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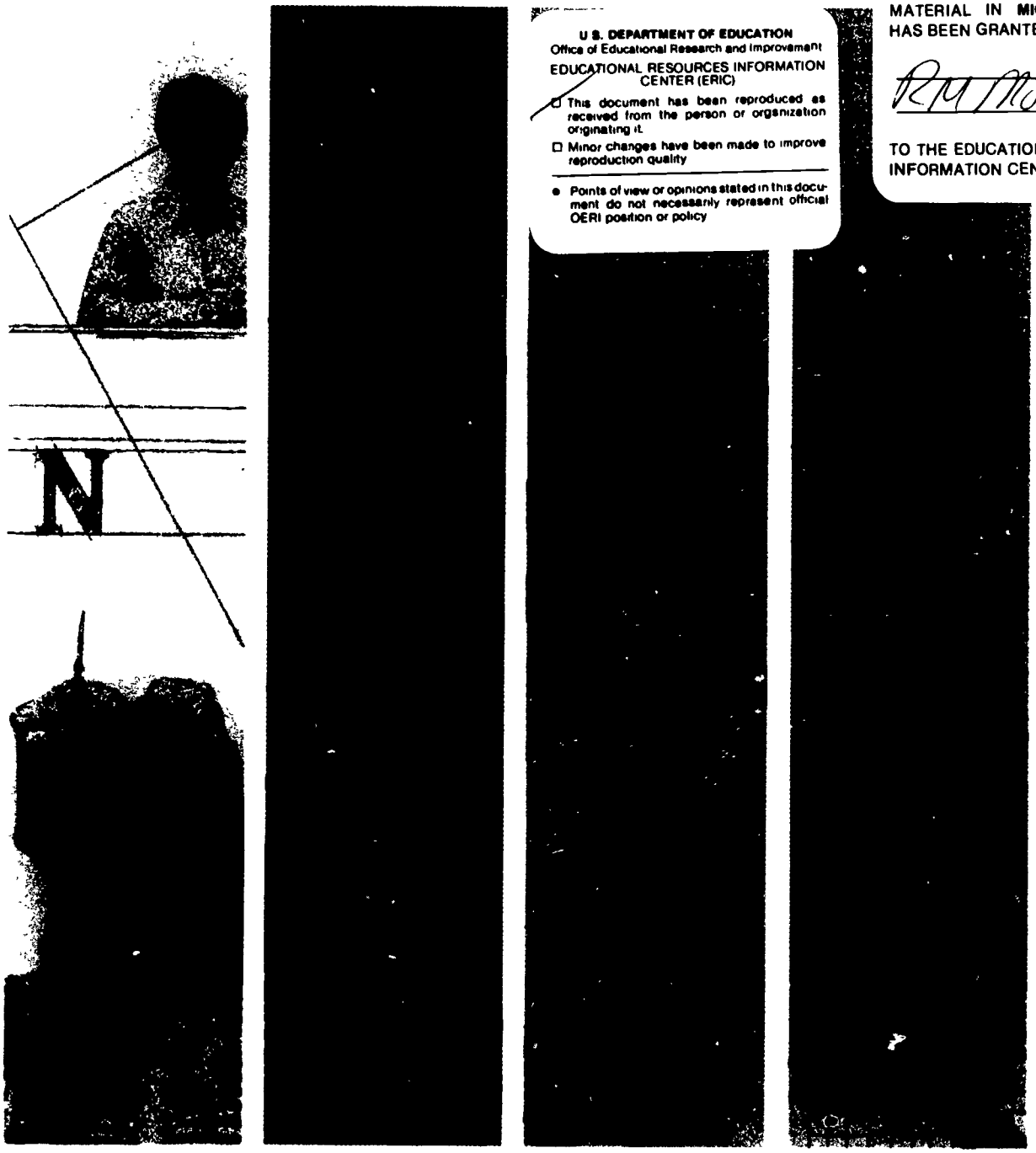
ABSTRACT

This book is part of OPTIONS, a packaged set of materials developed to provide postsecondary administrators, program planners, curriculum developers, counselors, and instructors with up-to-date, reliable information. This publication describes 61 exemplary practices and programs that have successfully improved or expanded educational services for adults. Part I, Case Studies of Services for Employers and Their Workers, focuses upon customized training and retraining programs, industrial literacy programs, and economic development programs. Part II, Case Studies of Programs for Organized Labor, describes the collaborative efforts between postsecondary institutions and organized labor to provide education and training programs to workers, including education funds of labor unions, retraining programs for displaced workers, and apprenticeship training programs. Part III, Case Studies of Industry-Education Joint Ventures, describes high technology programs, cooperative education, and faculty return-to-industry programs. Collaborative arrangements and employment and field experiences are examined. Part IV, Case Studies of Special Services and Programs for Adults, focuses on postsecondary institutions' responses to students with special needs, including dislocated workers and disabled persons. Case studies provide brief descriptions of the programs, program operation, funding and staffing patterns, reasons for initiation, and linkages. (YLB)

Case Studies of Programs Serving Adults



OPTIONS
Expanding Educational Services for Adults

THE NATIONAL CENTER
FOR RESEARCH IN VOCATIONAL EDUCATION
THE OHIO STATE UNIVERSITY

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- Developing educational programs and products
- Evaluating individual program needs and outcomes
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CASE STUDIES OF PROGRAMS SERVING ADULTS

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FOREWORD

Postsecondary education faces major challenges for the future if it is going to remain responsive to changes in the areas of demography, labor force, economy, and societal expectations. If postsecondary education is to remain relevant, new programs to meet changing technological needs must be developed; increased sensitivity to the changing age, sex, and ethnic composition of the student population must be demonstrated; more training designed for part-time participants and for disadvantaged groups must be offered; and increased cooperation between business and educational institutions must be achieved.

In order to provide postsecondary administrators, program planners, curriculum developers, counselors, and instructors with up-to-date, reliable information, the National Center has developed a packaged set of materials entitled *OPTIONS: Expanding Educational Services for Adults*. This package is the result of a major review and synthesis of the premiere appropriate materials available. Organized around three highly targeted issues, the *OPTIONS* package contains an educator's guide, a videocasette, three books, and three monographs.

The *Educator's Guide* orients administrators, instructors, and counselors to *OPTIONS*--its background, philosophy, components, structure, and use. An accompanying videocasette discusses the issues and forces impacting on educational institutions serving adults and motivates postsecondary personnel to work for program success.

Linking with Employers provides a rationale for cooperative efforts with business and industry. This book describes procedures for establishing linkages and conducting programs such as co-op education, customized training, retraining and upgrading, apprenticeship, resource sharing, and economic development.

Developing Curriculum in Response to Change prepares program staff to design and adapt curricula to conform to technological changes in the workplace and to meet the learning needs of adults. This book discusses the six-stage process of curriculum development: assessing needs, defining objectives, identifying resources, developing curriculum content, implementing the curriculum, and monitoring and evaluating implementation.

The three monographs enable counselors and instructors to establish and conduct special services to meet the learning and career needs of adult populations. *Adult Career Guidance* prepares counselors to provide intake, assessment, employability skill development, and career guidance to multicultural, handicapped, and older adults, as well as dislocated workers and women reentering the work force. *Entrepreneurship Education* provides models for planning and implementing an entrepreneurship education program for adults. *Literacy Enhancement for Adults* provides models for planning and implementing adult literacy programs.

This publication, *Case Studies of Programs Serving Adults*, describes exemplary practices and programs that have successfully improved or expanded educational services for adults. This book integrates the three major foci of linking with employers, developing curriculum in response to change, and providing special services for adults.

The National Center wishes to acknowledge the leadership provided to this effort by Dr. Robert E. Taylor, recently retired Executive Director. Appreciation also is extended to the following individuals who served as a panel of experts in assisting staff in planning strategy, recommending document content, and critically reviewing drafts of the documents: Dr. Larry Hackney, Associate Dean of Counseling and Life Career Development, Macomb Community College; Dr. Ronald M. Hutkin, Vice President of Academic Affairs, North Dakota State School of Science; Dr. H. James Owen, President, Tri-Cities State Technical Institute; and Dr. Roger Perry, Vice President of Academic Affairs, Champlain College.

Special recognition is due to Catharine P. Warmbrod and Roxi A. Liming who prepared this publication. Recognition and appreciation are deserved by the following National Center Staff who played major individual roles in the development of the *OPTIONS* package: Richard J. Miguel, Associate Director for Applied Research and Development, and Catharine P. Warmbrod, Research Specialist 2 and Project Director, for leadership and direction of the project; Judith A. Samuelson, Research Specialist 2; James O. Benner, Program Associate; Roxi A. Liming, Program Assistant; and David J. Kalamas, Graduate Research Associate, for synthesizing and developing the documents; and Monyeene Elliott, for her word processing expertise and dedication to a major typing endeavor. Appreciation is extended to Judy Balogh and her staff for providing final editorial review of the documents.

Chester K. Hansen
Acting Executive Director
The National Center for Research
in Vocational Education

EXECUTIVE SUMMARY

The case study approach often is used to illustrate how an educational institution can plan, implement, and conduct successful programs that serve adults. In this book, a variety of case studies that describe many programs currently in operation at both established and developing institutions are presented. By reading these case studies, educators of adults can gain insight into the different elements that are critical to a program's success.

Several types of programs are described in this publication. Part I, "Case Studies of Services for Employers and Their Workers," focuses upon customized training and retraining programs, industrial literacy programs, and economic development programs. These case studies describe how postsecondary institutions have responded to business and industry's training needs. They also discuss the vital role postsecondary institutions play in attracting new business development to a community, helping small business operations expand, and creating new small business development efforts.

Part II, "Case Studies of Programs for Organized Labor," describes the collaborative efforts between postsecondary institutions and organized labor to provide education and training programs to workers. Education funds of labor unions, retraining programs for displaced workers, and apprenticeship training programs are described.

High technology programs, cooperative education, and faculty return-to-industry programs are described in Part III, "Case Studies of Industry-Education Joint Ventures." The collaborative arrangements that exist between postsecondary institutions and companies manufacturing or using advanced technologies are discussed. In addition, the employment and field experiences that business and industry offers to students and faculty are examined.

Part IV, "Case Studies of Special Services and Programs for Adults," focuses on postsecondary institutions' responses to students with special needs. Programs serving dislocated workers and persons with disabilities, in addition to programs for improving occupationally related basic skills, are described.

Excerpted and adapted from previously published documents, these case studies provide brief descriptions of the programs and how they operate. Where possible, each case study describes funding and staffing patterns and the reasons that the program was initiated. Linkages with employers and other institutions also are detailed.

Introduction

Changes in the national economy and the work force place new demands on postsecondary institutions. As industry increases its reliance on high technology, it looks to postsecondary institutions to train qualified workers. As more and more adult workers need retraining or upgrading of skills, they seek out those postsecondary institutions that offer meaningful educational programs and meet their scheduling and long-term employment needs. As enrollments of displaced workers and limited English-proficient and disabled students increases, postsecondary institutions must create special services and programs to meet these students' needs.

Establishing strong linkages with employers, developing and updating curricula that respond to change, and providing special services for adult learners are three important ways that postsecondary institutions can meet these demands. Case studies of existing programs are presented to illustrate how educational institutions can plan, implement, and conduct successful programs for adult students. This book presents 61 different case studies and describes a variety of programs, at various stages of development, at both established and developing institutions.

Case studies are helpful in numerous ways. They serve as idea sources and help educators of adults find solutions to existing needs. They provide examples of successful programs that can be adapted in other educational institutions. Insights are provided into the processes that these institutions have used in developing programs. Case studies can serve as motivators to administrators and faculty to set new goals for programs. They also can help educators verify that current program goals and operating methods are in line with the current trends in postsecondary education.

Topical Areas

This book is divided into parts that are organized around a central theme. Each part is separated into sections that focus on a specific topic.

Part I, *Case Studies of Services for Employers and Their Workers*, discusses postsecondary linkages with employers in order to provide services to workers. Section 1 focuses on customized training and retraining programs and how postsecondary institutions have responded to industry's needs. Section 2 describes several literacy programs that are sponsored by major corporations and offered through postsecondary institutions. Section 3 describes how different postsecondary institutions are involved in their local communities' economic development efforts.

Part II, *Case Studies of Programs for Organized Labor*, discusses organized labor's educational offerings to workers. Section 4 focuses on both long-term and short-term education and training programs offered through unions. The cooperative

effort that exists between postsecondary institutions and industry in offering apprenticeship training programs is described in Section 5.

Part III, *Case Studies on Industry-Education Joint Ventures*, focuses on collaboration between industry and education. Section 6 discusses industry and education's roles in establishing and developing high technology educational programs. Section 7 describes the cooperation that exists between education and industry in providing cooperative education programs for students and return-to-industry programs for faculty.

Part IV, *Case Studies of Special Services and Programs for Adults*, focuses on postsecondary institutions' responses to students with special needs. Section 8 describes programs developed to serve dislocated workers. The next section, Section 9, discusses programs for persons with disabilities. The last section, Section 10, describes different programs, some operated at the college level and some in cooperation with industry, for improving occupationally related basic skills.

Each case study provides a brief description of the program and how it operates. Where possible, the case study describes funding and staffing patterns and the reasons that a program was initiated. Linkages with employers and other institutions are also detailed.

Editorial Method

The 61 different case studies presented in this book have been excerpted and adapted from previously published documents. (See Source Documents listings at the back of this publication.) These studies were published in the years 1981 through 1986 and represent the contributions of 22 different authors.

In order to make the case studies appropriate for this publication, some major revisions were made. First, the contact information in the case studies was updated and/or added. Second, the information in the case studies was reorganized so that the data could be presented in a consistent manner. Third, in some instances, information in the original case studies was deleted if it was not relevant to the topic area. Fourth, the case studies were reformatted with new headings and subheadings added where appropriate. And last, in order to clarify time frames for the reader, the verb tense was changed or a specific reference was inserted when necessary.

Matrix of Topical Areas

The following matrix is provided to aid the reader in identifying case studies of particular interest. The far left column on the matrix contains an alphabetical listing of colleges and institutions. Book part, section numbers, and topic areas are listed at the top of each column.

To locate an individual case study, refer to the matrix and the table of contents page. When an "X" is marked in the topic column, the case study can be located on the contents page in the corresponding section.

In some instances an individual case study may relate to several topic areas. In these instances, asterisks (*) are marked in the columns, however, the case study will be found only in those sections marked with an X.

Matrix of Topical Areas by College or Institution

College or Institution	Part I: Case Studies of Services for Employers and Their Workers			Part II: Case Studies of Programs for Organized Labor		Part III: Case Studies of Industry-Education Joint Ventures		Part IV: Case Studies of Special Services and Programs for Adults		
	Section 1: Customized Training and Retraining Programs	Section 2: Industrial Literacy Programs	Section 3: Economic Development Services	Section 4: Education and Training Programs	Section 5: Apprenticeship Programs	Section 6: High-Technology Programs	Section 7: Cooperative Education and Faculty Return-to-Industry Programs	Section 8: Dislocated Worker Programs	Section 9: Programs for Persons with Disabilities	Section 10: Programs for Improving Occupationally Related Basic Skills
Alabama Technical College					X					
American Federation of State, County, and Municipal Employees (AFSCME), District Council 37				X						
Arizona Western College							X			
Austin Community College		X								*
Bainbridge Junior College					X					
Central Piedmont Community College							X			
Chemeketa Community College			X					*		
Chicago's Private Industry Council										X
Cincinnati Technical Institute						X				
College of the Albemarle	X		*							
College of DuPage	X		*							
Community College of Allegheny County								X		
Cumberland County College				X						
Delgado College							X			
Drake, J. F., State Technical College							X			
Drake University										X
Durham Technical Community College						X				
Forsyth Technical Institute		X								*
Franklin Institute						X				
Guilford Technical College			X							
Hagerstown Junior College							X			
Hocking Technical College			X							
Johnson and Wales College							X			
Kalamazoo Valley Community College	X		*							
Lane Community College							X			
Lee College	X		*							
Lorain County Community College					X					
Macomb Community College	X		*			X				
Mercer County Community College	X		*							
Milwaukee Area Technical College						X				

*Refer to the table of contents of this document to locate individual case studies.

Matrix--*Continued*

College or Institution	Part I: Case Studies of Services for Employers and Their Workers			Part II: Case Studies of Programs for Organized Labor		Part III: Case Studies of Industry-Education Joint Ventures		Part IV: Case Studies of Special Services and Programs for Adults		
	Section 1: Customized Training and Retraining Programs	Section 2: Industrial Literacy Programs	Section 3: Economic Development Services	Section 4: Education and Training Programs	Section 5: Apprenticeship Programs	Section 6: High-Technology Programs	Section 7: Cooperative Education and Faculty Return-to-Industry Programs	Section 8: Dislocated Worker Programs	Section 9: Programs for Persons with Disabilities	Section 10: Programs for Improving Occupationally Related Basic Skills
Moraine Valley Community College	X		*							
Mt. Hood Community College			X							
National Union of Hospitals and Health Care Employees, District 1199				X						*
North Iowa Community College										X
North Lake College						X				
North Shore Community College	X		*							
Oklahoma City Community College	X		*							
Orangeburg-Calhoun Technical College			X				X			
Piedmont Technical Institute						X				
Portland Community College	X		*			X				
Prairie State College	X		*							
St. Louis Community College			X					X		
Southwestern Oregon Community College	X		*							
Spartanburg Technical College							X			
State Department of Rehabilitation									X	
State Technical Institute at Memphis	X		*							
Tri-County Technical College	X		*			X				
Triton College	*		X					*		
United Auto Workers, Local 1364				X				*		
United Mine Workers (UMW) of America, Local 56				X				*		
United Steelworkers of America				X				*		
Urban Retraining Program										X
Ventura College									X	
Williamsport Area Community College, The	X		*							
Wayne State University				X						

Part I
Case Studies of Services for Employers and Their Workers

OVERVIEW OF PART I

Across this nation, many postsecondary institutions are actively involved in providing services to employers and their workers. These case studies describe three different types of services:

1. Customized Training and Retraining Programs

2. Industrial Literacy Programs

3. Economic Development Services

Customized training and retraining programs usually are contracted services designed to meet specific needs of local employers. In Section 1, 15 case studies describe how various postsecondary institutions have organized and developed successful training programs. These studies are listed with their respective page numbers on the Table of Contents page. Background information and programmatic characteristics are provided so that the reader can determine those programs applicable to his or her situation.

Many postsecondary institutions work with private industries in order to provide adult basic education services to employees. Section 2 provides two case studies of literacy programs offered by large, multinational companies. The first case study describes a literacy program that is operated at the company's facilities. The second case study describes a literacy program that is offered both on-site and off-site.

Administrators of many postsecondary institutions have realized that their institutions play a vital role in attracting new business development to the community, helping small business operations expand, and creating new small business enterprises. Section 3 describes seven programs that contribute greatly to the economic development efforts of their local communities.

Section 1
Customized Training and Retraining Programs

Tri-County Technical College

College

Tri-County Technical College
Pendleton, SC 29670

Program Office/Center

Special Schools Program
Adult and Continuing Education Office

Other Organizations

South Carolina Board for Technical and Comprehensive Education
Job Services
Employment Security Commission

Contact

Earl Rochester
(803) 646-8361

Purpose of the Special Schools Program

Tri-County Technical College, in the belief that people are South Carolina's greatest asset, has set an example as an institution thoroughly committed to serving state and local economic development. The goal of "a better life for all" puts a strong emphasis on bringing new companies into the area and contributing to the expansion and productivity of existing ones by training a work force that can make effective use of high technology and thereby produce a healthier economy. A healthier economy is expected to bring a higher quality of life to the area, meeting South Carolinians' desires for better jobs and life-styles, and companies' desires for better workers. All facets of Tri-County are part of this philosophical environment, regardless of their direct or indirect involvement with occupational training.

Many states have governing boards for statewide community and technical colleges, but one program area mandated by the state legislature--the Special Schools--is unique to South Carolina. Special Schools are customized training programs run on a temporary basis by the individual technical colleges to meet the specific needs of new or expanding companies in their service areas. The Special Schools are provided free, or at very low cost, to such firms, so long as they show that their relocation or expansion will create a minimum of 20 new jobs in the area. The Special Schools operate under the management of the Division of Industrial and Economic Development of the state Board for Technical and Comprehensive Education, although the individual technical colleges provide the services.

The state Board for Technical and Comprehensive Education assigns industry services representatives to the technical colleges to help them make contact with such companies as may require Special Schools programs. The programs involve a closely coordinated working relationship between the college, the industry services representative, and the staff of the particular company to ensure proper scheduling and development of high quality instruction. Instruction may take place on the college campus, in the plant, or at another mutually agreed upon location in the service area.

Excerpted and adapted from *Retraining and Upgrading Workers: A Guide for Postsecondary Educators* (Warmbrod and Faddis 1983, pp. 29-66).

Background of the Program

Tri-County Technical College is situated in the Piedmont region of northwest South Carolina, and serves the people and industries of Anderson, Oconee, and Pickens counties. A special aspect of Tri-County is its role as part of the state's Technical Education (TEC) System, which has been a model for customized training for business and industry since its inception in 1961. Through the TEC System's Division of Industrial and Economic Development, Tri-County is a part of a continuing, statewide economic development thrust that offers, through its Special Schools programs, free training for new and expanding businesses and industries. This is the state's widely discussed "start-up in the black" effort, in which preemployment training of new employees enables them to be fully productive from the first day the new plant opens--allowing the company to start up "in the black." The effort reflects the state's philosophy that its people represent its single greatest asset. Since 1961, TEC's Special Schools have provided customized preemployment training for over 600 industries and 71,000 people through Tri-County and the other 15 technical colleges in the system.

In addition to the Special Schools program, Tri-County also has several other innovative programs.

"Design for the 80s" Program

Six Innovative Technical Resource Centers are located at and affiliated with six of the TEC System's colleges. The centers are the major strategy in the TEC System's "Design for the 80s" program. Recognizing the rapid changes in technologies being used by or introduced into industries around the country, as well as by those companies moving into or already operating in South Carolina, the "Design for the 80s" program was developed to meet the expected needs of South Carolina businesses and industries in this decade.

Each Innovative Technical Resource Center specializes in one high-technology area. The six areas of concentration are: (1) advanced machine tool technology, (2) robotics, (3) computer applications, (4) microelectronics, (5) the office of the future, and (6) environmental quality.

The primary objective of the Innovative Technical Resource Centers is to assist all TEC colleges in meeting the state's high-technology needs. Tri-County Technical College was selected as one of the center sites, and has established the Microelectronics Resource Center to help keep South Carolina's microelectronics instructors and workers on the cutting edge of the technology. The centers are already providing vital training in a decade when the TEC System estimates that 75 percent of all new jobs will require technological training below the baccalaureate level.

The new Microelectronics Resource Center will function as an information clearinghouse for updating and developing technical-level curricula for the TEC colleges and for aiding in technology transfer for South Carolina industries. This latter activity will also involve providing on-line consulting to industries implementing microelectronics-based equipment. In addition, the center will provide demonstrations of the latest technologies and equipment to industries around the state to stimulate adaptation of new technologies and aid in increasing the companies' productivity and competitiveness in national and international markets. This activity will involve the use of mobile labs to take the equipment and demonstrations right to the companies. The center also provides seminars, workshops, and short courses--customized and otherwise--in microelectronics and microcomputers, both for employees and managers of South Carolina companies.

Small Business Network

The Small Business Network at Tri-County is organized and cosponsored by the

American Association of Junior and Community Colleges and the U.S. Small Business Administration. As a member of the network, Tri-County can identify and deliver quality short-term training to meet the needs of local entrepreneurs, through classes, workshops, and counseling. To strengthen the network locally, Tri-County established working relationships with the Small Business Development Center at Clemson University, with the local Service Corps of Retired Executives (SCORE) business counseling services, and with the local chambers of commerce in its service area. It also founded a Small Business Resource Center on campus to make instructional materials available and to provide counseling facilities, classroom space, meeting facilities for area business organizations, and individualized instruction for prospective entrepreneurs.

Involvement with CETA/JTPA

Tri-County's involvement with CETA/JTPA programs is sponsored by the Employment Security Commission in Anderson. The college maintains a deep commitment to retraining the structurally unemployed and has expressed its intention of continuing to serve that populace even after federal funds are withdrawn from the program.

Noncustomized Industry Services

The Continuing Education Division is concerned with meeting the needs of business and industry in Tri-County's service area. It conducts ongoing curriculum revisions, course additions, and implementation of apprenticeship training. In 1981, it introduced competency-based diplomas, which enable trainees and employers to discern the exact competencies graduates have acquired through training. When the college receives a request from a company for customized courses or seminars to fill its need for specific employ upgrading, the Continuing Education Division analyzes the request to determine if only that company needs the requested training, or if it better serves the community to make such training available as noncustomized occupational advancement courses.

Continuing Education usually runs two general purpose seminars a week. These seminars may be given at plant sites, such as Singer, NCR, or Dan River; community sites, such as area high schools; or on campus. Although these seminars generally are not customized to the company's specifications, a company may request a seminar. Often, companies will send employees to the seminars on campus, or at community sites, at the company's expense.

Organizational Characteristics of the Program

Funding

As part of the TEC System, Tri-County Technical College is administered by the South Carolina State Board of Technical and Comprehensive Education. In keeping with the TEC System structure, the immediate supervision and administration of Tri-County is in the charge of the local Tri-County Area Commission.

Special Schools programs for preemployment training are funded by the TEC System and are available free of charge to new or expanding companies creating a minimum of 20 new jobs. In those cases where the programs must rely on company staff to teach the customized course, TEC reimburses the company a negotiated amount of money toward the salaries of such instructors for the hours they spend instructing.

Funds for the Tri-County's Special Schools programs are administered by the TEC System's board of trustees. The local counties are responsible for setting up any necessary facilities in the community if campus or company plant facilities are inadequate or unavailable. Equipment, equipment installation and maintenance, instructional materials, hand tools, and materials are all paid for by TEC.

For other customized upgrading and retraining programs, the company pays for all or most of the training costs and must provide a minimum of 12 trainees for the college to be able to deliver the training. This represents the break-even point for the college. The college wants companies to make use of the services; therefore, it absorbs some of the costs for all such programs, charging companies a flat rate.

Some companies provide tuition reimbursement for employees who pursue upgrading courses on their own time. In most cases, the courses must be related to company skills needs. In effect, this is company-sponsored upgrading, whether or not the employees take regular, noncustomized courses for credit.

Staff

Enthusiasm, cooperation, and flexibility mark the college's actions in putting its philosophy into effect. This can be seen in the role of Tri-County's president.

The president spends considerable time working with the industry services representative and the various county planning and development boards and directors to help make potential employers aware of what the TEC System--and Tri-County in particular--can do for a new or expanding company. In pursuing this important economic development role, the president is available for discussions, meetings, tours of the local communities or the college, and so forth. If he is not available for such promotional work, another knowledgeable person, the industry services representative, the executive vice-president for educational programs, or the dean of adult and continuing education, is assigned the task.

During a personal interview on June 7, 1982, Don Garrison, president of Tri-County, emphasized the importance of proving the commitment of the community and the college to industry when he said, "Good intentions are not enough. You need evidence in terms of a track record and in terms of dollars committed." Moreover, the president assures companies that Tri-County does not "divorce" a firm once its start-up needs are fulfilled; the college trains a continuing supply of highly qualified graduates for industries in the service area. He also is careful to communicate that Tri-County understands that profit must be the bottom line for a productive firm.

Another role for which the president assumes considerable leadership is that of cultivating good communications, cooperation, and articulation with the many local agencies and organizations involved in economic development efforts. Tri-County's cooperative efforts often involve city or town commissions, county planning and development boards, the South Carolina Economic Development Board, the Employment Security Commission and Job Services, Great Towns committees, chambers of commerce, Clemson University, the U.S. Small Business Administration, and so forth.

Tri-County operates with a fairly informal, friendly management style, yet the level of commitment of the faculty and staff to the college's philosophy and goals is intense. College support units operate in a service mode, with economic development their watchword. The faculty and staff generally consist of "self-starters," who understand the issues and are dedicated to the purposes of the college. College administrators believe that this kind of dedication improves efficiency by as much as 30 percent for some programs. Faculty and staff commitment also is expressed in

the flexibility and cooperation within and between program areas, as well as in dealing with companies' training needs.

