips and visits to other work sites, they must submit waiver-of-liability forms signed by parents or guardians. The summer intern program does not offer school credit, so these students are considered employees of General Motors and are under its supervision.

## ***Conclusion***

GMTA is much more than a school located on a General Motors site. GMTA students encounter opportunities that could not be made available to them in a typical school setting. They learn from the industry environment, from a business-oriented culture that is more diverse than the culture of any one high school, and from the people with whom they interact beyond peers and teachers.

The sending schools also benefit from their students' involvement in GMTA's applied academics curriculum. A heightened student awareness of career possibilities is achieved through recruitment activities and career days. Further, one middle school has asked to become a partner with GMTA, and one high school has asked a GMTA staff member to sit on a drafting-programs advisory committee.

***P***arents have a great appreciation for what the GMTA program has done for their children. They see the value in the relationships their sons and daughters have formed with the industry and in the career focus that GMTA students develop. The parents constantly comment on the maturity that is demonstrated in their children's decision making as a result of the influences at GMTA.

All students in the first graduating class have progressed to postsecondary schools. When they joined the program, these students were convinced that going directly to traditional four-year colleges or universities was the only route to success. However, of the eighteen students who completed the GMTA program, seven chose the community college route with co-op possibilities. Two

students attended Kettering University (formally GMI), which offers a five-year program in which students alternate semesters of work and study. Of the nine students who transitioned to four-year institutions, eight are involved in summer intern programs through General Motors or other industries.

From the second class, the percentages are much the same: Three students are attending Kettering, and approximately half are attending the community college. One student was hired directly out of high school by a company that will underwrite some of his college expenses.

Instructors have seen the power of partnership and have valued the opportunity to work in the industry in which they are preparing students. The firsthand, current knowledge and the constant support from both General Motors and Oakland Schools have contributed to a unique teaching experience. Working with motivated students who have a sense of direction and are interested in program content is exhilarating. And support from industry in the form of mentors, subject matter experts, and supervisory personnel results in an enriched educational environment. Organization and support from Oakland Schools supervisors and Tech Prep consultants have made the cooperative agreements among high schools, colleges, and industry understandable and workable. Further, Tech Prep workshops have added several other teachers from around the country to the broad support that is given to the academy.

## **Catawba Technology Education Consortium**

Educators must have a vision if young people are to reach their potential. The vision that led to the creation of Catawba Technology Education Consortium began in January 1989 when Baxter Hood, president of York Technical College (YTC) in Rock Hill, South Carolina, wanted to help students make a connection between high school and technical college. A Two-Plus-Two Committee made up of local educators and personnel from YTC was formed. The committee determined that there was a need for a cooperative effort between the public schools and YTC in guiding and preparing high school students interested in technical careers. The committee also recognized the need to examine cooperative ways to prevent high school students from dropping out of school. When Denis Merrell was appointed as YTC's president, he took up the torch and moved forward with the vision.

Merrell initiated a process to have high school courses better articulated with college courses. Meetings were held with secondary and postsecondary instructors, who delineated the courses that students interested in technical careers should take in high school. The participants' short-term goal was to have instructors at both levels understand more clearly the connection between secondary and postsecondary courses. With a better understanding, educators could more effectively develop articulation strategies.

In 1989, South Carolina's superintendent of education established a committee to determine guidelines and goals for applied

academics in the state. The initiative was named “Preparation for the Technologies” (Tech Prep). Two people from the Rock Hill area (a superintendent and a professor) were appointed to serve on the state committee. South Carolina educators decided to combine secondary and postsecondary Perkins dollars in an effort to improve education in the state.

At the same time, local superintendents became interested in the new Tech Prep initiative in South Carolina. In July 1990, a team of local superintendents and the YTC president decided to investigate this innovation. If Perkins funds were to become available, the team would gather statistics to determine the need for Tech Prep and would visit some exemplary Tech Prep sites. Team members would then develop a plan regarding the use of the money to implement Tech Prep.

In February 1991 area superintendents met with YTC staff members to discuss the Tech Prep initiative. The formation of a consortium was proposed, and in June 1991 the Catawba Technology Education Consortium (CTEC) officially came into existence. The president of YTC assigned one of his employees the responsibility of implementation.

***Start-up  
Committees,  
Advisory  
Groups,  
and  
Boards***

As described, the Two-Plus-Two Committee ushered in a new cooperative spirit between secondary and postsecondary educators. Local educators and YTC personnel led the effort to improve education for students interested in technical careers. Shortly after the formation of the Two-Plus-Two Committee, area superintendents and representatives

from YTC and Rock Hill's Winthrop University organized CTEC. After writing the initial competitive-grant application for Carl Perkins Tech Prep dollars, committee members realized the critical need to involve business and industry and, consequently, invited several businesspersons to become members of the board.