Facilities

Customized courses may take place on campus, at designated or specially prepared community facilities, or at the plant site itself. Special Schools programs are unique in that if appropriate facilities are not already available at the college or the plant, the TEC System (through the local county councils) finances the construction or refurbishment of a community facility in which to house the training program. Refurbishment may include the installation of cooling, heating, electrical, and sanitation systems. TEC also installs and maintains any necessary furnishings and equipment for the training.

Special Schools programs provide all equipment and tools (where possible) and all materials for start-up programs. In cases where equipment or materials are not available through the TEC System, or where they are highly specialized for that specific company, the company is asked to lend the equipment or materials.

Customized training instruction for upgrading and retraining most often takes place at the plant site. Equipment used there is frequently the company's, borrowed for the duration or used in off-production hours. If the training is given on campus, and if the college has appropriate equipment or can borrow it from elsewhere in the TEC System, the school provides the equipment.

Nature of Services

Tri-County offers a variety of services specially tailored to the needs of specific companies. Some of these services (i.e., the preemployment training of the Special Schools) are provided free to companies, and others are partly subsidized through the Continuing Education Division. Essentially, four kinds of customized services are offered to new, expanding, or extant companies upon request:

- Preemployment training through TEC's Special Schools programs
- Job instruction courses for company employees serving as instructors in Special Schools programs
- Upgrading and retraining courses
- Seminars and workshops for upgrading purposes

The Special Schools preemployment training programs--offered to new or expanding companies creating 20 or more new jobs--involve a series of services, of which the training is only one. In essence, these services consist of--

- aid to the company, where necessary, in identifying the required skills and skill levels of the jobs to be performed;
- preparation of a schedule covering all activities, with completion of the program to come two weeks prior to hiring needs;
- development of a recruitment plan with the company, and conduct of recruitment;
- preemployment testing of applicants (often through Job Services or the Employment Security Commission) and screening;
- provision of tailored instructional materials, audiovisuals, and raw materials;
- provision of equipment and facilities, except in circumstances in which highly specialized equipment must be borrowed from the company, or if the company requests that TEC's Special Schools programs instruction take place in the plant;

- provision of instructors, where possible (see the discussion of the Job Instruction course later in this section);

- delivery of training and trainee assessments;

- operation of classes in the evening or at other times convenient to trainees.

Tri-County has conducted Special Schools training for a great variety of companies moving into its three-county area or expanding within it. For example, the college has provided customized preemployment training for Michelin, NCR, Steel Heddle Corporation, Orian Rugs, Olympic Stoves, Fry-Togs Corporation, Westinghouse, and Nordson. Since Tri-County opened its doors in 1962, it has trained over 5,000 workers in Special Schools preemployment programs.

Occasions arise when a Special Schools program for a particular company requires an instructor with highly specialized knowledge and experience and not readily available either from the college faculty or from potential part-time instructors in the Tri-County service area. In such cases, it is often necessary for the company to bring in skilled employees from its other plants. While the Special Schools programs reimburse the company for such employees' salaries for their hours spent instructing, there is frequently a problem with their knowledge of and skill in teaching. In these cases Tri-County provides a Job Instruction course for company instructors participating in Special Schools training activities. The course enables the temporary instructors to teach the customized courses efficiently and effectively.

Tri-County also conducts customized upgrading and retraining of employees in existing companies in its service region upon request of the company. Such upgrading and retraining courses do not fall within the Special Schools programs because the companies are not creating additional, new jobs. These customized courses are not provided free of charge; however, if the training provided does not involve on-the-job training, Tri-County often absorbs part of the expense. It does this by converting continuing education units (CEUs) earned by the trainees into credit units, whose costs are reimbursed under certain circumstances by the state. In on-the-job training, the company usually absorbs the costs and pays Tri-County directly. For any customized upgrading or retraining program, however, a company must have 12 or more trainees. Twelve is the break-even point at which the college can afford to customize such a course.

Tri-County has provided non-special schools customized upgrading or retraining courses for a variety of companies in its service area, including Dan River, the Riegal Corporation, the Alice Corporation, Parke Davis, and the Singer Company. In 1981, Tri-County's General Education Division offered college transfer courses to Duke Power employees who needed to meet the federal requirements for control room operators at nuclear plants. In the near future, the new Microelectronics Resource Center will offer customized high-technology microelectronics programs or courses for industry, upon request.

Full programs or courses are not the only customized instruction offered by Tri-County. Many seminars and workshops are tailored to fit the short-course upgrading needs of local companies. For example, a 16-hour course was customized for Oconee Nuclear Station, and half-day seminars were given for the Singer Company and for Oconee Memorial Hospital. The Management Development Division conducted 65 seminars in management and supervision in school year 1981-82, 2 of which were specifically designed for local corporations. The Microelectronics Resource Center also conducts short seminars and workshops for employees and supervisors, tailored to company needs upon request.

Linkages, Marketing, and Information Exchange

Four major organizations are involved in making workable linkages for the creation, design, and delivery of upgrading and retraining programs at Tri-County: (1) the state TEC System, (2) the community and county agencies, (3) the college representatives, and (4) the companies served. Upgrading and retraining programs obviously must match not only the needs perceived by potential students, but also they must train for jobs that are available--filling the personnel needs of companies, whether existing or developing. For effective, on-target programs to be developed and delivered, the actors' relevant values, plans, and actions must be synchronized. Feedback at all stages is vital. Cooperation and flexibility are the watchwords for success.

At the state level, the thrust for upgrading and retraining of South Carolina's work force comes primarily from the TEC System. TEC's 16 2-year technical colleges and 6 Innovative Technical Resource Centers are designed to operate in close cooperation with state and local economic development efforts.

County planning and development boards and other community agencies cooperate with the local TEC colleges when "courting" prospective employers in their area. Communities working to meet the strict criteria for "Great Town" status frequently call upon the local TEC colleges for advice also. Job Services agencies and the Employment Security Commission work closely with the colleges in preselecting, testing, and recruiting trainees for customized training programs, especially for Special Schools programs. Local chambers of commerce and other community organizations and agencies keep in touch with the colleges to provide continuing information on employment trends and related training needs in their areas.

Within Tri-County Technical College, key staff members are responsible for liaison with the communities and with employers. Tri-County's two most prominent figures in this capacity are the president of the college and the industry services representative. Officially, the industry services representative is responsible for making regular visits to existing area companies and for marketing Special Schools services to new or expanding industry. He also brings together vital college, company, and community representatives, where appropriate, to discuss customized training and make delivery plans.

The college president often accompanies the industry services representative on visits to prospective employers. He also serves in the role of facilitator whenever extra effort is needed to get an upgrading or retraining program off the ground. The dean of adult and continuing education and the dean of instruction also meet with companies and with community agencies and organizations to communicate what their divisions can deliver through occupational advancement training.

Program Design and Delivery

Customized training delivered by Tri-County begins when contact with a new or existing company in the Tri-County area results in a request by that company for tailor-made technical training. Such training may be for preemployment or for upgrading or retraining of current employees. It may involve classroom learning and lab or other simulation experiences delivered on campus. Training may take place at a specially prepared site in the community, at the plant site, or on the job. It may be for credit, though more often it is not. Because it is customized, training is always focused on the specific needs of a specific company. In many cases, the processes and technologies taught are proprietary to that company and the equipment is highly specialized.

Needs Assessments for Upgrading and Retraining

Needs assessment for customized training programs is generally an informal procedure in which Tri-County representatives, including a faculty member with related technical expertise, consult with company representatives in order to determine the training needs. Company staff involved in such assessments frequently include personnel managers, training directors, supervisory personnel at existing plants, company engineers, and so forth. These company staff members provide job descriptions and other information pertinent to designing a training program that will develop the specific skills needed.

Tri-County representatives frequently make site visits to observe the operations of similar plants or the use of the same or equivalent technologies or processes, in order to clarify the content of the proposed training. The course content is tailored to the company's needs, and at every stage the company is consulted for accuracy. Tri-County representatives perform no needs assessments using formalized instruments.

Training Agreements for Customized Programs

For customized courses, there are no contracts signed with companies. At most, a letter of understanding is drafted. For Special Schools training, a company must guarantee to create at least 20 new jobs. Customized training that upgrades the skills of or retrains existing employees does not qualify for Special Schools funding, though some training expenses are absorbed by the college. In these cases, the Tri-County tries to make customized training as inexpensive and as readily available to area companies as possible. Even so, for a customized program to be cost-effective, a company must have a minimum of 12 students. For such programs, companies pay the college directly.

Whether they are written for Special Schools or for other kinds of customized training programs, informal training agreements stipulate such program criteria as content of training, number of trainees, source of trainees, scheduling and duration of training, standards of student performance, funding, recruitment and selection of instructors, development of training materials, training site and facilities, and person(s) responsible for activities at each stage of the training effort.

Course Development

Customized courses are developed in a variety of ways. Some companies have their own training programs for analogous workers at other plant sites, and Tri-County uses or adapts these existing materials. Other companies assign their own staff to develop the course outline and/or the course materials for some or all of the programs, although the training is still delivered by Tri-County. Frequently the college already offers a course or program as part of the regular curricula that can be revised or added to in order to meet company needs. When neither company courses nor existing college courses can be adapted, the college assigns a faculty member with appropriate expertise to design the new course. When such an expert is not available on campus, the college finds and pays an outside expert--usually a qualified person in the community--to develop the course. The maximum payment is usually $100.

Materials Development

In customized courses, course materials are developed by the company (often by company training staff, engineering staff, or other expert personnel working for the company), by the college faculty, or by outside consultants. At times, an outside instructor, who is hired part-time by the college to teach a very specialized, high-technology customized course, will

develop the course and/or the course materials. Often, the course materials are developed by the college staff or by company and college staff members working together. After the materials are drafted, Tri-County's Learning Resource Center produces, prints, and provides copies of the materials for the program.

Some customized courses have made extensive and successful use of audiovisual instructional materials, including slides, slide-tapes, and videotapes. The college has sent out qualified media staff on a number of occasions to various company sites, often in other states, to videotape production processes. Tri-County's Learning Resources Center is staffed to produce such media, though the majority of such support services are provided directly by the TEC System's own production center.

Selection of Instructional Modes

Tri-County faculty members are well grounded in effective modes of instruction for teaching adults. Most courses make use of a variety of instructional modes, including innovative techniques such as simulations, instructional videotapes, on-site practical experiences, and so forth. For customized courses, instructional modes need to be particularly flexible to meet unpredicted shifts in instructional focus or significant variations in individual trainees' skill levels. In situations where the instructors are not regular Tri-County faculty members, college representatives monitor the classes on an ongoing basis to watch for needed changes in instructional mode.

Course Approval

Official approval must be granted by the State Board of Technical and Comprehensive Education for any courses taught for credit. For noncredit courses, advisory committees and departments are responsible for approving courses and course content.

In the case of noncredit customized training, companies have the last word on course and course content, and approval is in their hands. The college and the company usually work so closely together in designing customized programs that no formal approval process is necessary. In some cases, courses must be redesigned in progress, simply because the training area is so new, or the relevance of the trainees' existing skills so unpredictable, that it is impossible to finalize the course content beforehand. Flexibililty is a necessity; however, the company and the college generally work together so closely that course adaptations are accomplished as needed without any problems.

Recruitment Selection of Trainees

Recruitment and selection procedures for trainees for customized programs vary from one situation to the next. For pre-employment training through the Special Schools, the criteria for selection are set by the company. The college then announces the start-up training. Often, the college works through Job Services agencies or the local Employment Security Commission to reach persons interested in and qualified to take the start-up training. Such candidates for training are pretested (frequently by one of the two outside agencies) and preselected by the college.

In Special Schools programs, trainees usually are employed elsewhere at the time of the training. Training is held at a time that is convenient to the trainees. These persons have no guarantee from the college or the company that the successful completion of the training program will garner them a new job. Trainees do not have to pay anything for the training, and take the risk of not being hired for the chance to better their worklife and earnings. The pretesting and preselection procedures used by the college, coupled with the motivation of the trainees, have proved highly successful, resulting in very

low dropout rates in the customized courses, and few if any "washouts" or turnover from trainees subsequently hired by the companies. This contrasts with many companies' previous experiences with attempting to "hire off the street"--resulting, for some firms, in turnover as high as 150 percent in a year!

For customized courses that are not Special Schools programs, the trainees are already employees of the company requesting the customized training. In most cases, the trainees are selected by the company, though employees may volunteer to take the courses in some companies. The college may pretest some employees for required skills, but more often the pretests are given to point up areas where remedial course modules may need to be added to the customized course rather than to reject employee trainees.

Selection of Instructors

Both credit and noncredit courses that are offered by the Continuing Education Division require instructors with wide-ranging expertise in technical and related subject areas. About 47 percent of Tri-County's faculty members are part-timers, and instructors from local companies are recruited from the community to teach. Tri-County is fortunate to be in a burgeoning retirement area, and many of its part-time instructors are retirees with exceptional experience upon which to draw for teaching.

For customized courses, the college first looks to its own faculty to find appropriate instructors. In cases where instructors with the needed expertise are not available, the college then turns to the community or to the company itself. For courses that teach proprietary processes or use highly specialized equipment or technologies, it is often impossible to find qualified instructors anywhere but within the company. Both the college and the company must agree on the selection of instructors for customized courses.

Full- and part-time faculty members teaching noncustomized courses receive a variety of opportunities to develop and upgrade their technical and teaching skills through Tri-County. For example, the English Department has established a buddy system in which full-time faculty work closely with part-time instructors to review tests, relay paper-grading policies, and answer questions. Other departments invite part-time faculty to departmental meetings, as well as schedule special meetings at the beginning of each quarter and arrange for part-time instructors to visit and observe classes.

Division and departmental chairpersons routinely survey part-time faculty to determine their needs. On the technical end, both full-time and part-time teachers are encouraged by the college to work in industry in their specialty areas in order to keep up to date on processes and technologies.

Instructors recruited from the community or from a company take the college's Job Instruction course prior to teaching the customized course. The Job Instruction course instructs those whose teaching experiences have been limited and orients them to methods for the instruction of adults and to the policies and procedures of the college that relate to customized instruction.

Scheduling

For customized courses, the company and college negotiate on development time, time for selection and screening of training (for Special Schools), preparation of training facilities, orientation of instructors, procurement and installation of any needed equipment, and so forth. In Special Schools training programs, schedules are usually designed "backwards," that is, a date is pinpointed two weeks prior to the date the company will actually need the newly trained workers. That date becomes the final day of training. Instructional time, course preparation time,

and preemployment recruiting and selection time are all determined by counting backwards from that date according to the time estimates of each of these activities. Times at which classes are actually taught are made as flexible as possible for the convenience of trainees and companies.

Evaluation of Courses or Programs

Company liaisons often monitor ongoing customized training courses, and convey their perceptions and company wishes to the course instructors or to the college liaison. In all customized courses, instructors administer intermittent questionnaires to trainees to gauge the trainees' reactions to programs. Combined with competency-based tests or evaluations conducted throughout the course, this information guides instructors in modifying the course design or instructional modes as needed. Many customized courses are individualized, and instructors use these interim evaluations to add additional practice or remediation for students having problems with the materials, or to advance some students at a pace more suited to their skills.

Students taking any course for credit or certification must pass competency-based evaluations at the conclusion of the course. In all customized courses, competency-based evaluations or tests are administered. Sometimes companies also administer their own tests or questionnaires.

Tri-County pays close attention to the variations in overall outcomes of customized courses so that future courses in the same, or similar, skill areas may be refined accordingly. This is also important for customized courses in new technology areas that may become more widely adopted in other businesses. The college takes such customized courses and revises them for continuing education offerings, or includes them in degree programs where appropriate.

Outcomes

Customized training programs at Tri-County consist of (1) Special Schools programs, offered free to new and expanding companies for preemployment, upgrading, or retraining instruction where at least 20 new jobs are created; (2) upgrading or retraining for existing companies where few or no actual new jobs are created, offered through the college's various departments for a moderate cost to companies; and (3) customized upgrading courses or programs where few or no actual new jobs are created, offered for credit by Tri-County's Division of Instruction at moderate cost. Such courses or programs may be offered at a time or location of greatest convenience to the company and trainees--on campus, at rented or remodeled facilities in the community, or at the plant site. A wide variety of companies have been served through these programs.

Westinghouse Company, Pendleton, South Carolina

Westinghouse and Tri-County have been working together for several years on a number of programs tailored to the company's training needs. According to Westinghouse's personnel manager, the availability of preemployment training and continuing education through the TEC System and Tri-County "were a major deciding factor in locating Westinghouse's new plant in South Carolina." Tri-County initiated the first meetings between the college and the company to discuss delivering start-up training to Westinghouse through the Special Schools programs. The college president and the industry services representative brought all important parties together at Tri-County, where the college outlined the start-up and other types of training it would be able to deliver to Westinghouse.

The first program at Westinghouse was a Special Schools program of preemployment training for maintenance and craftsworkers, specifically electricians and mechanics. The trainees were to have had prior experience in related maintenance (selected trainees had 4 to 15 years of experience), but the company also needed to know what specific skills these trainees possessed. The training program was to accomplish two major tasks: (1) conduct a skills verification program by which the skills of the trainees would be assessed and (2) conduct training to upgrade skills where necessary and develop new skills where they were absent.

Close cooperation and excellent communications were necessary to make the program work. In order to become familiar with the operations and skills needed for the new plant, Tri-County representatives visited a Westinghouse plant out of state. There, the college representatives met with company representatives to formulate the plans for the training program. Except for initial orientation, all training was to be performed by Tri-County instructors.

The training itself was very flexible. Continual interaction between instructors and company representatives allowed the company to suggest adjustments in the training and to vary the emphasis on certain areas of instruction where the trainees showed differing degrees of skill. The industry services representative for TEC kept the company attuned to what was going on in the training program, so such adjustments were readily made. Without these close communications, the participants say the program could not have been successful.

Following the start-up of the new Westinghouse plant, the company needed to upgrade the training of 43 newly hired production operators whose activities were related to processes and equipment specific to Westinghouse. Tri-County was unable to provide instructors with the needed proprietary knowledge, so the company brought in instructors from its Hampton division headquarters to deliver the special technical training.

The company additionally needed these operators to have lift-truck experience. For this, Tri-County's own lift-truck training program was used in conjunction with some specialized training on the company's unique Yale equipment handling systems. The course required a three-way coordination among Tri-County, Westinghouse, and Yale, the supplier of the specialized equipment. Occupational safety laws required that lift-truck operators be licensed, so the lift-truck training had to be a formally accredited program in order to license the trainees. The Continuing Education Division set up the customized--and accredited--lift-truck course, based in large part on the division's regular course, but with modifications to meet company needs.

Start-up training for resin chemists followed the pattern of close cooperation between Westinghouse and Tri-County, with the exception that Tri-County worked with company resin chemists. The chemists delivered most of the actual instruction in labs and classrooms set up as part of the Special Schools program. The company instructors and Tri-County set up the laboratories so that they exactly simulated the company's operations--including the same size, number, and arrangements of lab tables, glassware, and other lab equipment.

Because Westinghouse's personnel manager is well oriented to the skills required for the jobs in the plant operation, the planning, scheduling, and implementation of customized training programs were considerably simplified for the college. The personnel manager was able to specify what the company's skill needs were for a specific program. He was also instrumental in developing workable training schedules. This was done by starting with the target date for new employees to begin work, in the case of preemployment training, or the target date for current employees to begin using their upgraded skills. Backing up

from the set target date, time was scheduled for prehiring selection and screening (where applicable), course development, procurement or setup of equipment and facilities, and training.

Training programs for Westinghouse generally have used a four-pronged instructional approach, involving use of training manuals, slides or slide-tapes, videotapes of production operations, and practical experience in simulation circumstances. Tri-County and Westinghouse cooperated in writing or adapting instructional materials. Westinghouse has written some materials, or adapted its own earlier materials, and Tri-County has written others. Tri-County also prepared 144 minutes of videotape on production operations. The operations were taped at Westinghouse's Hampton plant for use in the Special Schools programs.

Courses tailored to Westinghouse's training needs generally run 3 hours a day, and have been held three times a week for 8 weeks. This has given students 72 hours of instructional experience. Trainees consistently meet or exceed the performance standards set mutually by the company and the college despite the short amount of time allotted.

The four-pronged instructional approach has allowed considerable individualization of training experiences. Students are able to access audiovisual aids or simulation experiences at will. All instructional materials and evaluations have been competency based. In many cases, instructors have served primarily as course managers and resource persons, allowing trainees to gain competencies at their own pace and within their own learning styles.

National Cash Register, Liberty, South Carolina

In 1980, the National Cash Register Company (NCR) expressed an interest in building a new manufacturing plant for point-of-sale terminals in the Tri-County area. Tri-County representatives joined county development board members in meeting informally with NCR representatives. Later, as company interest became firm, Tri-County's industrial services representative went with several other college representatives to visit the NCR plant in Delaware and meet with company people (including the manager of NCR's Manufacturing Engineering Department). As a result of this meeting, the kinds of training for the new plant were outlined, the basic training timeline was worked out, and who would do what in implementing the start-up training was decided.

The company's manufacturing engineers prescribed the essential skills to be taught and the schedule for teaching various subjects. A schedule was worked out by which trainees would attend classes for 4 hours a day (in the morning, afternoon, or evening, at the trainees' convenience, since most were simultaneously employed elsewhere during training), over a period of 18 days. This gave a total of 72 hours of training for the manufacturing technicians who would be hired by NCR.

To prepare training manuals for the program, NCR's Manufacturing Engineering Department assigned individual engineers to write training manuals in their specialties. This was necessary because many of NCR's manufacturing operations are unique and proprietary. The TEC Systems's production center printed the training manuals and furnished additional instructional materials, including the math component. Tri-County often adds a math component to its customized courses, even if not requested, because so many adults are found to be weak in basic math skills. The math component, though brief in duration, usually improves students' math skills enormously, as had been proved by comparison of pre- and post-tests of such basic skills for all trainees.

Training of the manufacturing technicians took place in a converted senior citizens' center in Liberty, South Carolina. The refurbishment of the center was

conducted by the county as part of its commitment to the TEC System. A TEC Special Schools program team installed conveyors needed for the course and maintained equipment throughout the course. Tri-County provided needed hand tools (such as soldering guns) and some special tools for the training process. NCR furnished oscilloscopes and some other special equipment. For later NCR training programs that were not eligible for Special Schools funding because the new plant had already opened and was operating, NCR furnished its own specific electronics equipment for training, including conveyors, line master benches, and so forth. For the start-up training, the Special Schools program provided most materials and equipment.

Prior to the start-up training, Tri-County staff once again visited NCR's Delaware plant and made a videotape of the manufacturing process. The tape was a key part of the start-up training program in South Carolina.

Because of the highly specialized expertise needed for training was not available at Tri-County or in the community, NCR furnished all instructors for the start-up training. Three full-time NCR instructors participated, as well as company specialists who came in as needed to teach half-day sessions. TEC reimbursed the company for part of the company instructors' salaries for the start-up training. The amount of reimbursement was negotiated with the NCR, since TEC could not pay industry-level salaries for the instructors.

The dedication of NCR's instructors was cited as a key element in the success of the training program. In addition, top management in the company simplified the use of the instructors by relieving them of other responsibilities when they were needed for teaching. Without the understanding of such needs at the highest company levels, Tri-County staff members say that the training program would not have been possible.

Class sizes were held to 10 trainees for the start-up training. The training approach emphasized to students that not all of them were expected to excel in every training area; the company had positions that everybody could fit into if they were willing to apply themselves. Instructors tutored students individually. No homework was required in the courses, but students were allowed to take textbooks and manuals home, if they wished.

Instructors used questionnaires to get feedback from students during the courses. The feedback was used to gauge student interest and progress. At one point, instructors learned that students were bored by seeing too many films too close together, and they altered the instruction accordingly. Students were required to sign the feedback questionnaires so that instructors could evaluate individual student progress and tutor the students as necessary. Of 142 trainees, only 2 dropped out of the courses before completion.

At the end of the training, Tri-County held a graduation ceremony for the trainees, presenting them with certificates. On that same day, NCR held interviews with the graduates and hired all but 22 of the 140 graduates. NCR expects to hire most or all of the remaining 22 graduates when the economy improves.

NCR is extremely pleased with the productivity of the trainees who are now working for the company. NCR has also hired six supervisors and put them through the same general course as the production trainees. This acquainted the supervisors with what takes place on the production floor, and allowed managers to offer almost all employees in the production department the opportunity to retrain for different jobs. The company can rotate people as they are needed, because everyone is familiar with all aspects of production.

Singer Company, Pickens and Anderson, South Carolina

Most of Tri-County's interactions with the Singer Company have not involved start-up training. Singer has been in the Tri-County service area since the 1940s--before Tri-County was established. However, the company's plants have experienced a series of major changeovers in production, from manufacturing sewing machine cabinets to power tools at the Pickens plant; and from the production of sewing machines to motor products to sewing machines again, and then to electronic sewing machines at the Anderson plant. Most of the training--customized and regular credit courses--that Tri-County has delivered to Singer has involved upgrading and retraining employees to meet these changing production needs.

Almost 90 percent of Singer's in-plant training for management development has been through Tri-County courses. Customized management and supervisory seminars also have been given at Singer by the college. Tri-County also conducted quality circle facilitator training on campus for Singer.

Singer set up its own tool and die apprenticeship program with the help of Tri-County, which piloted the training. Tri-County courses conducted at Singer's plants often have been offered for credit at the company's request. In fact, more in-plant courses are delivered for Singer than for any other company served by Tri-County.

Most customized courses for Singer are offered during the employees' own time after work at the plant site, although on-the-job training has been offered on occasion. Instructors are usually faculty members of Tri-County, or are part-time instructors hired from the community through the college. In some cases, where the college cannot acquire a qualified instructor, company staff members become the instructors. They complete the college's Job Instruction course in order to manage and teach the employees effectively. On occasion, Singer's training director sits in on classes to monitor their appropriateness and progress. At the conclusion of a customized course, both Singer and Tri-County administer course evaluation questionnaires to the trainees.

Singer representatives say that Tri-County's ability to be flexible in meeting the company's training needs has been a key element in making the training programs happen. They also say that because Tri-County has many business and industry people on its TEC area commission and on department advisory committees, both the college and the business community are able to understand and appreciate each other's needs and interrelationships.

Summary

Tri-County's customized courses have a number of unique elements. There are no written contracts for customized training, although there may be a letter of understanding exchanged between a company and the college. The reason given for this informality is that the college and the companies have superb communication linkages, and know each other so well, that no formal, legal arrangements are necessary.

In customized training, the college generally performs (or arranges with the Employment Services Commission to perform) pretests of trainees before an actual course begins. This pretesting--sometimes involving skills verification--determines the strengths and weaknesses of the individual trainees based on their previous related experience or training. This evaluation allows individualization of the training and tailoring of the course content to build on trainees' known strengths and to boost their weak areas, as needed.

Customized courses include extensive use of interim student questionnaires that allow instructors to gauge the progress of

the course as a whole, and to make needed modifications to content or instructional methodology or materials. These interim questionnaires, which must be signed by each student, also help instructors to gauge trainees' individual progress and to prescribe remediation, more practice, or whatever is appropriate to aid trainees in progressing at their own pace.

Tri-County does its utmost to remain as responsive as possible to the needs of companies and trainees, before and during customized instruction. Tri-County is currently putting all its instructional modules onto word processor disks so that the college can store, modify, and print out the modules for any related customized programs as they are needed. This is expected to streamline course development or modification for customized training courses.

Macomb Community College

College

Macomb Community College
14500 Twelve Mile Road
Warren, MI 48093

Program Office/Center

Tailored Educational Programs Services (TEPS)

Other Organizations

Michigan Department of Education
Michigan Department of Labor
Michigan Department of Commerce
UAW-Ford National Development and Training Center

Contact

Lyle R. Robertson, Provost
(313) 445-7000

Purpose of the TEPS Program

Tailored Educational Programs and Services (TEPS) is a community service that Macomb Community College offers to local business and industry. The college uses the expertise of its faculty and staff, its sophisticated equipment, and its educational know-how to service the unique educational needs of individual companies. These customized courses vary in duration from a few hours to several months and can be conducted either at the company site or at one of the college's campuses.

TEPS programs have covered hundreds of subjects such as computer graphics, numerical control, word processing, robotics, security, management, industrial supervision, metallurgy, welding technology, and labor relations. The courses may be either for credit or noncredit. Employers have used TEPS to upgrade skill levels or retrain existing personnel at all levels--apprentices, first-line supervisors, management staff, or clerical workers. Requests for customized training services are coordinated through the office of the academic vice-president, who calls upon the appropriate persons with the required expertise to design and provide the requested special program. By involving the academic vice-president, all of the college's resources are available to meet industry's special training needs. This approach also ensures that someone with authority is able to restructure or reassign programs, if necessary.