Participating business and industry representatives soon realized the importance of being actively involved in education. One board member remarked that for too long business had been on one side of the fence and education on the other, rarely communicating with each other. Business had often blamed the schools for not producing a qualified workforce but had never really stated what education needed to do to change that situation. For the first time, representatives from business and education could sit at the table and engage in meaningful dialogue regarding the expectations of education in relation to the needs of business and industry.

The process of bringing about meaningful dialogue between educators and business has been a challenge. Issues stemming from questions about territory (e.g., "On whose turf are we intruding?"), responsibility ("Who is at fault for students' poor preparation?"), and procedure ("How do we work together toward the same goal?") have created opportunities for effective problem solving. Success with this process did not occur overnight—as if by the wave of a magic wand—but has required hard work. Yet the end result has been and continues to be a positive difference that has brought success to students and communities in the Catawba consortium.

A task force consisting of one educator from each district began to work with the details and to make recommendations to the coordinating board. The task force consisted of the assistant superintendent for instruction from each of the six school districts, the consortium coordinator, and the YTC employee who had been given the responsibility of coordinating efforts in the consortium.

In October 1992, Elizabeth Baz Smith was named full-time director. Soon after her appointment, Smith realized the need to

have more representation from the business/industry sector and the need to have a new structure for the committees. Additional business/industry representatives were appointed as members of the board. New committees were formed in January 1993; representatives from business/industry were placed on each committee. The initial task force was replaced with a curriculum committee, which encompassed many areas of education and business.

CTEC is one of sixteen consortia in South Carolina. It involves the collaboration of eight institutions: Winthrop University; YTC; and the school districts of Chester, Lancaster, and York (Clover, Fort Mill, Rock Hill, and York One) Counties. CTEC serves approximately 22,000 students in fifteen middle schools, one junior high school, twelve senior high schools, and five career centers. Direction is given to the consortium by the CTEC coordinating board, which is composed of district superintendents, the president of YTC, the deans of the college of education and the college of business administration at Winthrop University, and fifteen representatives from business/industry. A postsecondary student apprentice serves on the board as well. Meeting quarterly, board members participate in professional development and conduct business.

***The process of bringing about meaningful dialogue between educators and business has required hard work. But the result has brought success to students and communities in the Catawba consortium.***

The board appoints members of the curriculum committee, the only standing committee, to two-year terms. Members of this committee are assistant superintendents for instruction, directors of secondary education, school-level administrators, vocational educators, guidance counselors, an adult-education director, a Job Training Partnership Act director, and the director of the York County Welfare-to-Work initiative. Additionally, there are four representatives from business.

Subcommittees are appointed to perform specific tasks under the direction of the curriculum committee. There are four subcommittees: career counseling, marketing, School-to-Work, and professional development. The subcommittees, like the curriculum committee, include representatives from business and industry.

A sizable grant of Carl Perkins dollars was awarded by the state department of education in January 1992, and implementation of Tech Prep began. However, the following fiscal year's competitive-grant award diminished because a full-time director had not been employed. In October 1992 a full-time director was appointed, and, the following July, the competitive grant award more than doubled the sum awarded in 1992.

Participating school districts matched many of the Perkins Tech Prep dollars and provided support in the areas of personnel, equipment, and materials. Implementation of the applied academics courses required a firm

## ***Funding***

commitment from the superintendents regarding the purchase of items such as materials and equipment from CORD. In addition, business/industry representatives provided financial support for the purchase of equipment and supplies for the consortium office; funding for student and teacher involvement was included. Business people assumed many of the public relations responsibilities.

In June 1994 the governor of South Carolina signed into law the School-to-Work Transition Act. With the passage of this law came limited funding from the state legislature. School-to-Work career specialist positions were funded, and money was allocated for professional development. Additionally, each school district was given a per-pupil allocation from state funds for the School-to-Work initiative. Grants for graduate courses and workshops were initially awarded on a competitive basis; however, within the last two years, a formula has been used to allocate professional development funds for each consortium. These costs were covered at the state level by Perkins funds. During the last two years, South Carolina has received planning grant dollars from federal School-to-Work funds.

Funds from the state legislature have continued, increasing slightly. Further, participating school districts and YTC have continued to support the initiative with matching dollars. Business and industry have continued their financial support, as well. Other than personnel expenses, all costs related to School-to-Work are borne by the employers, who pay interns and apprentices. Workman's Compensation is covered either by the school district's policy or by the employer.

## ***Curriculum Development***

Curriculum development has been a major focus throughout the history of the consortium. Thirty-seven occupational courses articulated between the consortium high schools and YTC have been thoroughly reviewed and revised. Academics are constantly scrutinized and revised as necessary. From the beginning of Tech Prep in South Carolina, CORD applied academics materials have been the foundation for English, math, biology, chemistry, and physics.