A sampling of the types of upgrading and retraining programs provided by TEPS, and the kinds of companies served, include the following:

- o Industrial safety training for local divisions of the General Motors Corporation

Excerpted and adapted from *Retraining and Upgrading Workers: A Guide for Postsecondary Educators* (Warmbrod and Faddis 1983, pp. 67-87).

- Upgrading of skilled and semiskilled employees in electrical and hydraulic systems, human relations, and supervisory training for the Cross Company

- Upgrading of skilled and semiskilled employees in electrical systems and preapprenticeship preparation of unskilled workers for the Hydra-Matic Division of General Motors Corporation

- Upgrading of die sinker journeymen for the Chevrolet Motor Division of General Motors Corporation

- Upgrading of electrical journeymen for the Ford Motor Company (Sterling Plant)

- Seminars on revision of office and secretarial practices for the Bon Secours Hospital

- Effective management skills for retail managers for the Lakeside Mall

Background of the Program

Macomb Community College (MCC) lies just to the north of Detroit and is strongly affected by the economic forces that impact on the Detroit metropolitan area. At MCC, more students enroll in the college's 90 occupational programs than in the liberal arts transfer curriculum. The college has a long tradition of serving the needs of the business, health, and industrial communities. MCC currently serves over 600 employers, and provides related instruction to 40 different trade areas for 1,600 apprentices. MCC also has provided retraining for many displaced employees. For instance, in school year 1980-81, the college enrolled over 1,200 students who were sponsored by the Trade Readjustment Act.

MCC's approach to providing customized training and retraining programs is very flexible. When an opportunity for leadership, contribution, and involvement in economic development activity occurs, MCC's president (in consultation with his key administrators) creates new structures and selects staff from within MCC who have the needed expertise to do the job. This approach enables the president to utilize resources anywhere within the college to accomplish the objective of the activity. Other staff persons then fill in for the person drawn out for the special assignment. This approach provides interesting and stimulating new experiences for the persons involved. This flexibility also enables the college to provide community leadership when funds are not available for new areas of outreach and service.

The college has served as a catalyst to mobilize the appropriate persons, organizations, and agencies in the community to address the area's serious unemployment situation and to plan for economic development. This was done through MCC's--

- Task Team on Economic Development,
- Center for Community Studies,
- economic development workshops,
- special training programs,
- community surveys,
- preparation of education and publicity materials, and
- provision of technical assistance.

The college also has assumed a leadership position in the state community college system by preparing materials on community college roles in economic development, conducting workshops, coordinating joint

efforts with other colleges, and developing high-technology programs.

Task Team on Economic Development

Eight MCC college administrators and faculty members with business, industrial, and community experience were asked by MCC's president to focus their talents and the resources of MCC on the economic restoration and development of the Macomb area. The group devised plans for greater college participation in area economic development activities, in planning and training for new and expanding industries, in presentations to and workshops for community economic development groups, and in providing consulting services to such organizations. One of the group's objectives was to encourage and facilitate cooperative economic development efforts countywide.

The Center for Community Studies

MCC has provided a public service and information resource for Macomb County by establishing its Center for Community Studies. The center serves local and county governmental units, social service agencies, and companies whose work benefits local residents. The center also provides the services of MCC staff and other experts in many disciplines to work on specific community research or development projects on a short-term, intensive basis. Access to the college's faculty enables the center to apply a broad spectrum of knowledge and technical expertise to a variety of community projects. The center monitors economic and social conditions of Macomb County and consults on various community development projects.

The center has undertaken a number of projects. It served as the research arm for the Task Team on Economic Development when the team undertook a public opinion survey of Macomb County residents. The center provided consultants on economic development issues to the South Warren Research Council and conducted studies on behalf of local community groups. It also provided a census analysis for the Warren Planning Commission and conducted a study for Mt. Clemens city officials on the effect of tax abatements on that city's economic structure.

Macomb Area Work-Education Council

One of the local organizations in which the college actively participates is the Macomb Area Work-Education Council. The major emphasis of the council is to enhance economic development. The council provides the vehicle for bringing leaders in business and industry together with educational leaders so that they can work toward common goals.

A key committee in the council is the Economic Development Committee. This committee is chaired by the academic vice-president of MCC, who also serves on the Executive Board of the council. The committee works closely with the three area chambers of commerce. The committee is particularly concerned with the retention of industry and the retraining of workers. It has conducted an industrial retention survey of selected employers and is developing an inventory of training resources.

Another service of the Work-Education Council was its survey of the training needs of the 200 economic development corporation members in the county. MCC was involved in this survey and subsequently conducted workshops for such public officials.

Economic Development Corporations

MCC serves the needs of local economic development corporations when requested. One example of this service is the training workshops for economic development corporation members conducted by the college.

Each community with legal jurisdiction has the authority to establish an economic development corporation. Members usually are appointed by the city councils or township boards. Their main activity has been to establish tax abatements to attract industry to their particular community. This practice has been somewhat controversial, because communities in the same area compete with each other to lure a company to move a few blocks to gain a tax advantage. Proponents of the practice say that such tax savings to a company enables it to survive or expand and hire more workers.

Other Linkages

MCC interacts with many organizations and agencies. It is in close communication with chambers of commerce in the county, with other colleges interested in cooperatively addressing economic development needs, with high schools and area vocational schools, with Private Industry Councils serving JTPA programs, and so forth.

Continuing Education Division

Courses and programs of general occupational and professional interest are offered in the Continuing Education Division. Individuals can enroll in courses in order to meet their own upgrading and retraining needs. This division offers courses to develop business skills, technical classes, and health service classes. It also houses the Small Business Institute.

At MCC the movement in continuing education has been toward professional development courses and away from recreational courses. With the opening of the new Allied Health building on campus, there will be a strong endeavor to meet the continuing education needs of health professionals. Courses offer continuing education units (CEUs) and community service (CS) credits, which are not applicable toward a degree.

The difference between Tailored Educational Programs and Services (TEPS) and continuing education courses, is that the former consists of contract or customized courses for a company. Continuing education courses are those designed to meet the general community's upgrading and retraining needs.

The Small Business Institute

Since 1977, MCC has offered to meet the needs of individuals who own, or are planning to start, small businesses. The institute provides practical information on how small businesses operate. This information is disseminated through noncredit short courses, seminars, and conferences.

Regular Catalog Courses

To a large degree many of MCCs regular technical programs have been developed in response to expressed needs by business and industry. These are programs leading to a degree or diploma. They are closely monitored and advised by industry; therefore, the college's administrators believe that the programs meet business and industry's training, upgrading, and retraining needs. These programs are continually modified and adapted to do so. Individuals may enroll in these programs on their own, or business and industry may pay the tuition for their employees.

The robotics program at MCC is a good example of a program of study created in response to industry's needs. This program was established in cooperation with the Society of Mechanical Engineers. Two years were spent in planning the curricula and in selecting the equipment. Students who have enrolled include employed mechanical engineers who want to acquire robotics experience in anticipation of job trends in the state.

In the first 2 years of operation, the program graduated 41 technicians in robot-

ics, all of whom were quickly hired by industry for high-paying jobs. The robotics program currently has nearly 400 students, ranging from high school graduates to engineers retraining for a new high-technology world after losing their jobs as the result of cutbacks and technology changes in the automotive industry.

To meet the needs of prospective robotics employees as well as industry, the college planners built flexibility into the program. In order to retrain people who have had technical jobs but are currently unemployed, college staff members study students' backgrounds and then plot individualized programs. MCC has classes in such aspects of robotics as electronics, hydraulics-pneumatics, blueprint reading, drive linkages, metering, welding, and numerical control. In the view of college administrators, such program versatility is needed because someday soon computers will help design robots, help make them, and then direct them in manufacturing products.

In response to industry's changing needs, MCC has integrated computer-aided design and computer-aided manufacturing (CAD/CAM) into its traditional design and drafting curriculum. This exemplifies the college's commitment to provide industry with employees who have up-to-date skills. College staff selected equipment that could perform mechanical, architectural, and electronic design equally well. The curricula in which this equipment is used combine conventional drawing theory and methods with the use of an interactive CAD/CAM system.

Under the college's Applied Technology Programs, apprentices, sponsored by their employers, take courses to upgrade their skills in design and drafting. Apprentices receive classroom instruction at MCC and computer graphics training at the employers' sites. This enables MCC to share its own CAD equipment and limited training facilities with local industry.

Organizational Characteristics of the Program

Funding

The state of Michigan has limited funds for helping new or expanding industry receive free training services when new jobs are created. The main funds are administered by the Office of Industrial Training in the Michigan Department of Labor. Lesser funds are available through the Vocational-Technical Education Service in the Michigan Department of Education. This agency provides grants to eligible postsecondary and secondary institutions that operate customized training programs for (1) new and expanding companies, (2) companies that are considering leaving a community due to their inability to hire a trained work force, and (3) companies that are experiencing structural unemployment but could retain employees if the workers were retrained. The main need in Michigan is to retain present industry and help it to prosper.

Macomb Community College has been skillful in maximizing its resources to serve the economic needs of the area by reassigning its people and by forming special task forces and centers. Generally, this has been done without any significant expenditure of funds. The college also helps the community by serving as an economic development catalyst and by providing other organizations and agencies with opportunities to contribute to economic development activities. Such leadership provided by the college is considered part of its mission.

For most customized training offered through the college, the company pays the cost. Payment may be made directly to the college or through a company tuition reimbursement program for employees.

Staff and Facilities

The president of the college has provided strong leadership in using the resources of the college to contribute to the economic development needs of the community. Despite strong constraints upon funds for education, he has skillfully involved the college and has used its expertise without incurring any significant additional costs to the college.

The president has been the key person in identifying area needs and opportunities, making the contacts and proposals, and mobilizing his staff to respond. Two noteworthy examples are MCCs major involvement in the (1) Ford-UAW (United Auto Workers) National Development and Training Center to provide counseling, training, and placement services for both active and unemployed workers and (2) start-up training provided for Volkswagen of America.

Many persons throughout MCC have been key agents in establishing relationships with business, industry, and labor. The president has exhibited strong leadership in uniting the college with industry. The deans for continuing education, technical education, and business/public service have actively worked with industry on companies' upgrading and retraining needs, as do various associate deans. The upgrading and retraining system is wide ranging and makes available the human resources of the whole college. Top management personnel decide what activities will be pursued and who will be involved.

Because the laboratories and classrooms on campus are occupied by regular credit courses during the day, some customized courses are offered at the company's plant or other job site. This is usually preferred because it utilizes the equipment to be operated by the workers while they are there. However, in a situation where only the college has the needed equipment (such as in providing training in robotics), customized classes are scheduled late in the evening and on weekends, the objective being to provide customized training where and when the company wants it. With the appropriate college administrator paving the way, support units within the college respond flexibly to the company's need, even when doing so requires departing from regular procedures.

If the college does not have the specialized equipment or training materials that are needed, they may be supplied by the Michigan Departments of Labor or Education, or they may be furnished by the company. The college does not have funds budgeted for the purchase or rental of special equipment or materials.

Instructional costs of customized programs are borne by the company or governmental agency sponsoring the training, upgrading, or retraining.

Program Design and Delivery

Since MCC is responsive to unique opportunities as well as to regular requests for retraining from area companies, there is no single established pattern for program design and delivery. The approach has been one of creativity and flexibility to meet the area's economic development needs and industry's requests for upgrading and retraining.

Needs Assessment for Upgrading and Retraining

Much of the college's work in upgrading and retraining is done cooperatively with other organizations. For start-up training, the Michigan Department of Labor may do a needs assessment. MCC's Center for Community Studies conducts various kinds of surveys of community education needs, such as the public opinion survey of Macomb County residents in December 1981. A joint agreement establishes what is to be accomplished with particular companies.

Training Agreements

Formal training agreements do not exist, although there may be a letter of understanding. However, in major efforts, such as the provision of the college's services to the UAW-Ford National Center for Development and Training, proposals are prepared.

Course Development

To reduce program costs, previously developed course material is adapted to each company's training needs. Because MCC's regular credit courses are developed in close cooperation with advisory committee members from industry, usual adaptations have been--

- to fit the course to a particular time frame,
- to discuss the specific equipment used by the company, and
- to teach the specific competencies desired.

To develop the orientation and training program for Volkwagen of America, MCC worked jointly with the company, the Michigan Department of Labor, and the Michigan Department of Education. The college then did additional work to refine the instructional materials. This major undertaking was financed with funds from both state-level departments.

Selection of Instructors

Current faculty members usually are the college's first choice to instruct TEPS or continuing education courses. When an opening for extra teaching occurs, the job is posted and faculty members have the first opportunity to apply. Many times it hasn't been possible for current faculty members to particiapte because of scheduling conflicts. Also, faculty members may choose not to participate because the continuing education salary rates are lower than for regular full-time teaching.

The Continuing Education Division, as well as each occupational unit, maintains a pool of qualified persons for part-time teaching. For particularly important assignments, regular full-time faculty members may be pulled from their normal schedules and reassigned. This occurred when an associate dean was assigned to handle the special Volkswagen of America orientation and training effort. For high-technology courses, the college has used its own instructors or an expert from the company requesting the course. As in other aspects of course planning and execution, instructor selection and orientation are done in close coordination with the company requesting the training.

Outcomes

Volkswagen Personnel Orientation and Training

Macomb Community College took a dominant role in providing start-up training for workers at the new Volkswagen of America plant in Sterling Heights, Michigan. The college developed and implemented training modules and established assessment procedures for an estimated 4,000 present and future employees of the company.

MCC came to the attention of key people at Volkswagen through a number of events and needs. Many of the first employees at the new Volkswagen plant were former MCC students. Also, the college held an open house so that Volkswagen executives could talk with the department heads at the college. This enabled the company to see and evaluate the educational resources there. At this time Volkswagen was looking at various educational institutions to provide apprenticeship programs.

The Volkswagen company was well served by strong cooperation among various state and local organizations and agencies. The Michigan Department of Labor defined the training the company would need and developed a training manual. This manual contained descriptions of programs and a broad outline of curriculum content--not instructional materials. It also provided training films.

Volkswagen selected MCC to develop the actual instructional materials and teach the program. The college applied to the Michigan Department of Education for a grant to cover the salary of a program coordinator from Macomb to develop these materials and direct the training. The grant was received and the college assigned this role to the associate dean for business/public service. Further support to develop a curriculum was received from the Michigan Department of Labor. Throughout the process, the associate dean used Volkswagen supervisors along with professional teachers in a team teaching approach.

The State Department of Labor's master plan training manual also needed refinement. MCC faculty members were identified to do this. This work, which took 3 months, was financed by the Michigan Department of Education and Macomb. The materials developed included such topics as office administration, training the trainer, hazardous materials control, robotics, welding, apprenticeship training, security survey study, and decision making and problem solving.

Unfortunately, Volkswagen deferred its production date, putting the educational program on hold. However, this strong cooperative endeavor has provided good working relationships between the company and the college. Plans have been made so that when Volkswagen again starts production, Macomb will provide the needed educational services.

Robotics Training for the Downriver Community Conference

Robotics training is being provided by Macomb through an agreement between the college and the Downriver Community Conference--a consortium of 15 communities downriver from Detroit and outside the MCC district. Wayne County Community College, in whose district the communities are located, conducted the assessment of candidates for the program and provided the basic skills development courses for these persons. Graduates of the program will be prepared for such jobs as robot installers, robot programmers, robot application technicians, robot design technicians, and robot mechanics. Those completing the course will receive 50 credits toward an associate degree and a certificate from the Society of Manufacturing Engineers. The robotics program includes 17 specific technical courses ranging from blueprint reading and electric theory to fluid and pneumatic power and electrical automation.

The Downriver Conference has a $3.8 million grant from the U.S. Department of Labor that is specifically intended for use in retraining people from four local manufacturing facilities that were shut down. The majority of participants are unskilled laborers who need to be retrained quickly so they can return to work.

The college expedited the training process by compacting its regular robotics program. The Downriver program is an intensive 36-week, 30 hours a week course. To ensure that students in the course can handle the pace and the material, there is a thorough 2-week pretesting period. Tests measure the applicants' retention in mechanical aptitude, space relations, abstract relations, mathematics, and English. Of particular interest is the level of the applicant's desire for and commitment to the program. From nearly 1,700 people, 25 were selected for the first class in

the program. Students whose unemployment benefits have run out receive a minimum-wage stipend while in class to enable them to finish the course. At the completion of the course, the college and the Downriver Conference will jointly operate a "Job Fair" that will bring persons from firms using robotic technology to campus to meet the students.

An associate dean for technical education at MCC is in charge of administering the program. With the support of the academic vice-president, he has been able to modify such things as length and timing of the course, use of faculty and facilities, registration, books, and equipment to meet the special need of the Downriver program. With the strong backing of the president and vice-presidents, the rest of the college provided considerable flexibility and cooperated readily to make the program work.

Customized Programs for General Motors

The college has been involved in many programs and cooperative education experiences with General Motors (GM).

GM "purchased" an automotive instructor for a year from MCC to assist with an intensified dealer mechanic training program. The instructor received extensive training from GM in state-of-the-art technology and is now teaching dealer mechanics. This benefitted the college by keeping its automotive service classes up to date. The use of college facilities and instructors is doubling the number of dealer technicians who can be trained to handle the latest GM technology. MCC is one of about 60 community colleges nationwide that General Motors plans to involve in this activity.

The college also trained 28 people from Saltillo, Mexico, to work in a Mexican General Motors plant. The project involved the services of an MCC instructor who is bilingual and well-trained in the subject matter. The concentrated instruction, using all GM materials and following GM specifications, ran for 4 1/2 weeks at the college and was integrated within a longer period of orientation and training by the corporation.

UAW-Ford National Development and Training Center

The 1982 Ford and United Auto Workers (UAW) bargaining agreement contained a provision for the establishment of a UAW-Ford National Development and Training Center. The program, the center, and its activities are to be funded by a contribution of five cents per hour worked per employee--an estimated $8 million to $9 million a year. This is an historic agreement in that upgrading and retraining is to be provided for both active and laid-off workers. This is the first time that a major American corporation has financed the retraining of laid-off workers so that they can achieve employment with that company or with any other employer.

The UAW-Ford National Development and Training Center is located on the campus of Henry Ford Community College in Dearborn, and is the national headquarters where pilot programs are tested and disseminated to other plant locations where needed throughout the country. This helps ease the problems of both employees and employers when workers are displaced by new technologies, new production techniques, shifts in customer product preference, and plant closing.

When the president of Macomb Community College learned of the provisions for this National Development and Training Center, he submitted a proposal to Ford and the UAW on how MCC could make a substantive contribution to the establishment and operation of this national center. He proposed that the college assist the center in the development, testing, and refining of models for counseling (with emphasis on career guidance, but not overlooking total human needs), as well as training and retraining of the hourly work force and supervisory personnel. His proposal was

accepted and persons at the college with the required expertise were selected to work on the project. MCC is working closely with Henry Ford Community College, on whose campus the center is located, and who will be providing the first phase of training. The objectives of the work to be done by MCC for the UAW-Ford National Center include--

1. Developing, testing, and modifying a counseling model for active and laid-off employees that incorporates career opportunities, aptitude and interest assessment, human development opportunities, career guidance, job placement opportunities, and job search techniques where appropriate;

2. Developing a model for the training of in-plant facilitators;

3. Developing processes and forms for identifying future educational/ training needs that can be addressed in phase two of the project;

4. Identifying local training resources that can be used to supplement existing in-plant training practices, and implementing the process;

5. Identifying systems that can link employment opportunities across states (e.g., job placements, career planning, and training locations);

6. Establishing communication vehicles that will provide for knowledgeable decision making on the part of the target populations;

7. Developing a model for implementing a training program;

8. Developing a model for formative and summative evaluation of the processes as they are implemented;

9. Developing the specifications and a proposal for the implementation of these models in phase two of the program;

10. Identifying, informing, and assisting participants from the Macomb Community College and Ford Trade Readjustment Act (TRA) program;

11. Involving the Michigan Department of Education; and

12. Establishing selection criteria for participants at the pilot sites for the purposes of testing and refining models.

All of these tasks will involve in-plant consultation and participation. Also, model development and testing will be responsive to both active and laid-off employees.

At the formal meeting finalizing the agreement among key parties from UAW, Ford, Macomb Community College, and Henry Ford Community College, the college representatives described the general approach to counseling by life career advisors and the content of the first two training programs. The first two training programs were Tool and Die Detailing and Accelerated Pipe and Pressure Vessel Welding.

This venture demonstrates the value of a quick response to an opportunity to serve in an important undertaking, and it reveals close cooperation and working together by key groups.

"Sunrise Seminars" for Retailers

The college conducts a series of "Sunrise Seminars" for retailers at Lakeside Mall in Sterling Heights. These classes are taught from 8:00 to 10:00 on Thursday mornings, and provide continuing education for retailers. In addition to the professional development the classes provide, the store owners benefit from the regular interactions.

Summary

Macomb Community College has made very creative use of its resources to serve the economic development needs of its area. Its administrators have been alert to opportunities to serve and have been successful in involving the college in activities that make a significant impact on the economic health of Macomb County and beyond.

As the state of Michigan further develops its system to help attract new and retain old industry, better coordination and cooperation among various state and local agencies should result. As community colleges become more involved as key team members, MCC will be able to play a larger role in the process. A crucial need is additional funding to enable the college to go beyond its present mission and establish a centralized unit to provide upgrading and retraining services for industry.

State Technical Institute at Memphis

College

State Technical Institute of Memphis
5983 Macon Cove
Memphis, TN 38134

Program Office/Center

Business, Industry, Government (B.I.G.) Division

Other Organizations

Tennessee Department of Economic and Community Development
Private Industry Council
Chamber of Commerce

Contact

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Purpose of the Program

The Business, Industry, Government (B.I.G.) Division of the State Technical Institute at Memphis (STIM) provides customized training to industry. STIM established this separate division to be responsible for developing linkages with business, industry, and government agencies in order to cross-train and upgrade workers. B.I.G. training provides regular college credits for catalog courses and/or courses designed to meet the needs of professional and industrial groups. The division has the flexibility to provide whatever training is needed, where and when it is desired, at minimal cost.

The reason the institute grants credit for all courses is that the reimbursement policy from the state is based upon the number of credit hours generated. Consequently, STIM administrators make certain that courses for industry meet state standards so that credit hours can be generated. This does not appear to interfere in any way with the institute's flexibility to customize courses for industry.

Background of the Program

The State Technical Institute at Memphis (STIM) has become noted for its commitment to serving industry and for its flexibility in delivering high-quality, on-target technical training in a broad spectrum of technologies. STIM's clearly defined mission statement places a high priority on cross-training and upgrading of adult workers, much of which is offered through the institute's special Business, Industry, Government (B.I.G.) Division. Since its establishment in 1975, the B.I.G. Division has trained more than 16,000 workers in Memphis and west Tennessee.

The organization of the institute is geared to respond to the upgrading and retraining needs of industry. The strong

Excerpted and adapted from *Retraining and Upgrading Workers: A Guide for Postsecondary Educators* (Warmbrod and Faddis 1983, pp. 89-122).

institutional commitment starts at the top, and follows through to the rest of the organization.

A dominant feature of the institute is its flexibility, with all units recognizing the need to be responsive in meeting industry's needs for customized training. The unique flexibility in the B.I.G. Division's budget, management structure, and operating processes is a good example of this feature.

The institute conducts several other programs that relate either directly or indirectly to upgrading and retraining. These include--

- *The Servicemen's [sic] Opportunity College.* In recognition of the problems confronting many active-duty servicepersons in meeting their educational goals, STIM has joined the Department of Defense and individual military services in becoming a Servicemen's Opportunity College. The program includes granting credit for correspondence courses, examination programs, service schools, and service experience where there is a credit relationship between training already acquired and the technology being pursued. STIM maintains an office at the Memphis Naval Air Station for the program.

- *The Navy Campus for Achievement (NCFA).* As part of STIM's effort to serve the total community (including the U.S. Navy--the largest employer in southwestern Tennessee) the institute has joined other 2- and 4-year certificate and degree-granting institutions as participants in the NCFA program. The program involves a standard letter of agreement between the navy student and the participating school. The agreement provides for the evaluation of and credit for non-traditionally acquired knowledge and the acceptance of transfer credit earned at other institutions.

- *Cooperative Education.* Cooperative Education is a program in which the institute and the local business community combine efforts to provide students with relevant training experiences. The co-op program combines the lessons of both the school and work environments. It helps students see the relationship between their classroom work and their future occupations.

Organizational Characteristics of the Program

Funding

A certain amount of funds is budgeted each year for the B.I.G. Division to provide the salaries of its administrator, coordinators, and support personnel. The institute itself then supplies the funds needed for industry training. However, if the division finds that it has provided services to so many industries that its funds are low at the end of the fiscal year, a request can be made to the president for more funds. (To date, the president has always been able to reallocate funds to continue the operation of the division.)

A company compensates the institute for the number of persons taught and the credit or contact hours. The actual payment method varies according to the individual company's policy. Sometimes a company pays tuition costs directly. In other cases, a company has individual employees pay their own tuition; after the employees complete the course, the company reimburses them. The STIM business office is flexible and will accept payment in a number of ways (e.g., through a purchase order, a letter of agreement, or sometimes on a contract basis).

With regard to financial arrangements with STIM, the companies' policies vary, as the following examples illustrate:

- International Harvester (IH) generally followed a tuition refund policy; that is, the employees paid STIM and the company reimbursed them. In addition, IH had several courses in Management Development conducted for which it paid directly. The method of payment depended on the nature of the course. If a course was required by the company, the company paid STIM; if a course was voluntary, the employees paid STIM.

- The Memphis Light, Gas, and Water Division (MLGW) normally follows a tuition reimbursement program. The institute has found that it is simpler for MLGW to give STIM a letter stating that it will pay for the cost of tuition and textbooks and then allow the STIM business office to invoice MLGW at the end of the month.

- The Kellogg Company has a dual approach. For one group in the maintenance area, the company paid for the course and paid the employees for the time spent in the course. For a group in the technical area, Kellogg paid STIM directly.

Sometimes the institute works with a company and contracts on a cost-recovery basis. STIM figures out a program's costs, using a formula based on the nature of the program and the amount of money that STIM must spend on it. In most cases, the standard $9 per hour charge covers neither the cost-recovery expenses nor the amount accrued in tuition. In such cases, state funds subsidize the difference.

Another policy of the institute is that if a company has at least 15 potential students, STIM will deliver the training on the basis of the regular tuition rate per student. If the company does not have 15 people, it still must contract for the cost of 15 students' tuition. STIM normally writes a letter of understanding that explains what the cost to the company will be.

In terms of payments for instructors to teach or develop courses, these resources come from the institute's general instructional fund. The institute administrative staff members know at the beginning of a year how much money the institute has, no matter how many industries it serves. However, if additional needs to work with industry arise, the head of the B.I.G. Division has indicated that additional funds could be acquired.

Staff and Facilities

A unique feature of STIM's management structure, of course, is the existence of the B.I.G. Division as a discrete unit. The division is housed in the Evening and Special Programs (ESP) area. The division head reports directly to the area dean. The B.I.G. Division has three coordinators of training services: one for business, one for industry, and one for government. The division has two instructors who function mainly as course developers. One is primarily in charge of technical programs; the other is in charge of business programs (particularly management development and human relations).

Under the general supervision of the dean of evening and special programs and in coordination with the dean of instruction, the B.I.G. Division head has a number of important responsibilities. The major ones are as follows:

- Respond to training needs by submitting proposals to business, industry, and government agencies in order to assist in cross-training and upgrading of personnel.

- Maintain close liaison with other instructional divisions to expedite course development and staffing.

- Ensure that any training project falls within the institute's role and scope.
- Assist coordinators in evaluating instruction.
- Maintain external contacts in order to keep current with clients' needs.
- Develop plans for future needs for personnel, space, and budgeting requirements.
- Ensure that part-time instructors are given necessary orientation for on and off campus courses.