Committees of teachers and business representatives have examined and revised curricula in the basic academic content areas. After dealing with much frustration regarding the correct implementation of mathematics for the technologies, consortium educators decided to make changes. A committee of master teachers, district-office math specialists, principals, a state department of education math specialist, and the consortium director met for a weeklong math institute and developed a three-year program. The CORD materials were aligned with the National Council of Teachers of Mathematics standards, the South Carolina Mathematics Framework, and the South Carolina Academic Achievement Standards. Further, supplemental materials were developed to support the CORD materials. Before the curriculum was finalized, business/industry representatives reviewed the program of study. As a result, this curriculum has become a model in South Carolina.

Curriculum development has occurred in every STW activity sponsored by the consortium. An excellent example can be found in the curriculum development for AMP Incorporated. After conducting the preliminary work of advertising, identifying apprentices, and conducting the contract-signing ceremony, the consortium director worked with the key AMP Incorporated representative to identify the skills a young person would need after completing a two-year degree at a technical college. Skills were grouped within the following areas: communication, math, computer, machines, science, and interpersonal.

The curriculum development committee, composed of academic teachers, occupational/technical instructors, a guidance counselor, a YTC representative, and the AMP Incorporated representative, met to outline the curriculum. During the discussion, the AMP Incorporated representative delineated the specifics of each skill. A determination was then made regarding which participants (whether secondary, postsecondary, or workplace mentors) would be responsible for the delivery of course content and the development of

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skills. From this information, a curriculum path was developed for grades nine through fourteen. The requirements from the registered apprenticeship were significant in the development process.

The AMP Incorporated representative then developed a detailed training plan to cover a designated period of time. This plan established guidelines for evaluating and grading the high school apprentice. Upon successful completion of the registered apprenticeship program, the student receives a Bureau of Apprenticeship Training journeyman's certificate.

In July 1990 the superintendents and the YTC president signed a general articulation agreement between each school district's high school and YTC. During the first phase of the Two-Plus-Two Committee's work, the two areas addressed were English and math. The committee's initial task was to create a communication system that would improve understanding between high school teachers and postsecondary instructors regarding the curriculum. Therefore, the committee examined the relationship of the high school courses and the course expectations at the postsecondary level. Upon finalizing the initial work, the group recognized the need to include the sciences.

After the full-time director began, she scheduled and conducted meetings to consider specific courses for articulation. The articulation meetings included academic and occupational secondary teachers, postsecondary

## ***Articulation Agreements***

technical instructors, and representatives from related businesses and industries. At this point, secondary and postsecondary curricula were thoroughly reviewed. In some cases, it was necessary to make curricular adjustments. Careful precautions were taken to ensure that important skills and concepts were not skipped and that courses did not overlap in a way that would cause duplication of effort. The decision was then made regarding the awarding of college credit for high school courses. Thirty-seven courses have been articulated with YTC, and the high school program for culinary arts has been articulated with Johnson and Whales University's two-year degree program.

**A**rticulated courses were reviewed carefully to ensure that important skills and concepts were not skipped and that courses did not overlap in a way that would cause duplication of effort.

As the curriculum was developed for the STW activities, certain articulation issues had to be resolved. For example, with AMP Incorporated, the committee found that students would lose one semester in their occupational fields as a result of exempting first-level courses. The second-level courses were not offered until the second semester. Much discussion took place regarding the need to make an adjustment at the postsecondary level to accommodate students entering with articulation credit.

## ***Preparation of Teachers and Other Staff Members***

Among all the components of Tech Prep and School-to-Work initiatives, the professional development element is the most vital to ensure successful implementation. Consequently, South Carolina educators decided that only content-certified teachers would teach the applied academics. Additionally, participating teachers were required to complete a teacher institute or a graduate course. As a result, a high percentage of funds at the state level has been designated for professional development activities.

Professional development activities have ranged from visits to exemplary school and industry sites to enrollment in graduate courses. Each year the consortium has offered from six to ten graduate courses dealing with the following topics: curriculum integration, educators in the workplace, applied academics content area courses, career counseling, STW, applied methodology, learning styles, cooperative learning, brain development, administration of Tech Prep, and infusion of technology into the curriculum.

Consortium personnel have arranged for guidance counselors, teachers, and school and district-level administrators to visit exemplary school sites. Representatives from business and industry have been included in these site visits.

Instructors of the “Professor of the Educators in the Workplace” graduate class require each participant to spend from one to three days at industrial sites. Changes reflecting the participants’ findings are then made to cur-

ricula and to instructional programs. With an overall goal of teaching critical skills in the classroom, participants in the June 1998 class developed an Industry to Go kit incorporating industrial tools and instruments.

Several businesses and industries in the consortium have been involved in the summer teacher internship program. Businesses participating in this program employ teachers at regular salaries and assign the teachers real job duties. Teacher applicants apply with the consortium and are interviewed by the director; the director then recommends the top two or three candidates and the employer makes a selection. The teacher interns are responsible for developing curriculum projects and for applying the new information to their curricula and instructional programs. Further, teachers must commit to providing professional development for educators in their schools and in the consortium.