Each of the three functional areas of the B.I.G. Division is served by a coordinator, whose role is to maintain liaison with business, industry, or government organizations and agencies. The following major duties of the industry coordinator are typical of the responsibilities in the other two areas as well:

- Assist the agencies in developing training programs needed to maintain present levels of employee proficiency.
- Assist agencies in developing supplemental instructional programs for upgrading employees.
- Develop course outlines in cooperation with the relevant instructional division head to meet the needs of the agencies.
- Coordinate the use of on-site training facilities whenever possible.
- Ensure that ongoing courses and instructional evaluations are performed.
- Assist in recruiting instructors in outlying areas.
- Maintain necessary contacts with professional and industrial societies to be aware of new technological developments.
- Assist in data gathering for periodic training needs assessments.
- Maintain complete records of all courses conducted within the area of responsibility.

Scheduling, for the most part, is not a major problem. The institute has demonstrated its flexibility in this area and has a well-deserved reputation for flexibility. The only complication has been that businesses and industries often do not operate on the same schedule as the regular academic calendar. Therefore, some "special arrangements" with regard to class scheduling and tuition payment have been worked out internally with the STIM business office so that the training calendar of one group does not conflict with the calendar of the other.

Supplying equipment and materials does not seem to be a problem for STIM. The equipment used in the field depends on the particular class. For customized courses (such as International Harvester's Measuring Instruments training program), companies frequently use their own equipment. At times when electronics classes are scheduled for lab work, the institute transports its own portable equipment to the particular company. In the past, certain equipment for physics instruction has been transferred temporarily from the campus laboratory to the field site.

One problem common to STIM and other organizations is that equipment and materials must be kept up to date. Obsolescence is an ongoing concern. Therefore, STIM will provide seminars or training programs when companies or the institute purchase new equipment for use in the field. Updating instructors goes hand-in-hand with updating equipment and materials.

Another problem area has been with computers--not in finding the equipment itself, but in finding the time to use it.

The current solution, common to many organizations, has been to extend the computer lab hours to late at night and weekends.

Nature of Services

According to the data from the STIM's Admission and Records Office, the B.I.G. Division has been extremely active. Between 1975 and 1980, more than 9,000 people in the west Tennessee area received special training through the B.I.G. Division. Recipient organizations range from small business operations to major national corporations.

Several advantages for industry are inherent in B.I.G.-operated training. These include the following:

- A savings in training costs
- The provision of consultation and needs assessment, usually at no cost
- Tailor-made courses taught at the employee level
- The granting of college credits to employees for completed courses
- A savings in time and transportation when training is provided on site

The institute also benefits from these training efforts for industry. Full-time faculty who teach courses along with part-time personnel from industry often develop a broader outlook on their field. The exposure keeps instructors abreast of the latest developments, techniques, and equipment. Since training usually means pay raises and/or promotions for the students, they too are apparently more motivated in these settings.

By addressing its responsibilities in cross-training and upgrading employed people, STIM participates in retaining a trained work force in the region. At the same time, the specialized B.I.G. training serves as a built-in student recruiting tool for the institute. Many persons who receive training on the job later come to the campus for degree programs. Through contact with business, industry, and government organizations, the institute's training programs also open doors for the job placement of many students and graduates.

Staff members in the B.I.G. Division spend much time following training leads from a variety of sources. Because the current economic slowdown has caused many small industries to use educational services in efforts to survive, the institute is literally "on the scene" as rapidly as possible whenever a possible need is evident. The institute's flexibility is evident in its efforts to teach courses at practically any time and at almost any location in west Tennessee.

In addition to the proactive stance of the institute, industry management staff members responsible for training are invited to review the institute's catalog and describe to B.I.G. representatives the courses they feel their company's employees need. In a reactive mode, the institute's representatives help weigh "the want against the need." The B.I.G. staff members plan workshops, seminars, and courses throughout the region.

Operating Schedule

The B.I.G. Division lists 21 major steps in the delivery of courses taught for business, industry, and government. The list is a useful summary of the process of upgrading and retraining as conceived by the institute. Because this list is so relevant, it is given here in its entirety.

1. Contact is made with company indicating training interest:
    a. Inquiry calls from companies in response to mail-out literature, advertisement, phone surveys, and word of mouth.

b. Leads from (external) instructional or STIM staff.
c. Industrial Outreach
d. Industrial Training Service.

2. Coordinator refers to existing company contact files or placement reports in order to check previous contacts with company. Update of information from appropriate outreach department is gathered.

3. Appointment is made with proper company official, i.e., training director, personnel director, plant manager, etc.

4. Coordinator calls on company to provide training information and assess needs. At this meeting, the following information is explored:

   a. Has in-house training occurred?
   b. Nature of training needed?
   c. Level of training?
   d. Catalog course--special tailored course? Prerequisites?
   e. Number of students to be trained.
   f. Site selection--Does the company have proper training facilities?
   g. Time frame for training--short-term or ongoing.
   h. Approximate costs.
   i. Method of payment.

5. Action report is forwarded to Industrial Outreach

6. Coordination between B.I.G. and the Instructional Department Chairperson beings. Discussion of--

   a. Curriculum adjustment and/or development.
   b. Textbook.
   c. Instructor recommendation.

7. Textbooks and materials are ordered through the bookstore.

8. Instructor is considered:

   a. Department head recommendation.
   b. Existing B.I.G. instructor.
   c. Emergency hire.
   d. New hire. If it is a new hire the following steps are taken:

      - A job description is written and a personnel requisition is sent to the Personnel Department.
      - Interview appointments are arranged by Personnel Department
      - Interviews are held.
      - A recommendation to hire is made. (Salary must be determined before recommendation is made in case of a new hire or emergency hire.)

9. After the selection of an instructor, several items are determined:

   a. Salary--pay scale.
   b. Travel status.
   c. Overload.

10. The Instructional Department Chairperson approves the recommendation of the instructor (via assignment card).

11. Course Information Sheet is prepared.

    a. If a new course, a new course number must be obtained from Admissions and Records Division head.

12. Meeting is arranged for instructor to visit company to finalize training. (Optional)

13. Confirmation is made with company to finalize costs, method of payment for course and books, etc.

14. Instructor orientation is conducted:

    a. Contract is signed.
    b. Instructor packet: Catalog, text, rollbook, parking sticker, pay schedule, department policies.
    c. Record to maintain: Class rolls, pay sheets, final grade rosters.
    d. Course outline--Clerical services.

15. Transporting of equipment is arranged.

16. Information sheet is signed, approved, and distributed.

17. Registration is conducted--class starts up:

    a. Coordinator oversees or conducts registration of students.
    b. Memo is written if assistance is needed from ESP Business Office
    c. Applications are assembled.
    d. Books are checked out of bookstore.

18. Pre-registration is conducted:

    a. On-site registration.

        - Text delivered, sold, or distributed.
        - Student applications filled out and signed.
        - Class given short orientation as to attendance, credit, etc. Time is provided for questions and answers.
        - Instructor introduced.
        - Instruction begins.

    b. On-campus registration.

        - Room assignment.
        - Parking stickers.
        - On-site steps noted above are followed.

19. Post-registration is conducted:

    a. Registration forms complete.
    b. Company letters for out-of-state students.
    c. Registration to clerk.
    d. Bookstore closeout.

        - P.O.--Cash.

    e. Business Office.

        - Cash--Accounts receivable.

20. Administration of course is attended to:

    a. Student maintenance.

        - Drops, adds, and withdrawals.

    b. Instructional responsibilities.

        - Attendance rolls.
        - Time sheets.
        - Monthly travel.
        - Final grade rosters.

    c. Evaluation of instruction.

21. Company follow-up is conducted:

    a. Insure goals have been met.
    b. Training to continue.
    c. End of training.
    d. Referral to Industrial Outreach.

Additional steps in training conducted for organizations or specific interest groups are as follows:

- A mailing list is procured or compiled.
- Mailing labels are reproduced.
- Site selection is made.
- Course announcements are written.
- Instructor search and hiring is conducted.
- Announcements and applications are mailed out.

- Mail-in registration procedure is followed.

Needs Assessment for Upgrading and Retraining

The B.I.G. coordinators are the persons who go to a potential client and analyze the training needs of their employees. The primary approach for assessing training needs (e.g., those in small businesses) is to become aware of specific local problems. With this information, B.I.G. training developers design courses to respond to very specific needs (e.g., how to prevent local businesses from failing). Over the past few years, the B.I.G. Division has built up a library of information from all over the country on successful training programs. The division is able to draw upon information about many kinds of training needs and curriculum resources as its staff develop or adapt their own courses.

During a personal interview on June 1, 1982, Gary Rowe, the B.I.G. coordinator for business, summarized the process in this way:

> In effect, we will visit a company and will work with them to analyze their training needs. We will look initially at the current level of personnel and at the level to which the company wishes to r e the personnel. . . . We will d out the number of employees, the strategy of the company, and so forth. More importantly, we will determine what the company's goals are, where they want to go, and the steps that it will take to get them there.

An example of this process is in assessing training needs for advanced data processing, an area that cannot be taught effectively unless workers have the basic mathematical foundations on which to build the other skills. When STIM staff members find that a company's employees are deficient in math skills, they go back to the basics and build from there. The institute does not try to be "all things to all people," but instead tries to find out what is needed to teach the employees and to bring them up to the desired level of knowledge.

The institute's administrative staff feel that much of STIM's success is due to the fact that during needs assessment, staff members take pains to analyze the level of student expertise and build upon it. Several STIM leaders have emphasized this role for their instructors.

The institute does not use a formal needs assessment survey, yet it gets the job done. Experience shows that a company generally knows what it needs, but is usually open to other suggestions and ideas. The B.I.G. Division then suggests a class outline or a curriculum. With this, a dialogue ensues between the institute and the company. The company has a great deal of input. Sometimes a catalog course is exactly what is needed, but even then, STIM staff members are careful to listen and suggest, not dominate or dictate. This informal approach to needs assessment has worked well for both the institute and its clients.

Training Agreement for Customized Programs

In most cases, there is no formal training agreement between a company and STIM, although there m: be a letter of understanding relating to payment procedures. However, in start-up training funded through the Tennessee Industrial Training Service (ITS), a contract is drawn between ITS and the institute. It must be signed by the company involved in the training, the institute, ITS, and several other state officials, including the governor.

Course Development

Curriculum development is an ongoing activity. From time to time, this activity

is a responsibility of all full-time instructors, who may be given a nonteaching load for one quarter in order to develop one or two courses. Also, the two full-time instructors in the B.I.G. Division adapt or develop special courses for industry.

According to the head of the B.I.G. Division, nearly all courses provided for industry, including regular catalog courses, are somewhat tailored. However, because the institute does not wish to interfere with course sequence, the tailoring is very focused (i.e., courses are carefully adapted to particular situations and student levels).

The "rule of thumb" is that the institute tries to find an instructor with the expertise to make adjustments (albeit minimal ones) within the course. If the company's needs require adjusting standard courses beyond the maximum of 10 percent change, the institute compensates the instructor either to revise the course or design a new one. The head of the B.I.G. Division explains that "if we are using a catalog course number, we must stay within 90 percent of that curriculum; if we find the company's needs do not fall within that area, we have to get another course number and title to do the training."

A prime example of the customization process is the blueprint reading course developed for International Harvester. A needs assessment determined that although special expertise was needed on the use of measuring instruments, this need for expertise was not enough to warrant a special course. The specific content was therefore integrated into the institute's basic blueprint reading course. During a personal interview on June 2, 1982, Carol McAuliffe, the head of the B.I.G. Division explained, "We enriched and designed the course to meet the employees' needs; namely, to learn how to read and use measuring instruments."

Another example is the Cobol Programming course. When taught on campus, IBM equipment is used; when taught on site (even though 90 percent of the content is intact), the instructor adapts it to the available equipment. Still another example of customization is the incorporation of basic mathematics instruction into such courses as Data Processing, Statistics, and Quality Control.

Usually 2 to 3 weeks are required to set up a tailored course. This varies depending on the instructor's experience, the resources available, and the nature of the services needed. Sometimes it takes less than 2 weeks and sometimes, when data on needs must be gathered it may take a month or two.

Last, when courses are customized, state guidelines regarding credits, classroom, and laboratory time are followed explicitly. Standards are carefully retained for all customized courses.

Selection of Instructors

In hiring instructors, the institute follows the Equal Employment Opportunity (EEO) procedures. The head of the B.I.G. Division indicated that the division normally approaches a particular department first in order to ascertain which full-time staff members have taught a specific course in the past. If an instructor has prior experience, in-depth expertise, and is recommended by the department, the person normally will be selected to teach an off-campus course. Once the instructor is identified, he or she often will visit the company. This step is important, as there is a need for clarification of both the company's goals and the instructor's approach. This orientation with company management also enables the instructor to determine the competency levels of prospective students. Although the final approval of an instructor rests with the B.I.G. Division, the company has considerable input into the instructor selection process.

The B.I.G. Division maintains an extensive list of potential external instructors. It also relies, to a great extent, on company feedback. Because the

institute does not attempt to deliver training beyond its role and scope, the list of potential instructors includes technically qualified people with experience in the field. The overall estimate is that 60 percent of the instructors who teach on-site are full-time campus instructors. For the most part, the remainder of the staff (i.e., part-time instructors) has had previous experience teaching STIM courses. Only about 10 percent of the instructors at any given time are new. They usually are found in very specialized areas (e.g., courses dealing with licensing codes). When such specialized training is offered, the institute looks for instructors with specific expertise in an area and with experience with a particular type of equipment.

On occasion, STIM selects a company employee to teach a class. However, it will do so only if the person can meet the same hiring criteria as a regular staff person. The criteria, therefore, place great emphasis on hands-on industry experience.

Evaluation of Courses and Programs

STIM's president notes that in the past year, STIM has served approximately 70 different industries that employ approximately 12,000 workers. From such statistics, there is little question that the institute has taken an active role in fulfilling its mission. Unfortunately, little "hard data" exist on the effectiveness of specific courses and programs.

There are, however, a number of responses from industry that support STIM's effectiveness. For example, during a personal interview on June 1, 1982, Kenneth Eaton, the coordinator of government training in the B.I.G. Division, claimed a very high degree of success with the management training offerings at the Defense Depot. Twenty-two persons attended classes through the program for almost a year and improved their skills to such a degree that STIM and the Depot are planning to double the size of the program in the near future.

Other positive feedback received by the institute includes cases in which STIM graduates have been specially sought out by local employers.

During a personal interview on June 2, 1982, Ed Hatcher, International Harvester's training manager, claimed that STIM's courses had been primarily valuable in terms of "increasing employees' productivity and improving their attitudes."

Outcomes

International Harvester (IH)

(Prior to its recent closing, the International Harvester plant in Memphis was a major client of the institute. It was extremely disappointing for STIM to learn of the closing of the plant. Although the cooperative program is no longer in effect, it illustrates the approaches taken by the institute.)

The relationship between International Harvester and STIM started off several years ago on a limited basis with 14 apprentices. The trades represented ranged from tool and die workers to plumbers. Although IH conducted some of its own courses, the company was not totally satisfied with them. Since the instructors were "good people" but were not teachers, there was no uniformity in the instructional approach. IH, therefore, contacted STIM and worked out an arrangement by which the apprentices could work on uniform curricula. In the beginning, even though the courses were not customized, STIM coordinators and instructors recognized IH's situation and were able to focus the courses toward specific needs.

Originally, the students attended classes on campus. The classes were set up

at the time the company needed them (i.e., at 7:00 a.m.). This initial scheduling flexibility was extremely helpful to IH since the company could only pay the apprentices for an eight-hour day. (In later courses, the time was set at either 7:30 a.m., 8:00 a.m., 1:00 p.m., 1:30 p.m., or 4:30 p.m., depending on the work shifts.)

The company's tuition reimbursement policy reimbursed workers who completed a work-related course (i.e., if the course was required by the company, IH paid the institute; if the course was voluntary, the employees paid the institute).

Through experience, the company learned that while many workers wished to take classes, the drive from IH to the school was a long one, especially after a full day's work. By bringing instructors to the company, IH was able to open up more classes. The institute also was able to accommodate personnel on all work shifts.

Accommodation occurred in several ways. For example, the company chose to call the basic automotive electronics course Electronics Troubleshooting in order to reflect its specific applicability. The students actually did troubleshooting on a cotton picking machine in the classroom and laboratory. Several supervisors took the course and were then able to work with additional employees. The initial instructor adapted very well to the situation, as did other instructors later on. As a result, several instructors were asked to return. In one case, an instructor was even hired by the company. (The institute was supportive of this, for although it left STIM with one less faculty member, it strengthened relationships with the company.)

The company also had a role in selecting instructors. Normally a potential instructor visited the plant one or more times, met several company department heads, and tried to determine specific training needs. In one instance, an instructor who did not work out was replaced. Although this did not happen often, the company was pleased with this demonstration of STIM's flexibility.

STIM's overall excellent reputation for its hand-on approach to training was an important aspect that sold IH on STIM's services. Another factor was the institute's response time. Whereas response time naturally depends on the situation, STIM was usually able to react very quickly. IH often contacted the institute when there was a quick need to "fight a fire." In one case, a training program was put together in under 2 weeks. In most cases, however, the process took somewhat longer. The company usually started with a basic idea of what it wanted and then explored further ideas with the institute. STIM, in turn, provided a course outline and suggestions for the curriculum to be offered or adapted. IH was very satisfied with this arrangement and with the amount of input it had. It also saw the tailoring of courses to fit company needs as a primary reason for the success of the working relationship between the two organizations.

Because the bulk of the IH courses were taught on-site, much of the courses' equipment came from the company. However, this depended on the particular course. In some of the measuring devices classes, company equipment was used. In electronic classes, particularly those in laboratory situations, the institute transported equipment to the site in a mobile trailer.

Overall, the company was very satisfied with the program. During a personal interview on June 2, 1982, Ed Hatcher, the training manager, said: "I think if I were a training director at a new company, I would start up with State Tech." He described the flexibility of the institute in this manner:

> If I have a class that fits their curriculum, fine. If I have a class that needs to be changed a little bit, they change it a little bit. If I need a class designed for me, they will do that. If I'm on a short-notice situation, they are flexible.

> If I need a class held in my facility, they'll do it. I've had classes that I wanted held on particular days; they'll arrange that. I've wanted one [class] held three days in a row; they arranged it. I think if I could get cooperation from everyone like them, I'd be extremely happy.

Examples of some of the courses the B.I.G. Division offered IH in the last five years included Assertiveness Training for Supervisors, Management Seminar/Stress Management, Blueprint Reading and Measuring Instruments, D.C. Circuits, Introduction to Electronic Technology, Basic Automotive Electronics, Engineering Drawing, Labor-Management Relations, Basic Hydraulics, Metals Technology, Trigonometry and Geometry, Physics of Mechanics, Quality Control Instruments, Basic Technical Math with Calculus, and Fortran Programming for Technicians.

Memphis Light, Gas, and Water Division (MLGW)

The Memphis Light, Gas and Water Division (MLGW), part of the city government, divides its training department into three areas: management development, field training, and general training. The B.I.G. Division conducts training programs for all three areas, including a professional supervisory training program, technical courses in mathematics and electricity for apprentices, job instructor training, maintenance training, communications, blueprint reading, and oral communications.

MLGW opened a new training facility in late 1982 and anticipates that B.I.G. training will provide 60 percent of the courses offered at the new facility. Approximately 90 to 120 students attend B.I.G. classes at MLGW each quarter, depending on training needs. One of the major programs developed cooperatively to train secretarial/clerical staff, support staff, and management personnel is the Potential Supervisor Training program. The two organizations have been working on this program for about 2 years. Recently, the employers became aware that there are not enough females in upper and midlevel management. The program will therefore be conducted again, this time primarily for women.

The institute has provided mathematical and electrical training as part of an apprentice training program. Other programs in areas such as transportation are also being developed. To date, however, one of the most significant programs for apprentices has been in basic electricity.

MLGW had its own in-house basic electricity course, but decided to have STIM assess it to see how it compared to the institute's course. The two courses apparently were almost identical. As a result, the apprentices now receive college credit for the in-house course. It should be noted that if a course is not under the jurisdiction of the Joint Apprenticeship Training Committee, it can be offered either in-house or through STIM.

As a follow-up to these linkages, the institute has evaluated MLGW's entire apprentice program. One positive result is that apprentices now have an incentive to continue their training. They receive this incentive in the form of college credits that lead to an associate's degree.

STIM also has offered job instructor training. The institute took a special, noncatalog course and developed it for trainers. The course taught MLGW trainers how to teach new employees, what methods and materials could be used, how to develop lesson plans, how to operate audiovisual equipment, and so on.

MLGW actively encourages its employees to take courses at night. The company has a tuition reimbursement program that makes it possible for workers to receive training at very low cost. One such night course in air conditioning and refrigeration (beginning and advanced sections) has a participant waiting list. The institute provides the instructor and MLGW provides all the necessary heavy equipment and supplies. STIM uses its own simulators,

but the training lab itself is equipped by MLGW.

With regard to tuition reimbursement, MLGW supplies STIM with a letter stating that MLGW will pay tuition and textbook costs for whatever courses the institute is going to teach. The STIM business office then bills MLGW at the end of the month for the costs of tuition and texts. This apparently works better than having MLGW employees pay their own tuition and then have to worry about having the money reimbursed.

MLGW believes it has an excellent working relationship with STIM and expects this relationship to blossom further when the new training facility is more fully utilized. In anticipation of this, MLGW and STIM are planning a course on the national electrical code; there may be as many as six classes offered.

MLGW also has a high opinion of the institute's responsiveness. During a personal interview on June 2, 1982, John Furmanski, the superintendent of field training, stated, "If it's not in the catalog or course description, if it's not quite what we need, they are willing to put a course together that fits our needs and [that is] accredited at the same time." If a course is not within STIM's role and scope, the institute will put MLGW in touch with a local institution that offers it. MLGW has made use of some of these referrals, but finds it more economical to work directly with STIM for training.

MLGW recognizes that the courses offered by STIM are in no way "watered down." While some of the technical preparation is adapted, the courses themselves are college-level training courses, fully comparable to those on campus. Customized courses have the same attendance requirements for students and the same instructional requirements for faculty.

During a personal interview on June 2, 1982, John Furmanski, the superintendent of field training summarized the successful MLGW/STIM collaboration in this way: "[There is] a mutual respect and understanding to start with . . . and a willingness on the part of the institute to design a program that will satisfy our immediate training needs. If they don't have one on the shelf that fits, they will tailor-make one."

American Hotel/Motel Association

In partnership with the Memphis Metropolitan Chapter of the American Hotel/Motel Association, STIM scheduled selected hospitality management courses. The courses, designed to increase hotel/motel managers' technical knowledge and competency, are approved and certified by the Educational Institute of the association. Upon successful completion of each course, participants receive a certificate of completion from the association and two college course credits from STIM. The courses offered to date include Human Relations-Supervisory Development and Hotel-Motel Sales Promotion.

Small Business Delivery System

Because of the growing importance of training for small business management, the B.I.G. Division is working to provide a forum for sharing information, exchanging ideas, and developing contacts among various groups involved in serving the local small business community. The general purpose of the system will be to provide small business management training, consulting assistance, and technical services. One of the primary courses to be offered will be Fundamental Small Business Management, which will deal with such topics as financial controls, inventory management, risk management, personnel, and sales.

The "cluster program" will be part of this system. It will offer management training at various business locations. The training program requires a minimum of 15 business participants, and will use a team of consultants who specialize in selected areas. Training will focus on practical application of successful manage-

ment techniques. The program will include such topics as advertising, crime prevention, and general management. STIM's role will be to offer classes in promotion, advertising, and marketing. A summer program will include courses in accounting, money management, and the fundamentals of retailing.

American Management Association Extension Institute (AMAEI) Program

As part of the continuing effort to bring training to managers, the American Management Association Extension Institute established a cooperative effort with a number of 2- and 4-year institutions across the country. STIM is one of the cooperating institutions. The following courses have been incorporated into the AMAEI program at STIM: Accounting for Managers, Computer Basics for Managers, Communications for Managers, A Manager's Guide to Human Behavior, What Managers Do, How to Build Memory Skills, and Leadership Skills for Executives.

Memphis Area Credit Executives (MACE)

MACE members are business credit grantors in manufacturing, wholesaling, service industries, and financial institutions. There are over 290 MACE members in west Tennessee. The STIM summer course program for MACE includes the following courses: Economics, Credit Management Problems and Cases, Principles of Credit Collection, Advanced Credit Analysis, Principles of Accounting, and Business Law.

Harmon Industries

This Bolivar, Tennessee company manufactures rearview mirrors for the automobile industry. The company determined that its employees needed additional training in the area of hydraulics maintenance. The B.I.G. Division provided an instructor and lab technician in hydraulics at the Harmon plant for 10 weeks. The training resulted in considerable improvement in the company's product (i.e., a notable reduction in fluid losses--a matter that had been a problem in the past).

Companies with Ongoing Training

Several Memphis companies have developed a continuing linkage with the B.I.G. Division for the following courses:

Company	*Course*
Kellogg	Fundamentals of Maintenance Blueprint Reading and Drafting
Memphis Publishing Company	Human Relations What Managers Do
Universal Life Insurance	Introduction to Cobol What Managers Do
Methodist Hospital (summer program)	Microcomputers Personal Finance

City of Memphis

The B.I.G. Division has conducted training for almost all areas of the city government through a central training office at Memphis City Hall. Courses offered include management training, technical training, and data processing. Specially designed and regular catalog courses have been offered.

Shelby County

The B.I.G. Division has provided specific courses for various offices of the county government, including real estate appraisal training for the County Tax Assessor's Office, as well as various administrative and data processing courses.

Shelby County Correction Center

The B.I.G. Division has delivered training courses for the inmates and staff of the Shelby County Correction Center. Courses for the inmates were coordinated through the Correction Center's counseling department and were part of a CETA rehabilitation grant. The training included human relations, basic math and English courses, and other STIM catalog courses.

Shelby County Health Department

The B.I.G. Division has offered training for county health department personnel in institutional sanitation and medical terminology. This training is ongoing on a seasonal basis.

The Defense Depot

This facility includes three federal agencies at one location: The Defense Depot/Memphis, the Defense Industrial Plant Equipment Center, and the Defense Property Disposal Region. All utilize B.I.G. courses. A number of courses have been offered at the Depot. Recently, a special training program for midlevel managers was established, the Professional Development program. It is based on the midmanagement degree program in the STIM catalog, with the addition of special courses in transportation offered through B.I.G. The division's specially designed training courses and seminars fit the mandated training for various GS-level government personnel.

U.S. Naval Air Station, Millington

The B.I.G. Division has offered catalog and specially designed courses through the U.S. Navy's Office of Civilian Personnel. Through this effort, the Naval Air Station's maintenance department utilizes specially designed technical courses to cross-train and upgrade personnel in electronic controls, glazing, and various technical subjects.

U.S. Army Corps of Engineers

The Federal Women's Program and the U.S. Army Corps of Engineers have collaborated with the B.I.G. Division to offer college credit courses during flextime lunch periods with the objective of enabling more federally employed women to be upgraded to midmanagement positions. Emphasis is on civil engineering and data processing. Catalog courses in math and accounting have been offered, as well as specially designed courses in management.

CETA Preemployment Training

The Job Preparatory Training program, conducted under the auspices of CETA, was a short, 24-hour program held at the Memphis Opportunities Industrialization Center from 8:00 am. to 4:00 p.m. for 1-week periods. The program was designed to provide instruction in practical procedures on how to seek employment.

Transportation Classes

Specialized courses in transportation and traffic management are offered on campus and/or to industry at their site (although all courses to date have been held on campus). Courses offered to the local transportation industry are designed to cross-train and upgrade individuals already employed in the field. Subjects offered include motor carrier rates, international traffic management, physical distribution, freight claims, principles of transportation, transportation law, and warehousing.

Other Federal Training Programs

The National Weather Service makes extensive use of computers for storing and

compiling information. The B.I.G. Division has provided training at the Weather Service in data processing. The U.S. Post Office has utilized the special course capability of B.I.G. in providing data processing training for managers. The Internal Revenue Service's Service Center has utilized the B.I.G. Division to deliver catalog courses in accounting, business skills, and human relations to employees at the training department housed in the center.

Summary

The key factors in STIM's success are easy to identify. They are: institutional committment from "top to bottom," aggressive leadership, flexibility, accommodation, and responsiveness. Supported in its efforts by a competent staff, STIM is an institution that has a complex structure with a clear mission. Thus it is never distracted from pursuing its goals.

STIM clearly pursues its economic development goals in a proactive fashion. The institute does not merely react to local and regional training needs--it actively seeks to "meet them on their own ground." It does not wait for managers or employees of business, industry, or government to show up on the institute campus. STIM takes its books, instructors, and whatever else it needs to wherever there is a request for training.