**A**mong all the components of Tech Prep and School-to-Work initiatives, the professional development element is the most vital to ensure successful implementation.

All professors require visits to industries as part of their graduate courses. Very often they invite industry representatives to speak to their classes as well. In addition, panels from business and industry have shared information with educators.

Local chambers of commerce, the Rock Hill Breakfast Rotary Club, and postsecondary partners cosponsor STW internships and apprenticeships. For the past three years, the Rock Hill Chamber of

Commerce, the Rock Hill Breakfast Rotary Club, and CTEC have sponsored a business breakfast for potential STW employers. Additionally, the consortium and the Rotary Club have cosponsored a “Rotary Conference for New Generations” for high school students in several of the school districts. All of these groups have received professional development concerning STW and Tech Prep.

**S**everal businesses and industries in the consortium have been involved in the summer teacher internship program. Businesses participating in this program employ teachers at regular salaries and assign the teachers real job duties.

Consortium staff members are continuously involved in professional development activities. Attendees at state and national conferences have provided much information on Tech Prep and STW. Materials from CORD and the Jobs for the Future organizations have been extensively used. In addition, the director has presented information regarding the consortium program at numerous state and national conferences and to many schools, school boards, district staffs, civic clubs, and parent groups.

## ***The Program***

In 1992 the Worksite Learning Program began as a part of the Preparation for the Technologies initiative. The major focus at that time simply involved efforts to place teachers in industries so they could understand the preparation students needed to be successful. The majority of classroom teachers, guidance counselors, and administrators in the consortium had transitioned only from the high school classroom to the college classroom and then back to the public school classroom. Consequently, numerous teachers had not experienced the real world of work and had not recognized where the greatest percentage of their students would find employment.

Soon after the teachers concluded their worksite involvement, the consortium began serving students from grades seven through fourteen. Career investigation became an important part of the school day. Career inventories were purchased and administered to all eighth-grade students. Students were then matched with employers in the areas of their career interests. After conducting career research, students spent from half a day to a full day at businesses related to their interests. Students who shadowed employees were taught appropriate dress, behavior, and interviewing skills prior to their being in the workplace. Upon returning to their classes, students were required to give reports to their classmates. Finally, students wrote thank-you notes and the employers completed evaluations.

## ***S*udents who shadowed employees were taught appropriate dress, behavior, and interviewing skills prior to their being in the workplace.**

Many variations of that original shadowing experience have occurred. Several of the cities in the consortium have declared “[name of city] Takes Its Students to Work” days. Their mayors have signed proclamations expressing support of the day. For the past two years, a “Ground Hog’s Shadowing Day” has been designated as a collaboration between CTEC and First Union Bank. In addition, the more than fifty Rotary Clubs in Rotary International, District 7750, have conducted a “Shadowing Day.” At the conclusion of the 1997-1998 school year, several thousand students had experienced job shadowing.

While a cooperative-education program had been in place for several years in the career/vocational centers in the consortium, it was decided that business and industry needed an expanded STW program. During the summer of 1996, a professional businessman employed the consortium’s first youth apprentice. Because of this successful venture, by the end of the 1997-1998 school year, the number of professional technical (some BAT-registered) apprenticeships increased to more than eighty. During the 1997-1998 school year, approximately thirty-five internships and thirty co-ops were established. Further, approximately thirty-five students are continuing their STW experiences while attending colleges and universities.

In the initial conversation, employers are informed that students are permitted to work up to twenty hours a week while in school and full time during holidays and summer vacations. Adherence to this

standard is closely monitored. The same requirements are placed on college and university students. If student apprentices leave the area to attend college, either they are transferred to similar businesses in their college locale or they return during holidays and summers to fulfill their apprenticeships.

Curriculum development is based on the progression of students from lower to higher levels of proficiency. And, since all concerned parties are present for the curriculum-development sessions, the employer is able to give a full picture of required skills and competencies. For the most part, the curriculum addresses essential secondary, postsecondary, and worksite-training elements. Since many high school apprentices are at a higher level of learning than their college counterparts, the consortium personnel and district STW coordinators work with college and university personnel to ensure that students do not duplicate what they have already mastered.

## ***Students***

Student recruiting is completed by various means. When the consortium recruits an employer, it assists the employer in determining criteria for student qualification. These criteria are sent to the district STW coordinators for dissemination in the high schools. Students complete consortium-developed applications, provide copies of their transcripts, write essays stating the reasons for their interest, and provide at least two recommendations each. Then the district coordinators screen the applications and select the most qualified candidates. Subsequently, these applications

are sent to the consortium office for additional screening. Finally, the top two or three candidates are selected for the employer to interview and to make the final selection.