Another key factor is STIM's focusing of upgrading and retraining in a discrete division of the institute (the B.I.G. Division). As a part of Evening and Special Program area, the division has workable linkages to all other areas and departments of STIM, all of which work toward the same end. B.I.G. Division staff members know what they must do and have established procedures to do it.

Oklahoma City Community College

College

Oklahoma City Community College
7777 South May Avenue
Oklahoma City, OK 73159

Program Office/Center

Community Service Center

Other Organizations

South Oklahoma City Chamber of Commerce
Business and Industry

Contact

Curtis Lezanic
Dean of Career Development and Industrial Relations
(405) 682-1611

Purpose of the Program

Oklahoma City Community College (OCCC) uses a competency-based approach to customizing training services for industry. OCCC serves existing companies in its area, as well as those industries that become established in Oklahoma through the state's thrust for economic development. There is a continual need for upgrading and retraining of local workers, and as more industries are brought into the area, the college's services are increasingly in demand. However, as a community college under the State Board of Regents for Higher Education, instead of the State Department of Vocational and Technical Education, OCCC is not a member of the coordinated economic development team that provides free start-up training for new industries. This team is composed of the Oklahoma Vocational and Technical Education Department, the Governor's Industrial Team, and the Oklahoma Office of Economic Development.

The companies for whom OCCC provides upgrading and retraining finance such services themselves. Financing is made through direct cost-recovery payment for customized training or through payment of their employees' tuition for credit courses.

Background of the Program

Oklahoma City Community College (OCCC) is the largest institution of higher education in Oklahoma City. It was founded in 1972 to serve the southern half of the city. This is a large area containing a sizeable industrial and business component as well as residential neighborhoods. Sixty to seventy percent of the college's students come from Oklahoma City proper; 90 to 95 percent come from the 5-county, Standard Metropolitan Statistical Area. The oil industry has a strong effect on the economy of the city, and in the first half of 1982, that industry was still healthy, as reflected in a low 5 percent unemployment rate.

The college is noted for its accountability and flexibility in responding to the needs of individuals and companies in its service area and beyond. The college's programs, services, and environments

Excerpted and adapted from *Retraining and Upgrading Workers: A Guide for Postsecondary Educators* (Warmbrod and Faddis 1983, pp. 155-172).

are learner and learning centered. The competency-based approach is applied to education and to the management of the institution. The performance of anyone associated with the college--students, faculty, or administrators--is evaluated against the goals and objectives set for them.

The competency-based approach to education has been a hallmark of the college from the beginning. Initially the college provided open-entry/open-exit, individualized, competency-based instruction. There are now seven points in time during the year when students may begin classes. Furthermore, students now have a choice of individualized, group-paced, or multiple-paced (a combination of the first two methods) instruction. Each course is divided into modules, with clearly specified learning objectives for each module. Objectives tell students what they will be able to do, how learning will be demonstrated, conditions under which testing will occur, and the criteria against which they will be evaluated.

During the academic year 1982-83 (and the same time period that data for this case study was collected), the college's system for developing and implementing tailored programs for industry was in a stage of transition. In 1981-82, a Business and Industry Task Force was formed to develop recommendations for increasing the services OCCC provides to Oklahoma City companies. The task force recommended the establishment of a Business and Industry Development Center and the setting of objectives and desired outcomes for the next fiscal year. The task force believed that such a center would give clearer identity to industry services and attract more industry to the college.

Although there was a recommendation to establish such a center, the task force made it clear that the decentralized approach should be continued in designing and implementing industry services activities. A solution was presented to the sense of fragmentation that decentralization had created, and this was implemented in the fall of 1982. The solution was to place the responsibility for internal coordination of all persons and units involved in providing special courses for industry at a high executive level within the college. The former dean of career development was given the additional responsibility for industrial relations, and the position was called dean of career development and industrial relations.

The dean of career development and industrial relations is responsible for interacting with industry in of all the college's activities. This responsibility contains significant marketing and resource development components. Of greatest importance, though, is the fact that the dean has the authority to assign needed faculty and financial resources to carry out specific projects for industry.

At the time data for this case study was collected, decisions had to be made on whether the dean of career development and industrial relations had line or staff authority, and whether the business and industry coordinator was most appropriately placed under the dean of community services or the dean for career development and industrial relations. A new staff member had been selected from a national search for this expanded deanship, and a new college president had been appointed to begin in the fall of 1982. Therefore, the industry services structure undoubtedly has been changed and refined since this data was collected.

Organizational Characteristics of the Program

Funding

The costs of customized training for industry are paid by the company being served. Noncredit courses are paid for on a cost-recovery basis. Companies pay for the number of contact hours, any developmental costs, and extra costs for materials or equipment. The contract-hour cost is calculated in order to recover the instructional cost to the college.

Staff and Facilities

The dean of career development and industrial relations is the top-level administrator responsible for establishing contacts with executives in industry and coordinating the various college units and persons supplying educational services to industry. This is a collegewide developmental and coordinating position; it is a staff position, more than a line responsibility. Such a position is necessary at this level because of OCCC's approach to providing customized training for industry. However, the coordinator for continuing and occupational education reports to the dean of community services. The coordinator is the main staff person working with industry to serve its upgrading and retraining needs.

The main college unit for providing training for industry is the Community Service Center. The Continuing and Occupational Education Office in the center is the indirect contact with companies in the Oklahoma City area. The coordinator of continuing and occupational education calls on industry on a daily basis and works with them to ascertain their specific needs. The coordinator then secures the resources of the college to respond to those needs. The coordinator's position is often unofficially referred to as the business and industry coordinator.

The college takes a decentralized approach to designing and implementing tailored programs for industry. OCCC administrators believe that the resources and expertise to all units in the college should be available to serve industry's special training needs. This requires that the college's business and industry coordinator have good working relationships with deans, institute managers, and faculty members through the college. It also requires that these persons have a high degree of trust and confidence in the coordinator.

The scheduling of classes, the location, and the equipment and materials used in customized courses are all designed to meet the specific needs of companies. The length and compactness of the courses and whether they are offered during or after working hours depend upon the needs of the industry. Employers usually want the classes to be conducted at their plant or office. This works well for the college because its labs and classrooms are usually occupied by regular classes.

Nature of Services

Courses for industry are offered for either credit or noncredit, depending upon the wishes of the company. Specific credit is attached to each module or grouping of modules, so appropriate credit can easily be identified. However, if an off-campus course is offered for credit, approval must be obtained from the State Board of Regents to do so. The same restriction does not apply to noncredit courses. OCCC can issue an emergency request to the State Board for approval of off-campus credit courses. This takes about 30 days. This alternative provides flexibility in spite of the restriction.

Needs Assessment for Upgrading and Retraining

Through OCCC's competency-based approach to education, the business and industry coordinator and/or customized course instructors can help companies

identify what they specifically wish to achieve via special courses. Since the competency-based approach begins with the identification of outcomes, the college can state explicitly what employees will be able to do upon completion of training.

Course Development

The business and industry coordinator, customized course instructors, and company supervisors or personnel officers work closely together in developing customized courses and planning their delivery. Courses can usually be developed economically by adapting the competency modules and learning packets from regular courses given at the college. These modules are reorganized and tailored to meet the specific outcomes desired and equipment and processes used by a company.

Selection of Instructors

OCCC prefers to use its regular faculty for courses for industry if an appropriate faculty member is available. With a choice of seven course entry points during the school year, and with the modular competency-based approach, faculty members can be reassigned to industry courses. If a faculty member is not available or if special technical competencies are required, an instructor will be secured from industry--perhaps from the company requesting the course. The business and industry coordinator has a pool of persons from whom he or she an select an instructor qualified to teach the particular subject in the pertinent industry.

Companies approve the course instructors, and the instructors are then oriented to the organizations and work sites. Instructors work closely with the appropriate persons at the companies to make sure the content and methods meet their needs. The business and industry coordinator monitors the process.

Outcomes

Star Manufacturing

Allen McCollum, currently the personnel manager at American Fidelity and Assurance Company, is a strong supporter of the college and what it can do for his company. This is the third company in which he has worked as personnel manager where he has used the customized training services of OCCC. This personnel manager's repeat business with the college is based on his confidence that the college industry coordinator will oversee the training process so that the company's workers get the training they need. McCollum first used the college's training services when he was at Boeking Machinery, then later at Star Manufacturing, and now at American Fidelity.

When he was at Star Manufacturing, McCollum was very involved with the college. A lot of his employees were taking advantage of the company's tuition refund program through enrollment at OCCC. Also, he had a great deal of contact with the college's placement office, as well as being on an advisory committee for the Secretarial Program. It was natural to call upon OCCC for customized training when the need arose. College staff, together with the personnel director and other Star Manufacturing representatives, developed a special maintenance training course to upgrade present maintenance employees and to help others move into the maintenance department. The program was conducted in the evening at the company and contained five major components: math, measuring

instruments, electrical instruction, mechanical instruction, and safety. Star provided the course at no cost to the students, who were taking it on their own time.

Cost was figured in terms of contact hours, and credit could be earned if desired. Star Manufacturing specified the skills and behaviors to be achieved and helped select the instructor. All planning contact with the college was with the business and industry coordinator and later, with the selected instructor.

McCollum stated that a very critical element for the success of this course was the involvement of key people in the plant in planning and monitoring the instruction. He and the maintenance supervisor sat in on the classes. In the planning phase, the instructor was brought into the plant to become familiar with the equipment, systems, and policy. The instructor worked closely with the maintenance supervisor during this process. In this way the new training was not threatening to the maintenance supervisor, and the instructor received the needed orientation to the company. It was during his previous experience at Boeking Machinery that McCollum learned the importance of this procedure, problems resulted there because plant supervisors were not involved.

McCollum listed three items that he feels are important to have in a successful training course offered for employees:

- A good relationship between the college instructor and plant supervisor
- An incentive or reward for employees for taking the course
- Trust between employees and the company

Western Electric

Oklahoma City Community College has done a lot of customized training over the years for Western Electric. Employees are upgraded in the trades through such courses as blueprint reading, welding, and machine technology. Police and security guard training also have been offered. The company believes that using the college's services is to its financial advantage.

Western Electric not only contracts for courses to upgrade and retrain its employees during working hours, but also has a tuition refund program for job-related courses taken after work. The company encourages employees to take credit courses, if possible, because they are seen as motivational for the employees.

Small Business Programming

OCCC was successful in obtaining a grant from the American Association of Community and Junior Colleges (AACJC) to provide special programming for small businesses. The grant objectives were completed early and were above expectations, and the college received the initial award given by AACJC for creative and innovative programming. The Service Core of Retired Executives (SCORE), the Small Business Administration, and the South Oklahoma City Chamber of Commerce were involved in these activities.

American Institute of Banking

OCCC has worked closely with the Oklahoma City chapter of the American Institute of Banking (AIB) since 1973. In its Banking and Finance Program, the college provides special AIB courses for many area banks, offering the courses in the banks as well as on campus. A full-time coordinator is employed by the college for the program. Approximately 800 students enroll per year. The banks are billed directly by the college for the fees of the enrolled students. In addition to these AIB courses, many related short courses and seminars are also provided.

Summary

The college's system of annual goal setting for the institution and all units and persons within it is a potent strategy for continued improvement, growth, and leadership in the community. With the new institutional goal of increasing services to industry, additional resources will likely be allocated to address this priority. The recommendation of the Business and Industry Task Force to establish a Business and Industry Development Center, if implemented, should not only give identity and visibility to OCCC's industry services, but also serve as a home base for expanded services.

There has been a problem of fragmentation of effort in providing industry services due to the college's decentralized approach and the fact that there has been no one with sufficient authority to draw all its efforts together, but this should be helped by gaining a new administrator at the dean level who has broad institutional responsibilities for industry services. It is questionable, however, whether combining these responsibilities with those of career development will allow the dean sufficient time to deal with the major thrust of expanding involvement with and services to industry. Even so, with greater priority given to these tasks the resources to do the job may come.

OCCC has done an outstanding job of responding to requests from local industry for special courses to meet their upgrading and retraining needs. In the first decade of the college, the decentralized approach has been quite appropriate, particularly as it has concentrated on serving students coming to campus. As OCCC grows and matures, it has the opportunity to create units to expand services and focus on the special needs of its constituencies. Creating a multiple-staff Business and Industry Development Center under an administrator with sufficient authority to draw upon the resources of the rest of the college may very well be what OCCC needs to achieve its institutional goal at this time. A favorite statement by the former president of the college expresses the situation most appropriately: "Success is a process and not a destination."

College of DuPage

College	Other Organizations
College of DuPage 22nd Street and Lambert Road Glen Ellyn, IL 60137	Business, Unions, and Non-Profit Organizations
Program Office/Center	**Contact**
Business and Professional Institute College of DuPage 22nd Street and Lambert Road Glen Illynn, IL 60137	Joan Bevelacqua, Director Business and Professional Institute (312) 858-2800

Purpose of the Program

The Business and Professional Institute (BPI) at the College of DuPage is designed to provide high quality and affordable training opportunities to local businesses and industries. From its beginnings, the institute has offered on-site seminars, conferences, workshops, needs assessment services, program evaluations, technical assistance, and credit courses for places of business. The institute also examines business-supported training programs to determine whether college credit might be given for them.

Background of the Program

The College of DuPage, founded in 1966, serves a 357-square-mile area in the northeastern portion of Illinois. The area population is 658,177 (1980) and the major employment sectors are service (21.1 percent) and manufacturing (22.6 percent).

The college offers four associate degree categories, including the Associate in General Studies, a program designed for those students who wish to structure their studies to meet their own needs. Forty transfer degree programs, 35 occupational degree programs, and 27 occupational certificate programs are offered at the college.

Off-campus programs are offered in more than 70 locations throughout the service district. The college's total enrollment for fiscal year 1982 was 74,303; 17,446 registered as full-time students and 57,257 enrolled part-time; 1,883 individuals participated in continuing education offerings. Nearly 41,000 students were involved in occupational studies.

In September 1979, the Business and Professional Institute was established at the College of DuPage. The college's president recognized the need for the institute's services in the community as many firms had experienced an escalation in

Excerpted and adapted from *Community College Centers for Contracted Programs* (Mahoney 1982, pp. 19-24).

the costs of travel for professional development activities. The establishment of the institute did not originate through state economic development interests, nor from other sources outside the college, but was totally through the college's own initiative.

Organizational Characteristics of the Program

Funding

The institute is a discrete operation in the college's Open College and was established with the understanding that it would be self-supporting. The college advances operating monies against projected revenues from programs; books are balanced quarterly. All costs of operation, including a 30 percent overhead fee, salaries, and direct expenses, are charged against program revenues. In effect, the institute functions like a small business with a secure line of credit.

In its first year (1979-80), the institute received $208,270 from the college for operations. Its revenues were $197,270, for a shortfall of $11,000. The shortfall was carried into the second year. Second year revenues were $303,361, for a $40,000 positive balance. Third year revenues were $431,361, for a positive balance of $173,357.

Staff and Facilities

The institute's director reports to the Provost of Open College. Four program managers report to the director. Three program managers are responsible for their respective areas--business, technology, and health services. The fourth manager is responsible for conferences, publicity, and coordination for the institute. (A new program area, data processing, is being planned by the director.)

Activities in each of the three program divisions are coordinated by a changing core of experienced persons in relevant training areas. The coordinators, part-time employees hired to handle specific programs as they are contracted, come from a variety of backgrounds, including retired business executives, nurses, a graduate psychologist, and retired technologists. Faculty for institute programs are practitioners who can effectively translate theory into the job situation and are recruited specifically for individual programs.

Institute staff are encouraged to join local organizations (chambers of commerce, professional groups, industrial associations, and others), to participate actively in community and district affairs, and to work on a variety of public and private committees and task forces (economic development, volunteer organizations, school boards, and others). The multiple benefits of these associations include--

- adding dimension to program managers--they are not just salespersons for college services but individuals with broad interest in a variety of community development activities;
- providing opportunities to inform a wide cross-section of the community about the institute's services and capabilities; and
- establishing effective public relations.

Nature of Services

In its first three years of operation the institute offered 183 special programs and 567 generic programs. During this period, 4,699 students enrolled in special programs and 12,809 in generic programs. The institute uses a standard contract form for both types of programs offered to business and industry.

The following are some program area topics that have been offered by the institute:

- Basic Electricity and Electronics for Instrumentation
- Nursing Assistant Training
- Technical Writing
- Sales/Sales Management
- Supermarket Management
- CPR Training
- Electric Typewriting
- Secretarial Service
- Data Processing
- Communications

Operating Schedule

The institute's program development procedures follow the general pattern outlined below:

- The BPI director or manager meets with business officials to identify their needs. At the initial meeting, most clients are presented with time frames for implementation, the role of the company, institute responsibilities, and costs. BPI staff request that the firm representatives review the materials and information and contact BPI within a week if they wish to initiate a program.
- BPI contact persons record the information shared with the business representatives, document pertinent discussion points, and send a follow-up letter to the firm within a week.
- If the firm decides to work with BPI, the original staff contact person prepares a standard contract form for the director's approval.
- After the firm has signed the contract, BPI identifies and assigns a coordinator to the program.
- The implementation stage includes the following activities: curriculum development, trainer/educator/consultant selection, scheduling, evaluation designing, billing, and other administrative functions as necessary.
- A three-part evaluation is applied to all programs. Assessments are collected from the points of view of the firm, trainees, and BPI coordinators and trainers. Information reviews are done during the course of the programs; formal evaluation meetings and/or surveys are completed at the conclusion of the programs. In many cases, firms use BPI evaluation data to determine whether or not to support future programs.

Base costs are established for the programs. For credit courses the following schedule is applied:

Credit Hours	*Total Cost for First 15 Students*	*Cost per Student Over 15*
1	$ 550.00	$ 25.00
2	775.00	40.00
3	1000.00	55.00
4	1225.00	70.00
5	1450.00	85.00
6	1675.00	100.00
7	1900.00	115.00
8	2125.00	130.00

Clients are charged $100 per hour of instruction for in-plant noncredit and continuing education unit (CEU) courses for a maximum of 25 students per course. To ensure quality, the maximum student number for some of these courses (lecture, lab, workshop, and others) is lower. When it is possible for more than 25 students to take a course, the institute charges an additional $100 per person.

Additional costs, such as books, supplies, and course/program development, are passed on to the company. Programs requiring full-time coordinators are priced to include all cost of delivery plus 30 percent overhead.

Outcomes

Some of the companies that BPI has served are listed below.

- Amoco Research Center
- Bell Labs
- Caterpillar Tractor Company
- Central DuPage Hospital
- Fisher-Body Union Apprenticeship Training
- Jewel
- Myercord Corporation
- Plumbers and Pipefitters Union
- Red Cross
- Sweethart Cup

Moraine Valley Community College

College

Moraine Valley Community College
10900 South 88th Avenue
Palos Hills, IL 60465

Program Office/Center

Moraine Employment Training Center
10900 South 88th Avenue
Palos Hills, IL 60465

Other Organizations

Chambers of Commerce, governmental organizations, businesses

Contact

Janice Morrissy,
Director of Economic Development
(312) 974-4300

Purpose of the Program

The Employment Training Center at the Moraine Valley Community College develops business-related seminars and workshops. The center uses an aggressive approach to establishing programs for industry by contacting firms and demonstrating the various services that it can perform for them. One of its first efforts, the Employee Skills Institute, offers as many as 12 training programs, ranging from 2- to 8-weeks long, that are condensed to allow students to enter the work force as soon as possible. The courses are offered on campus or in the workplace (depending on the location of equipment necessary for instruction), and for credit or noncredit. Instructors for these courses may be college personnel or individuals with related industry training experience.

Background of the Program

Moraine Valley Community College serves a 139-square-mile area. The area contains all or part of 26 municipalities and is essentially suburban. The total population is 373,069 (1980) and approximately 60 percent of the labor force is employed as clerical workers, craftsmen, foremen, operatives, and so forth.

Established in 1967, the college offers 57 degree programs (24 in the career area), 27 certificate programs (all in the career area), and 14 cooperative programs. The college's total enrollment for October 1981 was 11,474 with 3,602 registered full-time and 7,822 part-time. An additional 29,000 students were enrolled in continuing education courses.

The college initiated business and industry programming in February 1978. A professional staff person was hired at the time as administrative assistant to the dean of Continuing Education and Community Services to develop business-related seminars and workshops. In 1982, the college increased its commitment to college and business linkages by establishing the

Excerpted and adapted from *Community College Centers for Contracted Programs* (Mahoney 1982, pp. 24-27).

Employment Training Center. In addition to the earlier success of these efforts, the impetus for the creation of the center includes--

- the state governor's statement that community colleges should become more involved with offering training programs in marketable skills;
- the college's board of trustees' interest in responding to the federal government's initiative to engage the private sector in economic development; and
- the college's own commitment to help respond to high unemployment in the area.

Recently, the college was asked to establish a pilot Business/Industry Community College Coalition (BICCC) to advise the center. BICCC is part of a national effort engineered by the Association of Community College Trustees (Washington, DC) to join the resources of community colleges (and other education institutions) with the training needs of industry at the local level.

Organizational Characteristics of the Program

Funding

The center is expected to be self-supporting, that is, the initial funds provided by the college are expected to be returned through the generation of special contract programs with industry and tuition charges for generic programs. The first year (1978) budget to support one professional position was approximately $60,000. It was included in the Continuing Education budget. Of this figure, $27,000 was allocated for administrative and clerical salaries and $33,000 for program costs. In the 1981-82 fiscal year, the business and industry program allowance was $80,400. For fiscal year 1982-83, the center's budget was $161,616, a substantial increase that reflects the addition of two professional staff and increased program efforts.

For the first three years, the aggregate cost to business and organizations for the special programs was approximately $200,000; for generic programs, it was $175,000.

Staff and Facilities

The center's executive director reports to the dean of continuing education and community services. A director of economic development and a director of employment skills complete the staff. Supplementary services are provided by a cadre of education and business consultants who sometimes are employed as program instructors.

Nature of Services

In its first three years of operation, the center provided 63 special programs and 163 generic programs. Approximately 1,500 students participated in the special programs and 3,500 in the generic programs. The college cosponsored a number of programs during this period with an assortment of community groups and businesses. Some of these are--

- Small Business Seminar, with Palos Heights' Chamber of Commerce;
- E.M.T., with North Palos Fire Department;
- Fire Safety Workshop, with Oak Lawn Fire Department;
- Supervisors Seminar, with Bridgeview Chamber of Commerce;
- Secretarial Seminar, with South Suburban Educational Office Personnel Association;

- Time Management, with Alsip Chamber of Commerce; and
- Three-day conference on Office of the Future, cosponsored with eight computer manufacturers.

Some other program area topics that have been offered by the center are--

- How to own and operate your own business,
- Security in the plant,
- Routine leadership for nurses,
- Collective bargaining overview,
- Business letter writing, and
- Word processing training.

Operating Schedule

The center offers special and generic programs and uses a standard contract form for both types of programs offered to business and industry.

The center uses three evaluation mechanisms. After the first class session is completed, center staff contact the company representative to discuss course relevancy and to make appropriate adjustments if they are necessary. If adjustments cannot be made, the course may be canceled after this contact. The center also conducts a follow-up, or a course-ending survey given to students, to help the staff improve the quality of future service, and it prepares a cost-effectiveness report to assess the projected and actual expenses and cost-effectiveness of the project as it was designed.

Outcomes

Some of the companies that the center has served are listed below.

- Union Carbide Company
- Johnson & Johnson Corporation
- General Foods Corporation
- Hickory Hills Bank
- Christ Community Hospital

Prairie State College

College

Prairie State College
Illinois Junior College
District 515
Chicago Heights, IL 60411

Program Office/Center

Career Education
Priarie State College
Chicago Heights, IL 60411

Other Organizations

Businesses, Unions

Contact

Nello Petersanti,
Director of Career Education
(312) 756-3110

Purpose of the Program

The Career Education Office has four major responsibilities--

(1) to serve as the college's major liaison for business and private industry,

(2) to assist business and industry in developing training programs for their employees,

(3) to serve as a consultant to industry in matters relating to the educational services provided by the college, and

(4) to plan and supervise a job placement office on campus that serves all students seeking on or off campus employment.

The office structures programs, presents them to firms with estimates of individual costs to employees who might want to attend, and then conducts the training. All of the programs through this office are in apprenticeship fields.

Background of the Program

Prairie State College serves a 150-square-mile district in the south suburban Chicago metropolitan area. The district's population is approximately 200,000 and includes one of Illinois's wealthiest communities and one of its poorest.

Established in 1957, Prairie State College has a total enrollment of approximately 6,000 students. A large majority of the students are occupationally oriented--seeking to upgrade skills, to be retrained, and/or to enter or re-enter the work force.

The Career Education Office was created on September 1, 1979, in response to the college's recognition that it could be a positive force in the economy of the

Excerpted and adapted from *Community College Centers for Contracted Programs* (Mahoney 1982, pp. 28-31).

region by providing training and retraining programs and by participating in business and industry associations. The office's function is also consistent with the intentions of the state legislation that created the community college system. One section in the "Preamble" of the Illinois Community College Board mission statement reads:

> Focusing on community needs requires extensive cooperation with community agencies, organizations, businesses, industries, and educational institutions, to identify the needs and address them in a manner which is both educationally and economically sound.

One of the mission statements in this document states:

> Provide occupational programs. Such programs shall be vocational, technical, and semi-technical in nature and shall be for the purpose of providing job training, retraining and/or upgrading of skills to meet both current and emerging local, regional, and state manpower needs.

Organizational Characteristics of the Program

Funding

The Career Education Office's first year (1979) funding totaled $36,610 and was derived from the college's general fund. The 1983 budget was $48,811.

In fiscal year 1982, tuition and fees generated by the college through special and generic programming amounted to $10,000 (special) and $200,000 (generic).

Staff and Facilities

The Career Education Office is one of six offices in the Instructional Services Division of the college. The director reports to the Vice President of Instruction.

The director and many of the college administrators and faculty are members of various community business groups and associations. Close personal and professional contacts are stimulated through these memberships.

Nature of Services

The Career Education Office offers both special and generic programs. During the first three years of the office, 15 special programs and 12 generic programs were presented. Approximately 600 students participated in the special programs. In fiscal year 1982, 982 students enrolled in generic programs.

Some of the generic training program courses offered are--

- Industrial Electrician,
- Tool and Die,
- Air Conditioning/Refrigeration,
- Machinist,
- Millwrights, and
- Boilermakers.

Some of the special training program courses offered are--

- Pipefitter/Welder Training,
- Packaging Mechanic,
- Welding Evaluations, and
- Crane Control Training.

Operating Schedule

Although the Career Education Office offers both special and generic programming, no special contracts are written for the programs.

Until recently evaluation procedures were applied by the department chairmen at least once a year. Since department chairmen were removed from the Union/Board Agreement, evaluation procedures are in the process of being reviewed for implementation by the administrators in Instructional Services.

Outcomes

Some of the companies that the Career Education Office has served are listed below.

- Inland Steel
- Republic Steel
- Lever Brothers
- Ford Motor
- General Foods
- Illinois Central Gulf Railroad
- Desoto Chemical

North Shore Community College

College

North Shore Community College
23 Essex Street
Beverly, MA 01915

Program Office/Center

Corporate Education Office
North Shore Community College
23 Essex Street
Beverly, MA 01915

Other Organizations

Businesses and Unions

Contact

Roberta Stoller,
Coordinator
Corporate Education
Office
(617) 927-4850

Purpose of the Program

The Corporate Education Office at the North Shore Community College is designed to consolidate and expand the college's outreach to business and industry. From its beginnings, the office has coordinated all contracted, on-site educational programs provided for the business community; designed and implemented professional development seminars for the business sector; and facilitated grant proposals to provide vocational education.

Background of the Program

The North Shore Community College serves a 140-square-mile area in northeastern Massachusetts. The area population is 200,000 residents and the major employment sectors are manufacturing (26 percent), wholesale/retail (26 percent), service (20 percent), and government (18 percent).

Established in 1965, the college offers 37 programs of study: 33 degree and 4 certificate programs. Approximately 2,100 full-time day students are enrolled in the college and 5,500 students enroll in Division of Continuing Education courses each semester.