Student qualifications vary according to the different openings. For example, a bank might require a 3.0 GPA, while a manufacturer might require a 2.5 GPA. All require at least a B average in the occupational specialty. In 99 percent of the openings, employers require that students have no disciplinary referrals and no more than six school absences a year. Many of the professional apprenticeships deal with confidential information and require that students adhere to strict confidentiality standards. Some of the industries require preemployment tests such as drug and health screening. Basic skill exams are administered to many of the applicants. Throughout the year, students are required to submit copies of their report cards and college grades to their employers. The consortium staff conducts training sessions for both students and worksite mentors. Additionally, students meet with the consortium director each semester.

Assessment is done throughout the program. The employer and/or worksite mentor completes quarterly evaluations based on the student's training plan. Then the evaluations are reviewed with the student and are used to give the student a grade. South Carolina allows students to receive high school credit if certain conditions are met. When a student enters college, contact is made with the postsecondary partner. That individual becomes the student's advocate.

***Response  
from  
Business,  
Educators,  
Administration,  
Students,  
and Parents***

The Tech Prep/School-to-Work initiative in South Carolina is driven by business and industry. In fact, the 1994 STW Transition Law was introduced and approved because the South Carolina Chamber of Commerce and its representative businesses demanded it. Applied academics provided a means for students to understand how theory applies to the real world of business. Industry representatives indicated the need to have students actively involved in learning and the application of theory. Lecture-based teaching has not adequately prepared students. Business people understood clearly the need for a systemic change in the way students were being educated for the world of work and for life. Naturally, they were pleased that educators would involve them in more than just providing funds to purchase computers and supplies. In addition, business people were excited about expanding the Tech Prep initiative to ensure that students received workplace experiences and understood the connection between the real world and what they were learning in school.

The response from educators varied from very positive to very negative. Elitist academicians belittled applied learning and relegated it to only the less able students. The thought that a bright child could enter a technical career was beyond their imagination. To some degree, this perception has remained in certain circles of education. Some administrators consider the initiative a fad and believe that, if they just hold out long enough, this too will pass. However, visionary teachers and

administrators understand the promise this initiative holds for about 60 percent of their students.

***The Tech Prep/School-to-Work initiative in South Carolina is driven by business and industry. In fact, the 1994 STW Transition Law was introduced and approved because the South Carolina Chamber of Commerce and its representative businesses demanded it.***

In the Fort Mill school district, the superintendent and high school principal had sufficient insight to understand the relevance of this initiative and approached it with a positive attitude. They involved their more progressive and effective teachers in professional development, site visits, and curriculum design. Those teachers, in turn, became enthusiastically involved in delivering an outstanding applied academics curriculum and later reaped the remarkable benefits of student progress.

***Teachers became enthusiastically involved and reaped the remarkable benefits of student progress.***

Generally speaking, at the outset, parents and students were a bit uncertain about the Tech Prep initiative. Now, however, everyone involved understands the initiative more clearly and appreciates the opportunities provided by Fort Mill High School personnel, students, and parents. From the program's inception, students were placed in classes according to their learning needs and not because of their lowest ability levels. At Fort Mill High School, it is easy to see the positive difference Tech Prep has made in the percentage of students going on to postsecondary schools, the percentage of students taking more math and science courses, and the percentage of Tech Prep students remaining in school.

## **Marketing**

In CTEC, all members are involved in marketing. Business and industry representatives market through discussions and presentations to other businesspersons and to groups. They also fund many of the marketing tools used by the consortium. For example, *The Herald* newspaper and Bowater, Incorporated, have funded the production of an insert that is distributed with the newspaper before the beginning of each school year. One businessman funded a scholarship for a student competition to design the consortium logo. Additionally, CEOs of companies have allowed the consortium director to speak to employees regarding the initiative.

Representatives from business and industry have served on panels to market Tech Prep/School-to-Work, and local chambers of commerce have involved consortium staff mem-

bers in speaking to chamber boards and members. More specifically, the Rock Hill Chamber of Commerce has worked with CTEC and has produced a chamber STW brochure. Additionally, business people involved in civic clubs have invited consortium staff members to present the initiative to their memberships.

Consortium personnel, school and district-level educators, and postsecondary educators market Tech Prep/School-to-Work through the use of district and college brochures; CTEC brochures; South Carolina State Department of Education brochures; newsletters; CTEC newspaper inserts; CTEC monthly news pages; student speakers to classes, faculties, businesses, and state and national conferences; business speakers to civic clubs, boards, and state and national conferences; Career Connections news pages; and journals. Business and industry fund the majority of the marketing tools.

Students and employers involved in School-to-Work strictly adhere to state and federal child-labor laws regarding the number of hours and the type of work performed by student workers. The consortium staff shares copies of the federal Fair Labor Standards Act (FLSA), the state child-labor law, and the Workman's Compensation guidelines. Either consortium or district staff members frequently visit on-site to ensure compliance. If a place of employment is a questionable site for student workers, a state or federal representative is asked to visit the site to determine the

## ***Legal Issues***

appropriateness of the workplace. Exceptions are made for student learners enrolled in courses of study and training under a recognized state educational authority. These exceptions allow students to leave school for work and to operate certain types of equipment (with proper supervision and safety training) normally prohibited from use by students under the age of eighteen.