The position of Coordinator, Contract Services, was created in 1977 within the Division of Continuing Education. Approximately 7 years before the establishment of the office, the division began contracting educational services with the private sector. The responsibilities for these programs were shared among the division's professional staff. In 1977, the position was supported by a Title 1-A grant. In the period 1978-81, it was absorbed by the division, but only one-quarter of the coordinator's time was assigned to business and industry contact. From January to September 1981, with support from a state vocational education grant, the coordinator's assignment time for contracting with business and industry expanded to three-quarters. In September 1981, the focus on education services contracting became full-time and continued to be supported by a

Excerpted and adapted from *Community College Centers for Contracted Programs* (Mahoney 1982, pp. 35-37).

state vocational educational grant. At the end of the state funding period (September 1982), the division provided support monies for the full-time position.

Organizational Characteristics of the Program

Funding

The Corporate Education Office is located in the college's Division of Continuing Education. The Division of Continuing Education operates on a self-sustaining basis; that is, it must recover all costs for its operation. No state monies are allocated for division operations. The program's budget is contained in the general funds allocated for the division, so no specific total is available.

Staff and Facilities

The coordinator reports to the director of Community Services, a department within the Division of Continuing Education. The coordinator's professional background includes adult teaching experience in industry, administration and program development experience in industry, and graduate education in adult learning and program development.

Nature of Services

The college offers both special and generic programs. Through 1982, the office had generated approximately 100 special programs and 20 generic programs. About 2,000 students participated in the special programs and 600 students in the generic programs.

Some program topics offered by the office are--

- AMA Certificate Program in Business Management,
- Materials Management,
- Inventory Control,
- Financial Planning,
- Retirement Planning,
- Effective Communication,
- Decision-Making,
- Tube Technician Training,
- Technical Writing, and
- Selecting and Integrating Computer Systems.

Operating Schedule

For special programs, the college charges businesses between $500 and $2,500, depending on the requirements of the program. Students in generic programs pay between $10 and $190, depending on the nature of the program. The college uses a contract form for special programs only.

Standard program evaluation forms are completed by both instructors and students. This is followed by a personal interview meeting that involves the program instructor, the company coordinator, and the college coordinator.

Outcomes

In addition to serving the general business community, some companies that the office has served are--

- GTE Sylvania, Inc.;
- International Union of Electrical Workers;
- Salem Hospital;
- Turningpoint, Inc.;
- Varian-Beverly Division; and
- General Electric.

Kalamazoo Valley Community College

College

Kalamazoo Valley Community College
6767 West O Avenue
Kalamazoo, MI 49009

Program Office/Center

Downtown Center for Training and Retraining

Other Organizations

Business, Industry, and Unions

Contact

Helen McCauslin,
Dean of Instruction
(616) 372-5000

Purpose of the Program

The Downtown Center for Training and Retraining at the Kalamazoo Valley Community College is designed to provide business and industry training. The center offers credit and non-credit courses, seminars, and workshops in addition to apprenticeship training programs.

Background of the Program

Kalamazoo Valley Community College serves an area in the southwestern corner of Michigan that is comprised of 10 public school districts. Nearly 30 percent of the labor force work in nonmanufacturing positions, and 18 percent in government jobs.

Established in 1966, this comprehensive college offers 72 degree and certificate programs, 26 occupational degree programs, 15 certificate programs, and 31 general education/transfer curricula. In 1981, 2,816 full-time students, 4,976 part-time students, and 1,619 participants in continuing education courses were enrolled.

The Center for Training and Retraining emerged from the extraordinary growth the college experienced in nontraditional programs. Before the center's establishment in October 1981, the Office of Extended Educational Opportunities (created 5 years previously) was responsible for business and industry training programs as well as for other functions. Among the other functions were: continuing education, community services, Kalamazoo Valley Career Institute, and special projects such as CETA and Education for Retirement and Aging. As the executive assistant to the president explained:

> The college, and external users, found it difficult to pinpoint who should be contacted for a specific request. Many times the switchboard operator would 'decide' who would receive a contact or request call. Also, college offices had difficulty in establishing their 'territory' and employers were being contacted by more than one college representative.

Excerpted and adapted from *Community College Centers for Contracted Programs* (Mahoney 1982, pp. 38-41).

For these reasons, and also to emphasize the top-level commitment of the college to employee/economic development, the Office of the Executive Assistant to the President was named as the initial contact point and overall facilitator for development efforts. The name was chosen for the clarity that title gave to external people, as opposed to Continuing Education or Community Services.

Under this new arrangement, all initial contacts are made through the center and then transferred to appropriate offices within the college. Contact follow-up responsibilities are determined by the needs of the organization requesting assistance.

The center is a reflection of a strong state movement that views community colleges as the major educational delivery system for supporting local and statewide economic planning and development.

Organizational Characteristics of the Program

Funding

The Center for Training and Retraining is not funded discretely. Because its creation was designed to consolidate and coordinate already-existing activities, no new personnel were needed. Monies from the college general fund that are allocated for the operation of the executive assistant office and the programs within the Office of Extended Educational Opportunity are used to support business and industry outreach and programming. Revenues generated through the special programs are returned to the general fund.

Staff and Facilities

The center employs members of the regular occupational programs advisory committees as community contact persons. The center staff also hold memberships in relevant community councils and committees, such as the Small Business Council and the Chamber of Commerce.

Nature of Services

The center offers special and generic programs. Many of the programs offered initially as special activities are made available to other audiences as generic programs. Special programs, like the banking courses that the center offers through a contract with the American Institute of Banking, are available to any interested bank or employee. In the 1981-82 academic year, the center presented 20 special and 10 generic programs. One thousand students enrolled in the special programs and 500 students registered for the generic offerings.

Some of the center's programs offered in 1982 were--

- time management,
- quality control,
- preretirement planning,
- medical terminology,
- chemical terminology,
- tool and die,
- pipefitter,
- machinist,
- electrician, and
- machine repair.

Operating Schedule

Program charges vary. Noncredit special activities costs depend in large measure on instructor or consultant fees. Special credit programs carry normal college tuition and fees charges. Materials costs are added when it is necessary. College tuition and fees on a per/student basis are charged for generic programs. General guidelines for pricing a program have been established by the college. The guidelines aim at balancing projected revenues with projected costs. However, the amount of income from these activities do not directly determine the office funding level. The executive assistant states: "The amount of activity and perceived overall benefit to the college and the community are more important factors."

Credit courses are evaluated in the same way as other college courses. A separate evaluation form is used for noncredit programs. College staff monitor the programs through periodic visits, class attendance, or personal contacts. Using a unique evaluation model developed under a state department of education grant, all specialized courses and noncredit seminars and workshops are evaluated.

Outcomes

In addition to providing apprenticeship training to 36 companies in 1982, some other companies served by the center are listed below.

- Richard Allan Medical Industries
- The Upjohn Company
- National Waterlift, Division of Pneumo Corp.
- Borgess Medical Center
- Refrigeration Service Engineers Society
- Murco, Inc.
- Kalamazoo Child Abuse and Neglect Council
- Native American Employment

Mercer County Community College

College

Mercer County Community College
P.O. Box B
Trenton, NJ 08690

Program Office/Center

Center for External Programs and Services
Mercer County Community College
P.O. Box B
Trenton, NJ 08690

Other Organizations

Business and Industry

Contact

Rose C. Nini,
Dean of Continuing Education
(609) 586-4800

Purpose of the Program

The Training and Development Services unit in the Center for External Programs and Services specializes in custom-designed training programs. Contracted programs and services are limited to employees of the sponsoring businesses. A wide range of training and development programs are offered, including management, communications, technical, human resources, and entry-level skills training. Courses can be custom-tailored or pre-designed. They can be credit or noncredit. Courses can be held on campus, at the plant site or place of business, or at other community locations.

Background of the Program

Mercer County Community College is located in the center of New Jersey in Mercer County and serves an area of 228 square miles. The 1980 labor force totaled 162,500, and the major employment sectors were government (27 percent), services (26 percent), and manufacturing (21 percent).

Established in 1966, the college offers 42 associate degree programs, 16 certificate programs in career areas, and an assortment of special programs, including: College Discovery Year, High School Equivalency, work incentive program, bilingual program, extension study special groups, courses in academic skills, Prison Education Network, Urban Living Skills Center, Small Business Development Center, and a Union Leadership Academy. The college's total enrollment for 1980-81 was 27,128, with 3,167 full-time credit students and 6,429 part-time credit students.

In July 1981, the college established the Center for External Programs and Services. The center incorporates four college operations, each having existed in different divisions for varying lengths of time. The four operations are: training and development services, cooperative education, community education programs, and community and corporate extension centers.

The center also coordinates the programs of the Union Leadership Academy, one

Excerpted and adapted from *Community College Centers for Contracted Programs* (Mahoney 1982, pp. 42-46).

of four such labor education centers in the state, and the Small Business Development Center, an SBA-funded operation that is a satellite of the Rutgers University-based New Jersey Small Business Development Center.

The rationale for combining these operations within a single administrative organization is that it allows the college to maintain a more unified outreach effort and facilitates relationships and services with various community constituencies.

The purpose of the center's Training and Development Services unit is stated in one of its program brochures:

> We have a vested interest in assisting business and industry to strengthen the local economy. With a healthy economy, our graduates will find meaningful employment. . . . The decade of the 1980's offers new challenges for maintaining our edge in business, industry, and technology. Training and reeducating employees will become increasingly important. To remain competitive in a rapidly changing economic environment, organizations and their employees must remain adaptive and flexible. Mercer County Community College, through its Center for External Programs and Services, wants to continue its partnership with local business and industry to provide cost-effective training and educational programs to meet present and future development needs.

The Training and Development Services unit is the only office in the center that contracts services directly with employers. The office also coordinates the State's Customized Training Program, a program coadministered by the New Jersey Departments of Labor and Higher Education that funds all or portions of the training costs for companies moving into the state, expanding within the state, or experiencing difficulty maintaining a skilled work force. Community colleges have been designated as the responsible agency within each county to coordinate the program.

Organizational Characteristics of the Program

Funding

The center must support itself through the programs its generates. Sources of income include: student tuition for noncredit courses; state tuition contributions for all credit courses and noncredit courses that meet specific state fundable requirements; cooperative education and Small Business Development Center grants; and direct contracts with local business and industry. In the latter category, business and industry paid an aggregate cost of $79,300 for the special and generic programs the center offered in its first two years. This figure includes the direct costs of the programs plus 40 percent overhead charges required by the college.

Staff and Facilities

In 1983, five professional staff persons composed the center's administrative group. The executive director reported to the Dean of Academic Affairs. In addition to the executive director, the center employed a director for training, a director of cooperative education, a director of extension centers, and a director of community education.

Nature of Services

In its first two years of operation, the center offered 73 contracted programs through its office of training. These were

both special and generic programs. During this period, 2,118 students enrolled in the programs.

Some program area topics offered by the center are--

- leadership,
- time management,
- technical written presentations,
- retirement planning,
- current investment opportunities,
- performance standards writing,
- management by objectives, and
- principles of evaluation.

Operating Schedule

All programs must be approved by the college president and, when a program cost is $10,000 or above, approval from the college board of trustees is necessary.

For evaluation purposes the center uses Op-Scan forms for both special and generic programs. Special program evaluation forms are prepared and administered for certain other generic programs.

Outcomes

Some of the companies that the center has conducted programs for are listed below.

- RCA American Communication
- Bank of Mid Jersey
- McGraw Hill Company
- New Jersey Department of Transportation
- Helene Fuld Medical Center

College of the Albemarle

College	Other Organizations
College of the Albemarle Post Office Box 2327 Elizabeth City, NC 27909	Business and Industry Economic Development Organizations
Program Office/Center	**Contact**
Business and Industry Services College of the Albemarle Post Office Box 2327 Elizabeth City, NC 27909	Lucy S. Gordon, Director of Business and Industry Services (919) 335-0821

Purpose of the Program

The purposes of the College of the Albemarle's Business and Industry office are to--

- establish and maintain effective contact with local businesses and industries in order to determine types of services that can be provided by the college, and
- assist local chambers of commerce, industrial development commissions, and other groups that promote economic development in the college's service area.

The principal function of the new office is to continue established business and industry programs, consolidate and coordinate outreach to the private sector, and provide a single channel through which the private sector can contact the college.

Background of the Program

The College of the Albemarle's service area encompasses 7 counties in northeastern North Carolina and covers 3,700 square miles. The area has a total population of 89,676 with agriculture and forestry being the principal income-producing occupations.

Chartered in 1960, the College of the Albemarle offers 14 associate of arts, associate of science, and associate of fine arts programs; 7 associate of applied science programs; and 12 vocational and certificate programs. Fifty percent of the student population is enrolled in the transfer program; 34 percent in technical programs, and 16 percent in vocational courses. In October 1981, there were 799 full-time students and 615 part-time students. Approximately 8,000 students are enrolled annually in non-credit continuing education courses.

Excerpted and adapted from *Community College Centers for Contracted Programs* (Mahoney 1982, pp. 46-49).

In December 1981, the college president created a new position entitled Director of Business and Community Services. In his announcement memorandum to faculty and staff, the president wrote: "I am convinced that it is in the college's best interest to promote closer ties with the business and industrial segments of our community. This will include, in addition to businesses and industries, such groups as chambers of commerce, industrial development commissions, etc., in our region. Out of a closer working relationships will come a clearer understanding of training needs and additional suppor for COA's mission."

Organizational Characteristics of Program

Funding

The 1983 office budget totaled approximately $30,000. Half of this total was provided through state funds allocated for wide-ranging college support; the other half came from a special federal grant designed to assist the college expand and improve its services to the community. These funds were not specifically earmarked for the new office but were drawn from the president's office budget and from grant resources. The college expects that small additions to the office budget will be made in subsequent years.

Staff and Facilities

The program director reports to the president, but works closely with the Continuing Education Division. Formerly, the division was responsible for relationships with business and industry, but on a more limited basis than this new office.

Nature of Services

The college offers both special and generic programs to local business and industry. Most of the programs are specially tailored ones, however, enrollment numbers for these programs are not available.

Some of the programs the college has offered include--

- in-plant power sewing,
- supervision principles,
- crab picking,
- food service training,
- food and beverage control, and
- human relations.

Operating Schedule

In 1983, the standard fee of $8.00 was charged for each continuing education course. The student or business paid the charge. College faculty were used as instructors for all of the programs.

Indirect and informal procedures are used to evaluate the programs. Students evaluate the instructors and employers are asked for their assessments of the program. The college also considers the number of trained students who subsequently are hired by the employers as an important key to determining the effectiveness of the programs.

Outcomes

The Director for Business and Community Services participates in community presentations to prospective industry officials interested in relocating in the Albemarle region. The industrial development commission for the region has organized a number of these presentations. In addition to the college's director of Business and Community Services, the presentation team includes: economic development commission officials, local political leaders, public agency officers, and financial institution representatives. A tour of selected firms, the college, and the industrial park is generally part of the presentation.

In the first years of the program, the college participated in nearly 25 community presentations. One result was that a new company has located in the area, and five other firms are considering moving there.

In addition to the community outreach program, the college has provided programs for the following businesses:

- Don Juan Manufacturing
- United Piece and Dye
- Currituck Crab Company
- Dickerson, Inc.

Portland Community College

College

Portland Community College
1200 S.W. 49th Avenue
Portland, OR 97219

Program Office/Center

Institute for Community Relations
Portland Community College
1200 S.W. 49th Avenue
Portland, OR 97219

Other Organizations

Businesses, public agencies, associations, and unions

Contact

Dr. Robert Costi, Director
Institute for Community Relations
(503) 244-6111

Purpose of the Program

The Institute for Community Relations is the educational marketing outreach center for Portland Community College. New, experimental, and/or custom designed programs are developed at the college and offered to customers in business, industry, government, nonprofit institutions, social service agencies, and professional organizations. The institute provides workshops, year-long and multiyear programs, one or several courses, consulting services, and research activities.

Background of the Program

Portland Community College serves a 1,500-square-mile area that has a population of 750,000 people. The service sector employs the greatest percentage of workers in the labor force (36 percent), followed by manufacturing (33 percent).

Opened in 1961, the college has four major campuses and five smaller centers. During the 1980-81 academic year, the college enrolled 78,832 students. It offers 96 associate degree and certificate programs as well as hundreds of occupational upgrading courses, programs, seminars, and workshops.

The institute was established in 1969 as manifestation of the college's commitment to serving the needs of various community audiences. While it is the locus for business and industry relationships in the college, faculty and administrators in all other college departments are encouraged to make individual contacts too. The institute provides coordination and direct assistance to the faculty and administrators for these purposes if requested.

Recently, the institute initiated four new short-term "Exchange" workshops. Each workshop series covers one of the following

Excerpted and adapted from *Community College Centers for Contracted Programs* (Mahoney 1982, pp. 50-54).

areas: legal, business, import/export, and information systems. They are designed for a wide range of audiences and, while they include theoretical concepts, they focus on practical information that everyone participating can both understand and apply to their own situations. The Legal Exchange, for example, is shaped for business leaders, legislators, educators, board members, agency heads, citizens, law students, and others. Topics covered in the workshop include administrative law, business law, criminal law, law school admissions test preparation, bar review courses, juvenile law, and do-it-yourself instructions in adoptions, bankruptcy, divorce, estate planning, change of name, and small claims.

Organizational Characteristics of the Program

Funding

In 1969, the institute's first year, its budget was $21,391. It was provided by the college. In the 1982-83 fiscal year, its budget was $177,715 and was provided by the college. All income generated by the institute is deposited in the college's general fund.

Staff and Facilities

The institute director and the coordinator are the only professional positions in the institute. The director reports directly to the college's president. College faculty, part-time employees, and, when it is necessary, consultants are employed to deliver the programs.

Nature of Services

The institute offers both special and generic programs. From 1969 to 1983, the institute completed 281 special programs and 23 generic programs. More than 30,000 students participated in the special programs and 4,980 students enrolled in the generic programs.

In the period July 1, 1981, to June 30, 1982, the institute served 71 different institutions, including: 11 associations and unions, 20 public agencies, and 40 businesses. Thirty college instructional departments assisted with instruction for these programs that amounted to 255 classes in 58 subject areas. Twelve consulting projects were conducted for six different firms.

Some of the programs the institute has offered are--

- welding for state certification,
- emergency medical technology,
- blueprint reading,
- marketing,
- nursing sssistant training,
- management training,
- accounting, and
- technical writing.

Operating Schedule

The institute uses a standard contract form for both its generic and special programs. The institute employs a differentiated pricing system.

- When the college pays the instructor, the minimum charge is the current tuition rate for 16 students even if fewer students are enrolled. The maximum charge is the current tuition for 25 enrollments even if more than 25 are enrolled. In addition to these charges, other costs are applied to support special services, including: curriculum

development, supplies, equipment, travel, and clerical support.

- When the customer pays the instructor, the program is held at the plant or firm. The customer covers all other expenses, the charges are $10 per student per course/ activity per term. The minimum charge is for 16 students, even if fewer than 16 are enrolled.

- When the customer pays the instructor and the program is conducted at the college, the charges are $10 per enrollment per course/activity per term (16 student minimum even if fewer are enrolled) plus $12 per credit hour per term, or $1 per clock hour per term (minimum charge is $12).

The institution applies a series of evaluation procedures to ensure program quality and customer satisfaction. The evaluation scheme is discussed with customers and agreed upon in the early stages of program development. Students, instructional staff, and the customer are the focuses of the evaluations. Student and staff evaluations take the forms of both written and oral assessments. The written assessments are captured through an evaluation form. Customer assessments are handled in discussion. Program evaluations may include all three types of assessment or combinations of two of them. The nature of the program determines how the evaluation is conducted as well as its substance and focus.

Outcomes

The institute has produced a series of public relations and information brochures that it distributes to various companies and organizations that are targets for its services. It also has published a comprehensive guide for the generation and maintenance of college linkages and programming for public and private organizations. The guide, *A User's Guide for Educational Marketing*, is available from the institute for a modest fee. In checklist form, with terse narratives, it details procedures for identifying customers, assessing needs, pricing services, writing contracts, promoting and publicizing services, registering students, follow-up, and so forth.

Some of the companies served by the institute are listed below.

- General Telephone (GTE)
- Tektronix, Inc.
- Consolidated Freightways
- Providence Medical Center
- Montgomery Ward
- Northwest Marine Iron Works
- Intel, Corp.

Southwestern Oregon Community College

College

Southwestern Oregon Community College
Coos Bay, OR 97420

Program Office/Center

Career Education Office
Southwestern Oregon Community College
Coos Bay, OR 97420

Other Organizations

Business and Industry
Unions

Contact

Dean of Instruction
(503) 888-2525

Purpose of the Program

The purpose of the Career Education Office of the Southwestern Oregon Community College is to relate college programs to community and local industry needs. By working with education, business, and labor leaders the college creates appropriate opportunities for training.

Background of the Program

Southwestern Oregon Community College serves a 2-county district covering an area of 1,997 square miles. Major industries in the area are lumber, tourism, and fishing.

The college, established in 1961, offers a comprehensive array of programs including transfer, occupational/vocational development, and continuing education programs. Approximately 20 percent of the students are enrolled in occupational programs. Full-time student enrollment is near 900 and part-time student enrollment is over 2,000. Over 754 students participated in continuing education classes in 1981.

The Career Education Office was created in August 1978. In his letter announcing the new office, the college president wrote: ". . . the college is redoubling its efforts to relate its programs to community needs and local industry. This involves meeting with area education, business, and labor leaders to create opportunities for training." The announcement was sent to high school superintendents, principals, and vocational education instructors; members of college advisory committees; community college presidents and vocational educators from other colleges in the state; state education department personnel; and state economic development officers. The announcement served as the first notice of the college's special, concerted effort to establish closer linkages with both public and private sector organizations.

Excerpted and adapted from *Community College Centers for Contracted Programs* (Mahoney 1982, pp. 54-56).

Organizational Characteristics of the Program

Funding

The college does not provide the Career Education Office with an annual budget. Budget levels are dependent upon current projects and grant funds secured for special purposes. In its first year, 1979-80, the office operated on a budget of $50,000 derived from the college's general fund. In 1980-81, the office's budget was $250,000.

Staff and Facilities

The Career Education Office is headed by a director who reports directly to the dean of instruction.

Nature of Services

The Career Education Office provides special and generic programs. The numbers of programs and the enrollment numbers for each category are not available. The office's director uses a standard contract form to shape agreements.

Some of the programs the office has offered are--

- farm management,
- small business management,
- lumber grading,
- waste water disposal,
- fishing net design and repair,
- navigation, and
- automated systems.

Operating Schedule

Program costs are computed using the following formula: staff plus fringe benefits plus supplies plus indirect costs (25 percent of staff plus fringe benefits plus supplies). Monies generated by the programs are placed in the college's general fund.

The college uses an ad hoc advisory committee to guide the creation of full programs and uses appropriate faculty and recognized experts to structure workshops, seminars, and other short-term training sessions.

All programs are evaluated by students and employers using standard vocational follow-up procedures.

Outcomes

Some of the businesses and industries the office has served are listed below.

- Farmers
- Small business owners
- Lumber industry
- Fishing industry
- Carpenters
- Electricians
- Weyerhaeuser Corp.
- Mid Coast Marine Corp.

Williamsport Area Community College

College

The Williamsport Area Community College
1005 West Third Street
Williamsport, PA 17701

Program Office/Center

Center for Lifelong Education
The Williamsport Area Community College
1005 West Third Street
Williamsport, PA 17701

Other Organizations

Business and Industry

Contact

Barbara Banks
Director of Lifelong Education
(717) 326-3761

Purpose of the Program

The Specialized Business and Industrial Programs office of the Center for Lifelong Education offers contract courses designed specifically for employees of a particular company. The course content is shaped to meet company needs and is presented at the time, date, and location requested. Noncontract courses designed to meet broad industrial needs also are offered on campus.

Background of the Program

The Willliamsport Area Community College serves a 7,000 square-mile region in north central Pennsylvania that is essentially rural. The area population is 451,000.

The college was established in 1965 and currently operates two supporting facilities in addition to its main campus. In the fall of 1981, the college enrolled 9,807 students--2,288 in vocational/technical programs, 238 in transfer programs, 1,119 in its secondary vocational education programs, 386 in nondegree credit courses, and 5,252 through the Center for Lifelong Education.

The college offers 31 degree and 19 certificate programs for a total of 50 different vocational/technical options for postsecondary college students. Additionally, 18 vocational programs are offered to high school students in 13 of the 20 sponsoring school districts.

The Center for Lifelong Education houses the Office of Specialized Business and Industrial Programs--one of four administrative offices within the center. Established in August 1979, this office coordinates all specialized training conducted for local business and industry. Prior to its creation, industrial programming was handled on a part-time basis in conjunction with other noncredit avocational courses. The principle reason for the creation of the office was the college's wish to intensify and focus its commitment to actively participate in the economic and educational revitalization of the region.

Excerpted and adapted from *Community College Centers for Contracted Programs* (Mahoney 1982, pp. 57-60).

Organizational Characteristics of the Program

Funding

In its first year of operation, the Office of Specialized Business and Industrial Program's budget was not segregated from the general budget of the Center for Lifelong Education. In its second year, the office was established as a cost center with a budget of $66,000. In its third year, the office's budget total was $81,000. Funds for the office are derived from program tuition and charges (approximately 73 percent of the total) and state reimbursement.

Staff and Facilities

The office coordinator reports to the Director of Lifelong Education. The coordinator regularly visits firms within the college's service area to establish contact with them and to maintain existing linkages. During these visits, the coordinator delivers printed examples of some of the training the office has already completed for area businesses, encourages the firms to consider college services that can help resolve some of their technical problems, and invites further correspondence. The firms are encouraged to take advantage of the college's broad educational resources or to participate in a custom designed course.

Nature of Services

The office offers both special and generic programs. For the period 1980-82, the office conducted 47 special programs and 49 generic programs. Total enrollment for both programs in 1980-81 was 383; for 1982, enrollments in the programs climbed to 971.

Some of the programs offered during the period 1980-82 were--

- basic sheet metal fabrication,
- hardwood lumber production,
- mechanical blueprint reading,
- effective speaking in business,
- industrial pipefitting,
- stainless steel welding, and
- mechanical blueprint reading.

Operating Schedule

The office uses a standard contract form for all programs. The average length of time required to deliver a program is 30 days, although more or less time might be necessary depending on the logistics necessary to satisfy the interests of the company.

For the 1982-83 year, the office applied a $2.50 per contact hour per student charge for both types of programs. When consumable supplies were required, a nominal lab fee was charged.

Student program evaluations are not applied unless they are requested by the client before the implementation of the program. The college discourages such evaluations because of the potential negative impact they might have on employer/employee relationships. However, an anonymous course evaluation is completed by each individual student participant during the last class session, and a summary copy is given to the instructor (and to the client if it is a contract course).

Outcomes

Some of the companies that the office has served are listed below.

- Fowler Motors
- Frito-Lay
- Ille Divisions of Market Forge
- Pennsylvania Department of Transportation
- United Association of Plumbers and Steamfitters
- Paulsen Wire Rope

Lee College

College

Lee College
Baytown, TX 77522-0818

Program Office/Center

Industrial Education Department
Lee College
Baytown, TX 77522-0818

Other Organizations

Business and Industry

Contact

Howard Duhon, Assistant Dean
Occupational Education and Technology
(713) 427-5611

Purpose of the Program

The Industrial Education Office of Lee College develops special programs that meet local industry needs. The office also presents instruction for international students through local firms and provides courses for several local junior and senior high schools that lack laboratories and/or equipment.

Background of the Program

Baytown, Texas, the home of Lee College, is located 30 miles east of downtown Houston. The city (population 60,000) is located in one of the most industrially impacted areas of the nation.

The college was organized in 1934 and now serves an area that includes 11 school districts. The college offers 32 associate of arts degrees, 23 associate of applied science degrees, 10 associate of science in technology degrees, and 6 certificate programs. In October 1981, the college reported 917 full-time students, 3,948 part-time students, and 6,233 participants in continuing education courses.

In 1965 the college designed a petroleum and chemical process technology program to train process operators for the Humble Oil Refinery (now Exxon Refinery). By 1970, the college was working with 18 major industries in order to develop employees' skills in such areas as data processing, electronics, industrial electricity, industrial mechanics, midmanagement, machine shop, pipefitting, welding, and other technologies.

The Industrial Education Office was established in the fall of 1970 to coordinate the college's relationships with local business and industry. This office's responsibilities include contacting local industry, working with industries that make inquiries to the college, developing special programs to meet industry needs, and preparing program contracts. Program scheduling is arranged to meet industry needs and frequently is not synchronized with the college's semester timing.

An advisory committee composed of industry training coordinators helps guide the office's work, ensures that the college's services are known to the industries the committee members represent, and identifies opportunities in other industries.

Excerpted and adapted from *Community College Centers for Contracted Programs* (Mahoney 1982, pp. 63-66).

Organizational Characteristics of the Program

Funding

In 1970, the Industrial Education Office's budget totaled $140,000. The budget supported all costs of operations, including the salaries of the chairman, support staff, and instructors and equipment, supplies, and curriculum development costs. The college provided part of these funds with the remainder coming from program income. By 1982 the office's budget was $250,000 and covered the costs indicated above. For the 1982 budget, the college contributed $17,000; the remaining $233,000 represents the income from the delivery of industrial training programs.

Staff and Facilities

The office is staffed by a full-time professional faculty member who carries the title of chairperson. The chairperson reports to the dean of Occupational Education. Instructors for the training programs are drawn from the college's faculty.

Nature of Services

The office offers hundreds of special and generic programs for 28 different companies. Ninety percent of the programs are custom designed. Two hundred fifty students participate in these programs each year on the average. The office also presents instruction for international students through local firms and provides courses for several local independent school districts (junior and senior high schools) that lack laboratories and/or equipment. Individual contracts are prepared for each program since the office does not use a standard contract form.

Generic programs are taught on a semester basis only. The special programs are scheduled for the convenience of the firms, and the content is shaped to the company's specifications. Class sizes vary from 1 to 18 students.

Some programs that the office has offered are--

- basic English education,
- technical report writing,
- drafting,
- technical physics,
- technical math,
- boilermaking,
- auto mechanics,
- pipefitting and welding, and
- data processing.

Operating Schedule

For all industry training programs, the office charges a flat rate of $30 per clock hour for each student. Costs for international student programs vary, but they are higher because of the nature of the training. Junior and senior high school student costs are $640 per student per year, the same per student amount paid to the schools by the state.

Program evaluation focuses on company assessments of the value and quality of the training, student estimates of the practicability of the instruction, and the chairperson's examination of instructor performance. Both formal and informal evaluation methods are used.

Outcomes

Some companies that the Industrial Education Office has served are listed below.

- American Independent Oil-Kuwait
- Champion Paper
- Exxon Chemical
- Gulf Oil Refinery
- National Methanol Corporation
- Pittsburg Plate Glass
- U.S. Steel Corporation

Section 2
Industrial Literacy Programs

Forsyth Technical Institute

College

Forsyth Technical Institute
2100 Silas Creek Parkway
Winston-Salem, NC 27103

Program Office/Center

Adult Basic Education

Other Organizations

R. J. Reynolds Tobacco Company

Contact

L. T. Williams, Dean of Adult and Continuing Education
(919) 760-2373

Overview

Forsyth Technical Institute's Adult and Continuing Education Division offers a basic skills course to employees of the R. J. Reynolds Tobacco Company. The 11-week noncredit classes are repeated 4 times a year and are held at various plant sites. These voluntary classes are open to any employee of the company and meet for 3 hours twice a week.

Background Information

The R. J. Reynolds Tobacco Company has maintained a long-term interest in employee development. The company employs approximately 100 trainers and curriculum developers. The company's personnel department offers 20 courses to management and professional personnel and 130 technical education courses to employees.

The company's adult and basic education courses for employees were initiated in the fall of 1983, although courses at the technical level have been offered since 1978. Enrollment in the basic skills classes was stimulated by the construction of a new, computerized manufacturing facility that is scheduled to open in 1986.

R. J. Reynolds initiated the program entitled New Generation Training to help employees learn how to operate and maintain equipment in the new plant. All employees interested in transferring to this new plant must take a reading test. The testing procedure requires a machine operator to read a computer printout, identify appropriate parts of the test machine when lights go on, and solve problems when the machine malfunctions.

Program Description

Forsyth Technical Institute offers basic skills courses as needed. These courses are taught by part-time instructors in the adult and continuing education division.

Excerpted and adapted from *Adult Literacy: Industry-Based Training Models* (Hull, Fields, and Sechler forthcoming).

The literacy courses in reading taught at R. J. Reynolds Company plant sites are noncredit courses. Student enrollment and tuition fees are paid by the company. The company also furnishes the facilities and encourages employees to attend.

Meeting for 3 hours twice a week, the 11-week classes are repeated 4 times a year. Attendance at the classes is voluntary and open to any employee of the company; however, employees attend on their own time. All of the employees electing to attend classes are hourly-wage personnel.

The classes are designed to increase reading speed and comprehension. Many of the students attending classes read very slowly or with a lack of understanding. Most students are motivated to enroll because of low reading test scores; others simply had a desire to improve their reading skill before taking the proficiency test for transfer to the new plant.

On the average, students spend 9 months as class participants. This is enough time for students to feel a sense of accomplishment. One participant said, "Now I notice everything I see. . . . I notice the name of the church bus. If I can't pronounce it, I think about the vowel sounds. Then I see." Many of the participants feel a sense of pride when they begin to help themselves and others, as shown in the following comments:

> ". . . then I'll be happy with myself. A lot of time, I will be behind a car and it will be from out of state."

> "My baby (age 16) and his mama couldn't work it out and I helped him. He took the paper to school and he got an A out of it."

> "My kids are proud of me. They said, 'I think you need to go; it would do you good.'"

The classes use the Laubach Way of Reading program. This program uses direct instruction in an interactive mode between the instructor and one or two students. The self-contained workbooks, published by New Readers Press, encourage the user to complete the blanks or mark illustrations following reading of the story text. The stories often relate to job issues, such as "how do I get along with others at work?" Each of the five levels in this basic reading and writing program contains its own skill book, teacher's manual, correlated reader, and checkup.

Most of the instruction is by lecture, discussion, and workbook. The instruction covers a broad range of topics associated with reading, such as the following:

- Sound-letter relationships
- Number of syllables
- Compound words
- Contradictions
- Endings
- Word recognition
- Listening and writing skills
- Reading comprehension
- Reading advertisements
- Filling in applications

Program Evaluation

The *Adult Basic Learning Examination* (ABLE) is administered to determine the training needs of undereducated adults. This general aptitude paper and pencil test measures five skill areas, including reading. Scores indicate which of three levels (grades 1-4, 5-8, or 9-12) is appropriate for each student. Grade norms for Levels I and II have been developed through correlation with the *Stanford Achievement Test* (SAT).

In addition to evaluating the checkup worksheets in each student's workbook at the end of each lesson, program instructors administer ABLE at the beginning and end of each program year to identify gains made by students in the program. The state's department of education guidelines for adult basic education classes suggest that students should move up 1 grade level for each 120 hours of instruction.

Austin Community College

College

Austin Community College
P.O. Box 2285
Austin, TX 78768

Program Office/Center

Parallel Studies Division

Other Organizations

Texas Instruments

Contract

Dorothy Martinez,
Director
Parallel Studies
Division
(512) 495-7000

Overview

Austin Community College provides remedial math, English, and English as a Second Language (ESL) courses for Texas Instruments' company training program. In addition to these adult basic education classes, Austin Community College provides classroom instruction for technical courses coordinated and administered through Texas Instruments' human resource development (HRD) group.

Background Information

Over the past few years, the Texas Instruments efforts in human resource development have broadened to include basic education as well as technical skill development. A move in that direction was prompted in 1983, when Texas Instruments responded to a need to train higher grade assemblers of twin circuit boards in test operations, an intermediate-level function that created opportunities for workers to advance from assembler to technician. To provide the necessary skills, a self-paced Test Operators Program was offered through Texas Instruments' learning center. It soon became apparent, however, that the results were less than desired.

Representatives from Texas Instruments asked Austin Community College to offer the Test Operators Program in a classroom setting. A needs assessment to determine appropriate starting levels for employees revealed the need to offer remedial mathematics and English prior to the more technical courses in electronics. In establishing the program, Texas Instruments also decided to offer ESL classes for the large Thai and Hispanic populations in the local workforce, as well as GED courses for those who lack a high school diploma.

Excerpted and adapted from *Adult Literacy: Industry-Based Training Models* (Hull, Fields, and Sechler forthcoming).

Program Description

Texas Instruments' Test Operators Program is coordinated by and administered through the company's human resource development (HRD) group. HRD is attached to the personnel department and is set up to respond to the human resource needs of the data systems group. The HRD manager reports to the personnel director, who is also the vice-president of the data systems group.

Management development specialists within HRD are responsible for responding to workers' general skill needs; these can be met either through the company's learning center or through other educational providers in credit or short-term, noncredit programs, either on site or off site. HRD specialists interface with training specialists in the various functional areas to determine (1) what needs the area training specialists can ultimately satisfy best and (2) what general training needs the management development specialists should supply.

The Test Operator Program is offered in cooperation with Austin Community College. Austin Community College provides assessment for appropriate starting levels and also performs all classroom instruction in basic education prerequisites, as well as in the technical courses. Courses are offered on an as-needed basis. If enrollment does not meet minimum enrollment needs, basic education courses can be taken on a self-paced basis through Texas Instruments' learning center or on site, where the courses are taught by supervisory staff until sufficient numbers are prepared to take the technical courses.

Job promotion opportunities at Texas Instruments are closely tied to program completion. All jobs are advertised in-house to employees before they are advertised externally. Certification through the Test Operators Program is included as one of the requirements for the test operator position. Promotion priorities for hourly employees is based upon seniority plus the ability to meet minimum qualifications.

Although a formal assessment of skills is required for all employees entering the Test Operators Program, skill level is not necessarily a determining factor for participation. For interested employees, Austin Community College administers the *Flannigan Industrial Series,* which tests for math skills as well as proficiency in a number of related technical skill areas. The results of the tests are interpreted and shared with workers in individual counseling sessions. To maintain confidentiality, only group assessment results are provided to Texas Instruments unless a consent form is signed by the worker. Regardless of assessment results, the ultimate decision on program entry still rests with the worker.

The primary objective of the Texas Instruments' Test Operators Program is successful completion of the technical courses in direct current (DC) and alternating current (AC). Basic education courses are offered as the need for them becomes clear. Basic English and basic electronic math (covering the concepts of first-year algebra) are included as a prerequisite. As suggested by the needs assessment, ESL has been added for the large Thai and Hispanic populations in the work force. The experience in basic education has motivated a number of employees to complete high school; consequently, a GED course has been added. Texas Instruments pays for all costs in the Test Operators Program.

Instructional Content and Processes

Austin Community College supplies all basic education instructors for the Test Operators Program from its parallel studies division, which provides remedial education. Each instructor must be certified by the state and is required to have bachelor's degrees and an appropriate occupational background in order to teach vocational courses. In addition, Texas Instruments requires each GED instructor to have a bachelor's degree in education or a related field and experience working with adults. Texas Instruments also requires that ABE and GED instructors be able to (1) help adults in setting goals, (2) use flexible teaching techniques, (3) individualize instruction, and (4) guide and motivate participants.

All courses in the Test Operators Program and related basic education skills are held on site, immediately after the shift, in 2-hour sessions. Duration of courses varies, depending on the needs of the students. The first program offered 8-10 weeks in English and 13 weeks in basic mathematics and GED. Because the program is targeted for employees who are moving beyond their current jobs into new positions, courses are taken on employees' time. Courses related to current job performance are offered on company time.

Program Evaluation

With the initial Test Operators Program, no systematic evaluation of impact on productivity was attempted. Austin Community College, however, requests periodic feedback from supervisors on employee performance after training. HRD staff uses various types of evidence as rough indicators of program benefit. Specifically, they report that participants in the classroom-based Test Operators Program--

- passed the Test Operators Program at a 100 percent success rate, whereas nonparticipants did not;
- showed improved job satisfaction on attitude surveys;
- showed satisfaction with training during performance reviews; and
- showed improved work performance, according to supervisors.

Section 3
Economic Development Services

Chemeketa Community College

College

Chemeketa Community College
4000 Lancaster Drive, NE
Salem, OR 97309

Program Office/Center

Training and Economic Center
Chemeketa Community College
Salem, OR 97309

Other Organizations

Mid-Willamette Jobs Council
Service Corps of Retired Executives

Contact

Henry Endler
Business Liaison
(503) 399-5121

Purpose of the Program

Massive layoffs and cutbacks at local pulp and lumber mills created a large group of unemployed workers in the Salem, Oregon, area. Local analysts believed those jobs that were lost were not likely to be restored. Unemployment rates in 1982, frequently in the 10 to 12 percent range, equalled or exceeded those of the rest of the state. The principal goal of the college's efforts was to return unemployed workers to quality jobs in the market as quickly as possible.

Background Information

Chemeketa Community College (CCC) serves the region around Salem, the state capital, including Marion, Polk, Yamhill, and Linn counties. The area, approximately 2,600 square miles, has a population of nearly 350,000. The college has an annual budget of $20 million, a full-time instructional staff of 190, and operates 4 outreach centers in addition to its main campus. Over 6,500 full-time students are enrolled in credit courses, and CCC serves over 12,000 people through its community education programs.

Chemeketa Community College has dealt, and continues to deal, with economic development in various ways. The several functions described here have been sponsored by the Office of Work-Related Experience and the Cooperative Career and Economic Development Center, now renamed the Training and Economic Development Center. Chemeketa Community College identified three basic approaches to the unemployment problem:

- *Attract new industry to the area.* Although recognized as a long-range solution, the college is committed to assist in this endeavor by providing training for the work force of any new industry.
- *Expand small business operations.* Over 80 percent of the area's work force is employed in businesses

Excerpted and adapted from *Economic Development and the Community College* (Long et al. 1984, pp. 37-39).

hiring 10 or fewer workers. Assistance can be provided to existing small businesses to enable them to enlarge. This can be accomplished with few of the zoning, sewer hookup, and tax restrictions associated with a new industry moving into the area.

- *Create new small businesses.* Many unemployed workers have skills and interests that can be transformed into profitable enterprises. With appropriate planning assistance, training, marketing, and referral to sources of venture capital, these skills can be converted into successful small businesses.

Program Description

The college serves the unemployed in the following ways:

- By using the volunteer services of professional and business people to work with those individuals seeking to expand or start new businesses. These experts share their expertise in market analysis, production, manufacturing, and record systems. The city of Salem funded the salary of a volunteer coordinator who matched volunteers with the specific needs of individuals seeking entrepreneurial advice. About 150 volunteers with business expertise were recruited during the first year.

- By utilizing the services of SCORE (Service Corps of Retired Executives) to provide business counseling and workshops.

- By referring individuals who have developed an approved business plan to sources of venture capital for funding of their business operations.

- By referring individuals to workshops, courses, or short-term training programs necessary to start or expand a business or to secure the necessary job skills required for employment.

- By offering job search and job placement assistance for those not interested in a business operation, but who seek reemployment.

- By developing a job bank to match those individuals with the employment needs of business and industry.

In addition to the above services, the college also has worked with the local JTPA administrative agent. In 1982, the Mid-Willamette Jobs Council, the local JTPA administrative agent, received a $568,000 grant from the U.S. Department of Labor to assist dislocated workers. While the origin of funding and the source of clients were different, both the Job Resource Center that was formed on campus and the council programs involved substantially the same type of activity. The council and Chemeketa Community College merged their efforts into one center--the Job Resource Center--to provide better service to the unemployed.

The Mid-Willamette Jobs Council's Displaced Workers Project is one of only six demonstration projects in the nation funded through the U.S. Department of Labor to assist laid-off workers. The Job Assistance Network, working in coordination with Chemeketa Community College, offered a variety of services to these workers. Initially, workers were given an orientation to project services that included gathering an individual's work history and assessing his or her vocational skills and interests. Individual interviews, which involved more data collection, completed the enrollment process. Clients were referred to an in-depth job search workshop, during which job-seeking skills such as resume writing and interviewing

were covered. About two-thirds of these clients went directly to job placement assistance. The remaining one-third entered classroom training activities.

Nearly all of the enrollments in the program came from 12 chosen plants. Letters of invitation were sent to 890 workers, and the 305 enrollees represented a 34 percent response rate. The program sequence was as follows: intake/assessment, job search workshop, classroom training, Job Resource Center, and marketing activities.

About one-third of the clients involved in classroom training were targeted to participate in short-term training programs. Chemeketa Community College developed these programs and hired the staff to implement them. Three major group training projects were offered in the areas of electronics technology, computer operations, and computer-assisted drafting. Additional classroom training programs included 2 programs (32 classroom hours) offered on-site. Their purpose was to update specific skills in computerized control for machinists and heavy alloy welding for welders.

The Job Resource Center and the marketing activities component of the program were designed specifically to help participants get new jobs. The center had a free long distance phone bank and extensive print and video information. The center staff provided help and advice in the effective use of its resources and also in contacting employers. Grants were available for local transportation, out-of-town travel, and relocation expenses. The marketing specialists contacted area employers to explain the program and to inform them of the benefits of the free referral service.

St. Louis Community College

College

St. Louis Community College
5801 Wilson Avenue
St. Louis, MO 63110

Other Organizations

Industrial organizations
Labor groups
Community and statewide associations
State and local government offices

Program Office/Center

Institute for Continuing Education
St. Louis Community College
St. Louis, MO 63110

Contact

James K. Lahr
Business Liaison
(314) 644-9550

Purpose of the Program

With the advance of high-technology production systems, a major employer in the St. Louis area faced the dilemma of either utilizing the high-technology equipment or accepting the fact that it could no longer be competitive in the market. The employer decided to use the technology and turned to St. Louis Community College for assistance.

Background Information

St. Louis Community College serves the metropolitan St. Louis area. St. Louis has a population of more than 1 million people. The college has an enrollment in credit courses of over 30,000 (16,500 full-time students). An additional 20,000 people participate in noncredit programs on the college's 3 campuses.

The aging Hazelwood, Missouri, assembly plant of the Ford Motor Company was viewed by corporate leaders as the company's most obsolete plant when compared with the high-technology systems available within the automobile industry today. For Ford, the solution was obvious--redesign the Hazelwood plant, develop a new economy product line, retool, and begin production. Ford designed a new economy-sized minivan, the Aerostar, and the company expects to spend over $600 million expanding and revitalizing the facility with the latest high-technology equipment so it can produce the new vehicle. Ford expects Hazelwood to be one of the most advanced assembly lines in the world.

With the installation in the plant of numerous state-of-the-art electronic and robotic systems, employees suddenly were confronted with having not only to operate, but also to service and maintain advanced robot assembly lines. It was immediately evident that retraining 270 skilled trades maintenance journeymen and their supervisors must be done before production of

Excerpted and adapted from *Economic Development and the Community College* (Long et al. 1984, pp. 39-41).

the new line could commence. St. Louis Community College, through its Institute for Continuing Education, was approached by Ford to study the problem and to customize an on-site training program to upgrade the skills of its employees.

Program Description

Forming a rare project partnership, St. Louis Community College and Ford Motor Company used networking to assemble the resources of the following public and private agencies:

- Local 325 of the United Auto Workers (UAW)
- Special School District of St. Louis County
- Missouri Department of Elementary and Secondary Education
- St. Louis Regional Commerce and Growth Association
- Private Industry Council of St. Louis/St. Louis County
- Governor's Office of Manpower Planning

The process included the assembling of a collegewide task force of faculty and staff to develop the customized training package, to recommend training materials and equipment, to identify instructional resources, and to establish a budget. The cost of the project, $583,000 for approximately 11 months training, was borne by Ford, the Missouri Department of Elementary and Secondary Education, and the Governor's Office of Manpower Training, that utilizes funds provided through the Job Training Partnership Act.

A project coordinator was assigned from the Institute for Continuing Education to work on a daily basis with the automation specialists at Ford to develop specific curriculum modules and to monitor the training activities. This coordinator and the automation specialists also worked closely with the instructors and representatives from Local 325 UAW and the employee groups to refine the various training components to ensure that specific needs were met and the variety of learning levels were accommodated.

Company employees selected for training were provided with basic skills and learning styles assessment services by the college's Metropolitan Re-employment Project (MRP) and the Learning Achievement Center. A new training center, equipped with the most modern electronic and microcomputer training equipment, was erected by Ford at the Hazelwood plant especially for this project.

The skilled trades journeymen designated for training included 100 electricians, 80 pipe fitters, 45 millwrights, and 45 toolmakers. In addition, 15 of their supervisors from the plant were provided with individualized technical skill upgrading. As a result of college/Ford staff interaction, a select group of plant engineers and managers also received technical upgrading assistance in computers and microprocessors. It is contemplated that in the future, a major instructional component for all plant workers will include such areas as human relations skills, stress management, motivation, time utilization, quality control, and effective communication.

Summary

Through its Institute for Continuing Education, St. Louis Community College administers the required technical and human resources assembled by the partnership. The college obtains instructors from its existing faculty, area vocational-technical schools, and the industrial community. A project management team provides feedback and monitors the training. This team includes the dean of the institute and its on-site project director, a representative from the Missouri Department of Elementary and Secondary Education, as well as Ford's assistant supervisor or plant engineering, automation specialists, and the United Auto Workers' local union shop steward for the skilled trades journeymen. This project, by combining the resources of a variety of community components, has achieved the goal of retraining the labor force of a major employer.

Guilford Technical Community College

College

Guilford Technical Community College
Box 309
Jamestown, NC 27282

Program Office/Center

Office of Industrial Development and Training
Guilford Technical Community College
Jamestown, NC 27282

Other Organizations

Procter and Gamble Company

Contact

Lowell Speight
Business Liaison
(919) 379-5233

Purpose of the Program

When the Procter and Gamble Company decided to build a manufacturing plant in Greensboro, North Carolina, the company went to the Guilford Technical Community College (GTCC) for assistance in security training. As the manufacturing plan progressed from start-up to operation, GTCC continued to provide training and staff development efforts.

Background Information

Guilford Technical Community College is a public, 2-year institution serving Guilford County, North Carolina. GTCC was founded as an industrial education center in 1958 and was authorized as a degree granting, technical institute in 1965. GTCC is fully accredited by the Southern Association, and it is now the third largest of the 58 2-year institutions in the North Carolina Community College System. In the 1983-84 academic year, over 25,000 students were involved in its programs in one way or another, including continuing education and extension programs.

Guilford Technical Community College has been serving the training needs of area business and industry for over 25 years. In 1982, internal responsibility for coordinating all economic development programs and services offered by the college was consolidated in the Office of Industrial Development and Training. This approach has been well received by business and industry, and has both expedited delivery of training and reduced the duplication of training efforts and the resulting costs.

Excerpted and adapted from *Economic Development and the Community College* (Long et al. 1984, pp. 41-42).

Program Description

One of the most apparent assets of GTCC's training and development efforts is the continued assistance it provides a company as it progresses from start-up to maturity. The training history of the Procter and Gamble plant located just north of Greensboro provides insights into this type of planning, training, and delivery.

Procter and Gamble initially came to Guilford Technical Community College for assistance in security training on the recommendation of the Greensboro Chamber of Commerce. GTCC's assistant dean for occupational extension, as well as the college's new industry area representative, worked with Procter and Gamble on the package. The resulting training component was built into the total plant development project during the initial planning and building stage.

A second program was designed to train personnel in dentifrice compounding and processing by providing a comprehensive orientation to the industry and products, and then job training in the specific operations involved. GTCC approached the job training by videotaping the specific jobs in Procter and Gamble's Iowa City and Cincinnati plants. Task analyses were done for each of the various operations, and a training plan was developed for each function using the techniques practiced in the two model plants. This program in technology transfer was aided by a specialist in the videotaping field secured by GTCC. Classrooms were arranged in a neighboring school, and approximately 100 operators were trained in this program.

Two additional training programs were established under the rubric of occupational extension. Instructors were sent into the facility, and training was conducted on-site in two areas:

- *Typing skills.* Approximately 40 people were qualified through this program.
- *Maintenance training.* This program was established to provide maintenance training for each line operator. This project is ongoing.

Another program was started in the fall of 1982 to train approximately 40 new Procter and Gamble employees in the production of a new product. In the spring of 1983, GTCC arranged for approximately 25 supervisors and department heads to be trained in audiovisual production techniques in a 3-day workshop.

Summary

In order to coordinate training efforts, the college formed an Industrial Relations Committee, chaired by the head of the Office of Industrial Development and Training. The committee includes representatives from those departments within the college that have business and industry training responsibilities. This committee serves to keep all training areas informed of programs and courses in progress or being considered. It also provides an ongoing forum for identifying successes and solving problems. The Guilford Technical Community College process provides a training source that continues to work with individual companies as they mature. This process provides GTCC with essential background knowledge and the means for constantly assessing a company's developing needs.

Triton College

College	Other Organizations
Triton College 2000 Fifth Avenue River Grove, IL 60171	Business, Industry, Unions, JTPA, other colleges
Program Office/Center	**Contact**
Employee Development Institute; Job Training Institute; Dislocated Workers Assistance Center; Mid-Metro Economic Development Group; Business Industry Council; and Career Planning and Placement Center	Vernon Magnesen Associate Vice President (312) 456-0300

Purpose of the Programs

Within Illinois and Cook County, responsibilities for economic development are fragmented. The State's lead agency is the Department of Commerce and Community Affairs. Its responsibilities include, among others, statewide industrial promotion, Job Training Partnership Act (JTPA) administration, programs for small business, federal contract procurement, and administration of a portion of HUD monies. The Illinois community colleges have become the focal point of many of the new economic development programs initiated by the State Department of Commerce and Community Affairs. In addition, community colleges received a new annual appropriation of $2.5 million for special economic development projects in 1984. With these funds, each community college was expected to develop or expand a specialized, contractual training arm or business assistance center.

Background Information

Triton College is located in the western suburbs of Cook County in the Chicago metropolitan area, and is one of 39 community college districts in Illinois. Triton serves 26 communities, and is the state's largest single-campus community college, with an enrollment of 26,000 (9,000 full-time). Triton is one of seven community colleges in the Cook County suburbs, and directly borders Chicago, which has its own city community college system.

Almost from its beginning in 1964, Triton placed the area's needs, particularly for technical training, high among its priorities. The college developed physical facilities of more than 800,000 square feet for technical training, earning it the title of "Career Center of the Midwest." Contractual training and seminars for local businesses were adopted as a delivery system more than a decade before other community colleges focused attention on such strategies. The development of a

Excerpted and adapted from *Economic Development and the Community College* (Long et al. 1984, pp. 42-45).

strong technical training component, along with the early creation of a contractual training unit known as the Employee Development Institute, served as a base on which the college developed its economic development programs.

Program Description

Triton College has developed a variety of mechanisms to meet the economic development needs of the community. These include the--

- Employee Development Institute,
- Industry Retention Survey,
- Job Training Institute,
- Dislocated Worker Assistance Center,
- Mid-Metro Economic Development Group,
- Business Industry Council,
- Career Planning and Placement Center, and
- Business Industry Tracking System.

Employee Development Institute

Customized training is offered at Triton College through the Employee Development Institute (EDI), geared toward contracting with companies for a limited and specific period of time, and through the college's School of Career Education, which contains Triton's degree and certificate programs and is generally based on long-term cooperative arrangements.

An example of a long-term agreement is Triton's association with General Motors (GM) since 1981. GM requested assistance in three areas of customized training: apprenticeships for future GM mechanics, skills upgrading for mechanics working at GM dealerships, and insurance adjustor training. Apprenticeship training is structured as a 2-year associate degree program for which students must be sponsored by a GM dealership. Training lasts for 87 weeks and combines classroom studies with practical experience at local GM dealers. The other two GM programs are short term and intensive in nature. Mechanic skills upgrading takes place in workshops offering a week or less of instruction in the latest GM products. The training is delivered by Triton instructors at GM's training center. The GM insurance adjustors program is a 3-week intensive course.

In addition to working with the School of Career Education on specific projects such as the GM insurance adjustors program, the Employee Development Institute specializes in designing and implementing training programs for local organizations. EDI has a 15-year history of working with local business, industry, professional groups, and municipalities. Training has been designed for production workers, office personnel, supervisors, staff members, managers, and executives. In 1983, more than 4,500 persons participated in more than 250 programs sponsored by EDI.

An example of an on-site EDI program is an arrangement with the International Union of Operating Engineers to provide entry-level and advanced training in air conditioning, refrigeration, and energy management. These programs are delivered in evening and early morning formats at the union headquarters in Chicago.

EDI has made special efforts to reach small businesses in the past two years. In the past, Triton had served primarily larger businesses of 150 employees or more. The new emphasis at the college has been to provide increased services for small businesses. Triton now cosponsors seminars with the Small Business Association and runs an intensive Small Business Institute. The college conducts a series of informative breakfast programs featuring speakers

of interest to owners and employees of small businesses. Small business mixers, scheduled after working hours, facilitate networking among small business owners.