In South Carolina, the STW legislation allows the student learner to be covered by the school-district Workman's Compensation policy. If the employer wishes to cover the student learner, he or she may do so. This is finalized at the time of the contract-signing ceremony. STW students up to the age of twenty-two do not qualify for unemployment insurance or compensation. Usually, students are responsible for their own transportation to and from the worksite.

## ***Conclusion***

Tech Prep/School-to-Work has provided an open door for many students who normally would not stand much chance for success in school. Implementation of applied academics has brought relevance and rigor to the work of students who have had difficulty connecting with school. Even students who are not involved in applied academics courses enjoy the advantage of having teachers who have been trained to use applied methodology in college prep and advanced placement classes. In several school districts within the consortium, school boards have implemented a policy stating that all content area teachers are required to be trained in applied academics.

Academic and occupational teachers alike have participated in graduate courses and other professional development activities. As a result, they have gained a greater appreciation of each other's contributions and have been able to integrate academic and occupational teaching. Educators throughout the consortium are able to network through their committee involvements and, consequently, better understand the whole picture. Additionally, they are able to understand the expectations of the workplace and to provide a more meaningful curriculum and instructional program.

***Implementation of applied academics has brought relevance and rigor to the work of students who have had difficulty connecting with school.***

Articulation efforts have afforded the opportunity for collaboration among academic faculty, occupational/technical secondary faculty, and postsecondary faculty. Further, business people have played a vital role in the discussions regarding articulation and curriculum issues. Also, articulation efforts have opened the door for the technical college to engage public school teachers in instructing technical courses on the public school campuses. (Normally, technical faculty members teach these courses on the technical campus.) This adaptation has allowed students to make a smoother transition.

Curriculum-development sessions involving educators and business people have led to their greater understanding of and appreciation for each other. Business people who previously may

have been critical of the educational system indicate that they had no idea schools were providing such sophisticated learning opportunities. At the same time, educators have gained a better understanding of the expectations of business and industry for all students.

Students who have been involved in worksite learning have gained tremendously. One young man who had difficulty relating to school had a life-changing experience. Prior to the student's becoming involved with AMP Incorporated, his mother spent excessive time at the school pleading with educators to help her son. He was quite intelligent but was irresponsible and not interested in learning. At the end of the 1997-1998 school year and during a meeting with the consortium director and other students, this student apologized for making the decision to go to a university after only one year as an apprentice. He felt that he had taken advantage of AMP Incorporated's good will. What a dramatic change for a young man who was previously ready to drop out of high school! Of course, AMP Incorporated personnel were pleased that he was able to gain valuable experience. In fact, the company had made a tremendous contribution in helping a bright but unfocused young person understand himself and what he wanted to do with his life.

***B*** ***usiness people who may have been critical of the educational system indicate they had no idea schools were providing such sophisticated learning opportunities, and educators have gained a better understanding of the expectations of business and industry.***

The majority of apprentices who have graduated from high school have continued their educations; a high percentage are attending either YTC or Winthrop University, where they can continue their apprenticeships throughout the year. In many cases, the employer either pays for or assists in paying for tuition and books. In fact, AMP Incorporated has committed to paying all college tuition and book fees for its apprentices. Further, YTC has developed a program of study expressly for the AMP Incorporated apprentices. In addition, both YTC and Winthrop University have special scholarships for which the consortium apprentices may apply.

The consortium has been recognized for numerous successes by both local and state entities. For instance, in 1994 the director received the Barbara James Tech Prep State Director of the Year Award. Additionally, the Fort Mill High School principal and the district superintendent received the Barbara James Tech Prep Principal and Superintendent of the Year Awards. As a result of the consortium success, the director and others (including business and industry representatives) have been asked to conduct conferences and workshops to assist other organizations. The most outstanding award received by the consortium is the first-place NTPN Exemplary Worksite Learning Award in 1998.

Because business and industry representatives and educators are so deeply involved in the consortium, the future looks bright. This initiative has created systemic change in the

## ***Program Awards***

## ***Future Outlook***

way we educate students. It is our primary goal that this change will become so ingrained in the regular program that nothing will destroy the major components—career counseling for all students, business involvement, rigorous and relevant curricula, articulation, and worksite learning. Our goals remain constant; only the percentages change.

If we are to continue our vision to provide children with the best, we must never give up. After all, our children and our economy depend on what we do today in preparation for tomorrow.

***If you plan for a year, plant a seed.***

***If you plan for a decade, plant a tree.***

***If you plan for a century, educate  
the children.***

***Chinese proverb***

### ***Building Your Own Program***

The concepts included in this section are provided to prompt you to think about what is most important in a program. Take time to consider what makes a program strong and why students would be interested in participating. Think about how students can gain experience from completing the program. Consider whether you have included components that are beneficial to everyone involved—students, teachers, and employers.

As mentioned in the introduction, there are basic areas—funding, legal issues, and staffing, for example—that must be investigated before the development phase of a new program can begin. The concepts and questions included here highlight the importance of addressing those issues and, in so doing, provide steps toward the implementation of a new program.

***Consider the problem that a new program should address.***

What is the need for starting a new program? Has business expressed the need for a more qualified workforce? Do students need to be challenged beyond merely observing/working at a job site? What student population would be included? Everyone? Are businesses available that would support a new program? Is your faculty prepared and, if so, willing to help? As a school representative, are you prepared to present Tech Prep and School-to-Work concepts to business representatives?

***Funding is an issue that must be considered prior to any planning activities.***

How will your school obtain funding for the start-up and maintenance costs of a new program? Consider whether local businesses would contribute to the program. Be prepared to explain how they can benefit from being part of the program. (Remind them, for instance, that the students they are willing to train today will be qualified to serve them well as employees in the future.) Are on-campus facilities available and ready to be used? If not, consider how this will affect the start of a new program. What new equipment must be purchased? Will staff training be needed? Is local and/or

state funding available? Is there a staff member who is familiar with locating funding opportunities and writing grant proposals for those funds?

***Consider what staff will be needed to help brainstorm, develop curricula, and inform students.***

In considering the most appropriate staff to recruit, determine how your new program will be structured and the demands it will make on the teachers involved. The teachers selected must be willing to work long hours to develop curricula and to meet with other teachers for planning. The staff must also be flexible, creative, and willing to try new teaching methodologies and to teach with new learning tools.

Consider whether the teachers have any other work experience that might contribute to course development and teaching strategies. Do these teachers have business contacts from whom they might receive outside training?

Will business representatives come into the classroom to teach? If so, consider how these outside teachers might be selected. What requirements (e.g., state certification) will they have to meet to be able to spend time in the classroom?

Counselors play a key role in the success of a new program as well. They must be informed about all aspects of the program so students are informed and get the opportunity to enroll. A sound marketing plan depends on counselors being well supplied with up-to-date information on the program. By word of mouth, they can help students take an interest in new program opportunities.

***The organization of an advisory committee is strongly recommended to help in decision making; it can be beneficial during the organization and development phases.***

The people who make up the advisory committee should represent varied backgrounds; diversity on the committee contributes to balance in decision making. Thus, it is a good idea to appoint a heterogeneous group made up of business representatives, teachers, administrators, counselors, students, and parents. Does your school already have an advisory committee with members from the commu-

nity whose services could be used? Consider the criteria that will be used to select members from the community to sit on this committee. Also consider the goals and philosophies of the program; make sure these ideas are made clear to each member. In selecting your committee, consider how much time members will be able to devote to their responsibilities. Also, think about what their responsibilities will be. How much authority will members be given? How often will the group meet?

***After working through structural issues, consider whether enrollment in the new program will be open to all students or limited to students who meet certain requirements.***

Think about generally recognized characteristics of a good student, such as having good attendance, earning good grades, and being on track for high school graduation. Now, consider whether these criteria will be used to determine whether or not a student is accepted into your program. Do these characteristics fit the student population you work with? What are the needs and abilities of a typical student in your school? This is an area in which the advisory committee can provide advice concerning what members consider important characteristics. In developing student acceptance and performance criteria, the advisory committee helps counselors select students for and introduce students to the program. How early will students begin applying for places in the program (i.e., end of school year for the next school year, midyear for the next year)? Think of ways to recruit students into the program. How will you pique a student's interest about the program? Through counselors? Teachers? Flyers around school?

***One of the most important steps in program development is determining which curriculum to use: Will existing materials be used or will new ones be developed?***

An ideal time to discuss curriculum issues is when considering which staff members to involve. The staff will play an important part in selecting an existing curriculum or writing new materials. Think about whether the new staff members will be motivated to take on an endeavor like writing a curriculum that meets the needs of the new program. In deciding curriculum issues, consider how best to serve the students in the program. How will students react to

a hands-on, project-based instructional approach? Will they become more motivated through the interaction of in-class demonstrations and group learning? Having considered that, think about what curriculum will meet students' needs. When organizing a new program, some educators pull concepts from various sources. For example, in the past, educators have written lesson plans using concepts from existing materials (e.g., concepts from a physical science course already in use) and incorporated those ideas into new materials (e.g., *CORD's Applications in Biology/Chemistry*). Whatever the approach taken by your school, make sure you allow enough time for the teachers to develop lesson plans.

***Consider legal and liability issues and how they must be addressed prior to the start of a new program, especially if the program is an apprenticeship and/or involves worksite learning activities.***

Any time a student for whom the school is responsible is taken out of the classroom and placed in a workplace, many legal and liability issues must be addressed. Who is responsible for the student at the worksite? If a student is injured at the worksite, who is liable? What kind of equipment will the student be working with or around, and how does that affect liability issues? Consult legal representatives and members of the advisory committee on issues such as students driving to the worksite or being bused during school hours. What restrictions are placed on what a student can experience while at the worksite because of age? What liabilities does a business face by allowing students to observe/work in its facility? States differ in what they will and will not allow a student to do at the worksite. For more information on work restrictions, visit the U. S. Department of Labor's web site (URL provided in the appendix).

## ***Glossary***

This glossary provides definitions of key terms used in this report. Please note that the definitions may not match exactly the terminology as it is used in your consortium/partnership.

### *Applied academics*

The presentation of subject matter in a way that integrates a particular academic discipline (such as mathematics, science, or English) with workforce applications (hands-on laboratories dealing with practical equipment and devices).

### *Articulation*

A process of linking two or more educational systems in a community to help students make a smooth transition from one level to another without experiencing delays, duplication of courses, or loss of credit.

Types of articulation:

2+2—Two years of high school plus two years of postsecondary education

4+2—Four years of high school and the first two years of postsecondary education

4+2+2—Four years of high school, the first two years of postsecondary education at a two-year college, and two years at a four-year college or university

### *Consortium*

A stakeholder group of education agencies and organizations brought together for the development of applied curricula.

### *Contextual learning*

The instructional approach, underlying Tech Prep, that states that learning occurs best when students (learners) process new information or knowledge in such a way that it makes sense to them in their own frame of reference. This approach to learning and teaching assumes that the mind naturally seeks meaning in context—that is, the person’s environment—and that it does so through searching for relationships that make sense and appear useful.

### *Cooperative education*

An approach that involves a student’s working for a single employer, usually for pay, under a defined agreement with the school. It can relate closely to the occupational aspects of the student’s educational program. The work experience often lasts for months in a schedule that alternates worksite and school-based learning.

### *Dual system*

Workforce training (youth apprenticeship), commonly found in German school systems, in which classroom instruction is combined with hands-on vocational training.

### *Internship*

A flexible type of worksite learning that can involve varying arrangements with an employer. Its main goal is to give students and/or teachers practical experience in a specific field. An internship may be paid or unpaid, and can often last six or more weeks.

### *Job shadowing*

A practice that enables a student to explore a job or career area in detail for the purpose of helping the student choose a career and course of study. Job shadowing should occur in the eighth or ninth grade and can last as little as two hours or as long as two weeks at one workplace. A job shadowing experience consists of one or more students following and closely observing a worker as he or she goes about tasks at the worksite.

### *School-to-Work*

School-to-Work Opportunities Act programs must include integrated school-based and work-based learning that integrates academic and occupational learning and links between secondary and postsecondary education; the opportunity for participating students to complete a career major; the provision of a strong experience in and understanding of all aspects of the industry a student is preparing to enter; and equal access for students to a full range of program components and related activities, such as recruitment, enrollment, and placement activities.

### *Tech Prep*

A sequence of study beginning in high school and continuing through at least two years of postsecondary occupational education. The program parallels the college prep course of study and presents an alternative to the “minimum requirement diploma.” A Tech Prep curriculum is built on a foundation of applied academics, prepares students for high-skill technical occupations, and allows either direct entry into the workplace after high school graduation or continuation of study that leads to an associate degree from a two-year college.

### *Youth apprenticeship*

A relatively formal worksite learning program in which employers agree to help develop students’ skills in technical areas and in related mathematics, science, communication, and problem solving. The students “learn by doing” in the workplace with the help of mentors. Qualified students receive recognized occupational credentials when they complete their programs.

## ***Web Sites***

### **Helpful Information for Worksite Programs**

U.S. Department of Education

<http://www.ed.gov/>

U.S. Department of Labor

<http://dol.gov/>

Funding

<http://www.ed.gov/money.html>

Goals 2000

<http://inet.ed.gov/G2K/>

Laws and Liabilities

<http://www.state.sd.us/state/executive/dol/dlm/kidswork.htm>

<http://www.llr.sc.edu/employee.htm>

SCANS

<http://pueblo.pc.maricopa.edu/MariMUSE/SCANS/SCANS.html>

School-to-Work

<http://www.stw.ed.gov/>

<http://www.ohio-stw.com/>

Tech Prep

<http://www.cord.org>

<http://198.78.178.196/Schools/NorviewHS/techprep.htm>

<http://vocserve.berkeley.edu/summaries/714sum.html>

<http://vvcrc.tec.va.us/TP/TPT/SP96/topSP96.html>

## **Related Sites**

Creating Successful Workforce Preparation Programs

<http://www.fourhcouncil.edu/wfpres.htm>

Developing Educational Standards

<http://putwest.boces.org/Standards.html>

National Skill Standards

<http://www.nssb.org/>



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