Industry Retention Survey

An industry retention survey program was created in 1983 to survey 230 businesses within the Triton district as part of an effort to retain existing business and industry in the western suburbs. Survey teams, comprised of 80 community volunteers, local chamber and municipal leaders, representatives from the Illinois Department of Commerce and Community Affairs, and Triton personnel, especially from the Employee Development Institute, scheduled and conducted the personal, on-site interviews.

At the conclusion of the survey process, a report was prepared for each municipality, along with a report combining the data from all the municipalities. These reports were hand delivered to the chief elected official of each municipality. Problems identified within each town were referred to the appropriate agency. The effort was so successful in developing leads for the Employment Development Institute that the survey process has become institutionalized at Triton as a major outreach vehicle to business.

Job Training Institute

In just a few years, Triton's Job Training Institute (JTI), specializing in short-term, intensive training, has developed a record of training and placing students in entry-level positions in fields where there is a high demand. Programs usually last from 6 to 16 weeks, and range from 100 to 300 hours. Individuals can train for careers as bank clerks, burglar alarm installers, nurse assistants, phototypesetters, locksmiths, security officers, and many other occupations. They can also learn skills appropriate for entrepreneurship in areas such as drywall installation and deck construction. The Job Training Institute places students in entry-level positions through practical, hands-on instruction on the kinds of equipment used on the job. JTI's short-term programs are designed to permit an individual to learn quickly those skills in demand by local business and industry. JTI can best be viewed as a specialized delivery system. Organizationally, it is part of the college's occupational program area. JTI can provide services under contract arranged through EDI or for federally subsidized JTPA programs.

Dislocated Worker Assistance Center--JTPA Title III

With the major downturn in the economy, Triton College received funds from the JTPA Dislocated Worker Program to establish a regional Dislocated Worker Assistance Center. The center provides a comprehensive employment and training program, including counseling, assessment, job search assistance, job development, training/retraining, prelayoff assistance, and relocation assistance to eligible dislocated workers in the Triton area. The program is designed to return participants as expeditiously as possible to quality jobs.

Mid-Metro Economic Development Group

By far the most ambitious new program at Triton College has been the development of the Mid-Metro Economic Development Group. This group is primarily a privately funded effort formed to focus attention on attracting new business and/or helping existing business grow and expand. Initiated by Triton College in cooperation with neighboring Morton College, Mid-Metro evolved through a series of organizational meetings involving Illinois Bell Telephone, Northern Illinois Gas, Commonwealth Edison, Northwest Suburban Manufacturers Association, Oak Park Development Corporation, and First Suburban National Bank of Maywood. The group has filed for recognition as a not-for-profit organization, hired an executive director, and organized a drive

to raise financial support for the economic revitalization of the western Cook County suburbs.

Other Activities

Joining a growing national trend, Triton College established a Business Industry Council (BIC) to provide guidance and support for the development of college-sponsored business services and training endeavors. Representatives on the BIC are selected from construction, manufacturing, transportation, retail trade, finance, insurance, real estate, and service industries. The college also has a representative on the private industry council of suburban Cook County.

Career Planning and Placement Center

Another program of expanding importance to Triton's economic development efforts is the Career Planning and Placement Center. Traditional services have been expanded beyond student placement to provide a computerized job bank, prescreening of applicants for employers, salary information, career assessment, and outplacement counseling. In fact, large employer demand for these services has significantly increased the overall importance of the Career Planning and Placement Center in the college's economic development program beyond original expectation.

Business Industry Tracking System

The college designed a computerized Business Industry Tracking System (BITS) in an effort to maintain smooth linkages with local business. With an increasing number of business contacts being made by personnel from many units within the college, a danger exists that Triton College staff members will "trip over" each other at the doorstep of a local employer. To avoid this, the automated record-keeping system lists more than 2,000 companies that have any relationship with the college, and includes detailed records on those relationships.

Orangeburg-Calhoun Technical College

College

Orangeburg-Calhoun
Technical College
3250 St. Matthews Road
Orangeburg, SC 29115

Program Office/Center

South Carolina Technical
Education System (TEC)
Orangeburg-Calhoun
Technical College
Orangeburg, SC 29115

Other Organizations

State and county
development boards

Contact

M. Patrick Black
Vice President
(803) 536-0311

Purpose of the Program

The South Carolina Technical Education (TEC) System was established in 1961 to provide technical training for jobs and to attract more industry to the state. Through special schools, and the TEC System's plan for efficient and cost-effective plant start-up, more than 80,000 people have been trained for more than 850 industries in the past 23 years.

In the beginning, career training primarily involved jobs in the textile industry. Now, the TEC System offers more than 200 career choices in its 1-year and 2-year programs. Other choices include continuing education and occupational upgrading. Over 300,000 people were enrolled in 1 or more of the programs offered by the 16 technical colleges in the TEC System during 1983.

Background Information

Orangeburg-Calhoun Technical College is a comprehensive, 2-year technical college that offers diverse career opportunities for students through a variety of programs. When the college opened as Orangeburg-Calhoun Technical Education Center in 1968, it was the 11th such center in the State. In 1974, the institution officially became a technical college.

Orangeburg County has a population of 83,000 residents in an area of 1,106 square miles. The county seat, Orangeburg, has a population of 14,933. The county has an economic development commission that seeks out new industry and works with existing industry. The executive director of the Orangeburg County Development Commission is housed at the college. Calhoun County has a population of 12,106. St. Matthews is the county seat, with 1,500 inhabitants. The county has an economic development commission, but no full-time executive director.

The state and county development boards work in close cooperation to bring industrial prospects to Orangeburg and

Excerpted and adapted from *Economic Development and the Community College* (Long et al. 1984, pp. 45-47).

Calhoun counties when they have indicated an interest in building a new plant or expanding an existing facility. The first stop is Orangeburg-Calhoun Technical College (O-CTC) to meet with a team of citizens representing many aspects of the community. This team's objective is to convince the prospect to locate in the area. It is composed of local development board members, public utility representatives, bankers, job service personnel, industrial representatives, and a training specialist from the South Carolina TEC System. The president of O-CTC is a member of the team and represents the training component.

The college president usually gives a brief overview of the area and the TEC System training capabilities. A tour of the college with special emphasis on the industrial training building is important. This facility is a definite selling point to the prospect, in that the college had demonstrated its commitment to industrial and economic development by having constructed a $2 million building designed specifically to train workers for jobs in new and existing industries. New industries may set up a training lab on campus while their buildings are under construction, additional evidence of the college's commitment to offer assistant in training.

Program Description

Since 1961, the TEC System in South Carolina has been providing preemployment training for new and expanding manufacturing firms in South Carolina. The program is called Special Schools because it is tailored to fit the needs of any given industry locating or expanding in South Carolina. Special Schools are provided for trainees and industry alike at no cost. All costs associated with the program are paid by the taxpayers of South Carolina, but the initial investment by the State is small compared to the long-range return in trained labor and an increased tax base.

The training is voluntary on the part of the trainee. Trainees are not charged for the course, nor paid while in class. Upon completion of the training, trainees are under no obligation to accept employment with the company, nor is the company required to hire the trainee. When the state development board attracts an industry to South Carolina, the training services of the TEC System are immediately available. The objective is to provide the industry with an initially trained work force that is ready to produce quality goods and services for sale on the first day of production in South Carolina.

Setting up a training program follows an orderly sequence of events:

- *Analysis.* Company officials are visited by TEC industrial consultants. In many cases, consultants visit the out-of-state plants to observe operations.
- *Planning.* A complete plan for recruiting, selecting, and training the necessary workers is proposed.
- *Schedule.* A lead time schedule is developed to pinpoint all recruiting, testing, selecting, and training activities. A training time frame is finalized for each job description.
- *Preparation of training manual.* Manuals are designed at no expense to the company and are printed at the TEC support center in Columbia.
- *Recruitment of quality instructors.* Qualified instructors are hired by the State from local industry, technical colleges, or from the company.
- *Recruitment of trainees.* Trainees are recruited through the job service agency. Potential trainees are tested, and 1 trainee is usually selected for every 10 that apply.

- *Preparation of training site.* New arrangements of machinery, electrical hookups, ducts, and compressed air are completed at the college when required.

- *Project management.* The program is monitored continuously by the industrial consultant to ensure that trainees are ready to produce quality work.

By providing trainees who successfully complete the program to the company, the system provides trained employees at no expense to the company. This permits the company to make a profit on the first day of production without loss of time, energy, and money.

Mt. Hood Community College

College

Mt. Hood Community College
26000 SE Stark Street
Gresham, OR 97030

Program Office/Center

Office of Economic Development
Mt. Hood Community College
Greshman, OR 97030

Other Organizations

Business and industry
Community, city and state agencies

Contact

Michael C. Dillon
Business Liaison
(503) 667-6422

Purpose of the Program

Community colleges interested in becoming involved or increasing their involvement in economic development might do well to look at Mt. Hood Community College's (MHCC) well thought-out, logical approach as a model. The process began by changing the college's internal tone and external image regarding economic development in Oregon. Other activities include attracting new business and industry to the area while serving existing firms. MHCC also works with local communities in its district to develop individual plans for each area.

Background Information

MHCC is located at the eastern periphery of the Portland metropolitan area and encompasses 1 million people. Of Oregon's 13 community colleges, 3 are located in the Portland area. MHCC is the third largest community college in the state, offering 4,000 class sections to over 20,000 students.

Establishing economic development was a primary institutional goal and objective in the college's long-range comprehensive plan. Securing board commitment to support the college's role in economic development was a crucial step. The college has taken an advocacy position for economic development with municipalities, agencies, organizations, associations, and citizen groups. In cooperation with city officials and community representatives, college staff members have traveled out of the state to work with industry leaders considering locating in Oregon. The college submits detailed, custom-tailored proposals to companies, specifying what it will do to train potential employees if they locate in Oregon, and initiates follow-up calls to be sure these companies know of the college's continued interest. A business-industry contact program maintains relationships with each business or industry in the district.

The college is completing a major reorganization to redirect current physical, financial, and personnel resources to meet existing and future needs in economic and community development more effectively. Mt. Hood Community College directs local and regional marketing efforts to all

Excerpted and adapted from *Economic Development and the Community College* (Long et al. 1984, pp. 47-49).

community segments, stressing that the community college is part of the solution to a healthy economy. MHCC provides a representative to the East Multnomah County Economic Development Council.

Program Description

Attracting New Business and Industry

To provide background information for economic development efforts, MHCC has conducted research for the community to develop data related to available personnel, power, and other pertinent geographical, social, educational, and labor pool statistics. In addition, the college has continually responded to changing and emerging vocational and technical education training needs by developing new instructional programs to serve existing and new business and industry. Recently developed programs include word processing technology, computer specialist technology, computer-assisted design, computer-assisted manufacturing, robotic technology, and international business and marketing. Mt. Hood Community College has been a national leader among community colleges in the establishment of international programs, and received a Title VI grant to develop its Business and International Education Program further.

As specific examples of these efforts, the college provided campus-based and industry-based training to new and existing employees when Boeing of Seattle opened its Portland plant in the district. MHCC also met with representatives of several microelectronic industries interested in locating in its district because of the availability of a trained labor pool, educational and college access, health care facilities, and a positive industry outlook.

The college is also investigating zone changes to existing college property to permit the development of a cooperative business, industry, and educational center for production, education, and research. The college's administrative resources will be redirected to work with community, city, and state agencies in attracting new business and industry, particularly through specialized training to new business and industry.

Serving Existing Business and Industry

Whereas attracting new business to the area is dramatic, a comprehensive economic development program also includes continued service to existing businesses. MHCC's nationally recognized small business management program has provided specialized assistance to over 40 businesses in its district. Participant response to this program has been outstanding. For the past three years, the college has offered a business and industry contact program that provides a variety of direct services, including specialized and contracted employee training that may be campus-or industry-based. Participants include General Telephone, American Institute of Banking, Fire District 10, Boeing, and Rago Wagner Mining Equipment.

Other related services to the community have included employment services for special populations. The college recently sponsored a free, 1-day conference to assist the unemployed that was attended by over 1,200 persons.

Developing a Community-by-Community Plan

Mt. Hood Community College serves as a catalyst for developing cooperative community-to-community relationships in areas of economic and community development. The college president's monthly newsletter to district leaders provides a vehicle for communicating with all areas within the district. The information includes topics of mutual interest and concern regarding

college activities and business, industry, and community welfare.

MHCC recently invited civic leaders from five district communities and eight high school districts to discuss, plan, and share their vision of the future with noted experts. In addition, the international education forums, cosponsored by the college and chambers of commerce, bring 70 to 100 business, industry, and community leaders to the campus monthly to hear local, state, national, and international experts speak on international business, international trade, international economics, and other related topics.

Hocking Technical College

College

Hocking Technical College
Route 1
Nelsonville, OH 45764

Program Office/Center

Beaver Industries
Hocking Technical College
Nelsonville, OH 45764

Contact

Judy Mason
Dean of Occupational Education
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Purpose of the Program

A student corporation, a for-profit company, has been formed by a group of students at Hocking Technical College. While the operation is barely off the ground, associates are pleased with the success of the venture thus far.

Background Information

Hocking Technical College is an institution of approximately 4,000 students, located in a small, southeastern Ohio town of about the same size. Despite its somewhat isolated location, the college attracts students from all 88 Ohio counties, from 20 other states, and from 20 foreign countries. Hocking Tech's programs bring approximately 100 international students to the campus at any given time.

Hocking Technical College participates actively in a wide range of economic development efforts, many of which are similar to those described in previous case studies in this chapter. What is unique at Hocking Tech, are the four projects through which students acquire entrepreneurial skills from operating real businesses. Those businesses are the Hocking Valley Inn (a college-owned and college-operated motel/restaurant facility open to the public), a sawmill, a travel agency, and the Beaver Industries corporation. The student corporation is the most innovative.

Program Description

Beaver Industries has filed articles of incorporation and is officially operated as a producer of wood products for fuel. The corporation was formed not only to provide employment and experience for students, but also to provide a needed service in the area.

Corporate stock was sold. Since the venture related directly to the skills learned in the natural resource technology program, those students were given first chance to buy stock. Each share of preferred stock was sold for $30 and ownership of a share enables students to work and to

Excerpted and adapted from *Economic Development and the Community College* (Long et al. 1984, pp. 49-50).

participate in the profits of the corporation. Shares of preferred stock were limited to 16 since it was felt the smaller the group, the more profit for the students involved. As business grows additional stock will be sold.

The design of the production area is aimed at efficient operation. The corporation contracted with the timber harvesting program to supply the raw product--8-foot-long logs. The production line is geared to cut logs to specified lengths. Wood can be custom cut and logs may be left whole or they may be split. A cord of wood can be cut and split in an hour and a half and is sold for $55.

Corporate officers and workers are all students. Two instructors serve as faculty advisors and the vice-president of fiscal operations is the statutory agent. Initial steps taken by the group included determining basic needs, such as how much stock would be sold at what cost, and how much capital investment would be required. Corporate officers were elected and supervisors were chosen to run the operation.

Since Beaver Industries is a for-profit company, income taxes are withheld and workmen's compensation taxes are paid. Workers receive minimum wage and are paid every two weeks. Students must work as scheduled or find a replacement worker for their shift. Their work is evaluated by their peers and each employee is subject to being dismissed if the work isn't up to standard.

Few colleges in the nation can match the innovative entrepreneurial spirit displayed at Hocking Technical College through the creation of Beaver Industries. Students report that the formation of the corporation has been an excellent experience--a true case of learning by doing.

Part II
Case Studies of Programs for Organized Labor

OVERVIEW OF PART II

Organized labor has a vested interest in ensuring that workers have a variety of educational offerings available to them. These case studies describe two different types of programs:

1. Education and Training Programs

2. Apprenticeship Programs

A variety of worker education programs are discussed in the case studies.

Although similar in structure and funding, the education funds presented offer distinctive types of programs. Because it represents an occupationally diverse membership, the Education Fund of District Council 37 provides a full range of programs. District 1199's Training and Upgrading Fund is more limited in scope because its members are all health care professionals.

The Wayne State University's University Studies and Weekend College Program represents another type of worker education program. In this case, the program was developed by an educational institution with the cooperation and collaboration of labor unions.

The retraining programs for displaced workers are examples of short-term programs developed to meet a need created by changing economic conditions. The three programs discussed here demonstrate that unions enter into a variety of collaborative efforts in order to provide training opportunities for workers.

Four case studies describing apprenticeship training are presented. These case studies describe the cooperative effort that exists between postsecondary institutions and industry. The contributions by and benefits to both the college and industry are discussed.

Section 4
Education and Training Programs

American Federation of State, County, and Municipal Employees (AFSCME) District Council (DC) 37

Union

American Federation of State, County, and Municipal Employees (AFSCME) District Council (DC) 37

Location

New York, NY

Overview

The Education Fund of the American Federation of State, County, and Municipal Employees (AFSCME) District Council (DC) 37 is an exemplary model of a labor-sponsored education program. DC 37 of AFSCME, which represents 110,000 members from New York City civil service locals, is a public service union affiliated with the AFL-CIO. In order to meet the educational needs of its occupationally diverse membership, the fund was established in 1971 through an agreement that called for New York City to contribute $25 per covered employee to a fund that would be used to meet a general set of educational objectives (Denker 1982; Shore 1979).

Because of its complex nature, the fund can only be described here in very general terms. Readers wishing a complete description of the fund's development and operation should consult *Education Fund of District Council 37: A Case Study* (Shore 1979).

Program Offerings

The fund, which is viewed primarily as a vehicle for enhancing the career development opportunities of its users, has three major types of programs:

- Basic skills development programs
- College degree programs
- Career-related programs

Basic Skills Development Programs

The basic skills development programs of DC 37's Education Fund have several components, including high school equivalency classes, English-as-a-second-language (ESL) training, and a reading improvement program. Instruction to prepare individuals to pass the New York State High

Excerpted and adapted from *Organized Labor Education and Training Programs* (MacKenzie 1984, pp. 35-36).

School Equivalency Examination is offered on both an individual and small group basis. ESL instruction is specialized instruction available to union members whose first language is not English. The reading improvement program provides one-to-one tutoring to members with very limited reading abilities. The tutoring is designed to increase members' work effectiveness and to prepare them to take promotional civil service tests. Reading improvement program tutors are retired members of DC 37 who have been trained by the Literacy Volunteers of New York City.

College Degree Programs

Like the basic skills development program, the college degree programs also have several components. The most extensive is the tuition refund program. Through this program, eligible members attend credit, degree-related classes at local colleges or universities. Although many members choose to attend classes at the City University of New York (CUNY), some elect to attend special programs at the DC 37 campuses of either the College of New Rochelle (CNR) or Hofstra University.

The DC 37 campus of CNR is the only fully accredited, union-sponsored college in the county. Since the union contracts directly with the college for the program, it is not officially a part of DC 37's Education Fund. However, many students use educational fund monies to pay their tuition. All classes are held at DC 37's headquarters and students are actively involved in planning courses and seminars. In 1978, there were 767 enrollees in the DC 37 program at CNR. (For a more complete description of this very unusual program, see Taaffee and Litwak 1980.)

The DC 37 campus at Hofstra University offers a 4-year program in labor/liberal arts/social services. The purpose of the program is to train leaders who will be able to solve urban problems. Program enrollees must meet criteria established by the Education Fund, Hofstra, and the New York City Department of Personnel. In 1978, there were 70 enrollees in this program (Shore 1979).

Contracted programs are another component of the college program. These include a special college program offered in cooperation with CUNY in which union members take custom-designed courses that provide a "transition" into regular college-level courses. Another contracted program is a labor/liberal arts program for women offered in cooperation with Cornell University's School of Industrial and Labor Relations. Through this program, union members may take credit courses in labor studies and communication skills designed to prepare them for further college work as well as to help them develop an understanding of the labor movement.

Career-Related Programs

Programs related to several specific career areas are offered as a part of DC 37's Education Fund. There is, for example, a fund-sponsored training program in allied health areas that is designed to upgrade health and hospital employees. This program is offered in cooperation with New York City Health and Hospitals Corporation and the New York City Department of Health. A clerical skills program offers courses in shorthand, typing, and other clerical areas for the purpose of skills development and job upgrading. Graduates of the clerical skills program can enter a special program at CUNY to receive a degree in secretarial sciences. There are also career-related programs in nursing and accounting (Taaffee and Litwak 1980).

Factors That Contribute to the Fund's Success

It is estimated that during 1977 nearly 10 percent of the 76,000 employees who were eligible for the Education Fund participated in one of its programs. This figure is considerably higher than the national average of 3-4 percent. Three key elements contribute to the success of the fund. They are as follows:

- It meets the educational needs of the population eligible for its programs.
- The education is offered in the context of the union.
- The fund's program has features that ease the transition of working adults back into the classroom.

Other studies (Charner et al. 1978) reveal that training programs available to union members have barriers that prohibit workers from participating. The DC 37's Education Fund, however, attempts to reduce barriers to participation in education faced by working adults through the following mechanisms:

- Flexible, simplified admission procedures
- Scheduling arrangements that accommodate work schedules
- A diversified, nonrestrictive curriculum
- Little or no out-of-pocket expenses for students
- An accessible network of support services including widely available group and individual counseling
- Widespread publicity of the fund and its programs (Shore 1979, xiii)

References

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National Union of Hospitals and Health Care Employees District 1199

Union

National Union of Hospitals and Health Care Employees, District 1199

Location

New York, NY

Overview

Local 1199, National Union of Hospitals and Health Care Employees, has developed a training fund for its New York-area members. The union's leadership recognized that educational requirements for health care industry jobs were continually being raised. Union leaders felt that one way of keeping black and Spanish workers, mostly women, from being located in low-level jobs would be to provide them opportunities for further education. In 1969, the Training and Upgrading Fund was established as a result of collective bargaining between District 1199 and the League of Voluntary Hospitals and Homes of New York. The agreement requires participating institutions to contribute an amount equal to 1 percent of the gross payroll of Local 1199 members to a trust fund that is administered by trustees (Denker 1982; Shtob and Hackney 1980).

Program Offerings

Like DC 37's Education Fund, District 1199 offers a variety of educational programs through its fund. At the first level, instruction is remedial, since many thousands of the union's members either lack a high school diploma or need refresher courses to prepare them for further training. To fulfill this need for basic education, the fund has established a school that offers both morning and evening high school equivalency and college preparatory classes. This school serves over 300 of the union's members each year (Shtob and Hackney 1980).

At the second level, the fund makes tuition assistance available to District 1199 members for courses that they pursue on their own. Nearly 1,000 members receive aid for a range of health-related studies provided by academic and technical training institutions throughout the city (ibid.).

Excerpted and adapted from *Organized Labor Education and Training Programs* (MacKenzie 1984, pp. 37-38).

At a third level, the fund sponsors courses of study at metropolitan-area colleges and teaching hospitals. These are full-time courses of study available to members who meet requirements of the fund and the teaching institution. Individuals who are admitted to these programs are granted a leave of absence by their employers and receive a stipend from the fund of 85 percent of their net salary for the period in which they are in school. Nearly 300 members participate in these training programs each year (ibid.).

Although District 1199's Training and Upgrading Fund concentrates most of its resources on basic education and training for better jobs, it also sponsored "Bread and Roses." Operated from 1979 to 1981, "Bread and Roses" was a project designed to "celebrate the twentieth anniversary of the union's organizing campaign among low-paid hospital workers" (ibid., p. 36). The program featured musical and dramatic performances and art exhibitions at the union's New York City headquarters and at its 1,600-family cooperative housing development in the city. Professional dramatic, musical, and poetry programs were also presented in institutions where members worked.

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Wayne State University

Union

United Auto Workers (UAW)

Location

Detroit, MI

Other Organizations

Wayne State University

Overview

In 1973, Wayne State University in Detroit began its University Studies and Weekend College Program, an undergraduate bachelor's degree program designed to meet the needs of working adults. Unlike the educational funds discussed in the two previous case studies, the Wayne State program was not developed by a labor union or specifically for labor union members. The university, however, capitalized upon its positive relationships with the city's labor community in planning and implementing the program. Using its ties with labor leaders as an entree, the program has been able to involve many blue-collar and service workers in higher education. The United Auto Workers (UAW) has been a key factor in the success of the program. The director of education for the UAW and staff members participated actively as the program was developed. They, in turn, involved UAW regional representatives in order to reach out to UAW locals. Many UAW locals have established cooperative relationships with the program and classes are often held at local UAW headquarters. Finally, the UAW negotiated tuition refund benefits, amounting to $1,000 per year per union member, allow UAW members to take advantage of the Wayne State University Studies and Weekend College program (Denker 1982; Stack and Paskal 1980).

Program Offerings

Because of the program's unique delivery system, working adults are able to take three four-credit courses per term. Instruction is delivered in the following ways:

- *Televised presentations.* Television courses appear at variety of times so students can watch them in their homes at their convenience.
- *Once-a-week workshops.* Workshop courses using a seminar format meet once a week for 4 hours. They are held at a variety of times and meet in a number of different locations including local union halls, churches, high schools, and libraries.
- *Intensive weekend conferences.* Twice each quarter, weekend conference courses meet on the Wayne State campus. These intensive sessions include resources not ordinarily available in more traditional classrooms including films, nationally recognized speakers, and so forth (Stack and Paskal 1980).

Excerpted and adapted from *Organized Labor Education and Training Programs* (MacKenzie 1984, pp. 38-39).

Although the delivery system is designed to eliminate barriers of time and distance, it is the curriculum that facilitates successful completion of the degree program. The three courses in which a student enrolls each term are organized around a common theme from one of the following areas--social sciences, humanities, and science and technology. The themes themselves are approached from an interdisciplinary perspective. For example, a student meeting a social science requirement might be studying the topic of work and society in each of three classes. Students are able to complete 36 hours of required lower division coursework through these courses. The remainder of the program consists of 36 hours of electives, 24 hours of upper division theory and method courses, and a senior essay worth 12 hours (Denker 1982; Stack and Paskal 1980).

Student services also have been designed to accommodate the schedules of working adults and to minimize their anxieties about returning to school. For example, the registration process has been streamlined and takes place at a number of convenient locations including local union halls, community centers, and job sites. Student services staff members have learned to function in a number of different roles; they are no longer specialists in one area but rather serve as admissions officers, registrars, and academic advisors (Denker 1982; Stack and Paskal 1980).

Replication of the Wayne State Program

The success of the Wayne State University's University Studies and Weekend College Program led to the establishment of the "To Educate the People" (TEP) Consortium. The consortium, the membership of which consists of universities, labor unions, television stations, and adult and labor education centers from across the country, was formed for the purpose of implementing degree programs for working adults, especially those who have not had access to higher education. Through the efforts of the TEP Consortium, the Wayne State model has been adapted by a number of institutions of higher education. Several labor unions are involved in the TEP Consortium, including the Teamsters, AFSCME, the AFL-CIO, and the UAW (Denker 1982; Feinstein 1979).

The American Federation of Teachers has developed its own version of the Wayne State model, known as PACE (Project for Adult College Education). In Kansas City, Missouri, Longview Community College has implemented the PACE model and adults can earn an associate's degree in a five-semester interdisciplinary program. The PACE program at Longview has been supported locally by the Teamsters, the UAW, and Kansas City's Central Labor Council (Denker 1982).

The "To Educate the People" Consortium is more fully described in publications by McMann (1981), Feinstein and Angelo (1977), and Feinstein (1979), all of which are available through the ERIC system.

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United Steel Workers of America

Union

United Steelworkers of America

Location

Pittsburgh, PA

Other Organizations

Community College of Allegheny

Overview

In 1982, when the number of layoffs in the U.S. steel industry reached a crisis point in the Pittsburgh, Pennsylvania area, representatives of the United Steelworkers of America and the dean of continuing education at the Community College of Allegheny developed a retraining program for unemployed steelworkers. Working together, they formulated a "job task analysis model" to be used to cross-train steelworkers for new jobs. The model was based on the following premise: former steelworkers were highly skilled and trained in occupations that offer a high potential for transfer of skills to occupations outside the steel industry.

The model consisted of the following steps:

- Analyze local labor market changes to identify potential employment opportunities for skilled workers.
- Identify job categories of unemployed workers with levels of education, duties, tasks, and responsibilities similar to employment opportunities identified through step one.
- Select and cross-train candidates from job categories identified in step two.

The analysis in step one revealed a labor market need in the Pittsburgh area for stationary engineers. Through the step two analysis of job categories, it was determined that the job requirements of a stationary engineer were similar to the millwright's job in the steel mills. The local employment service identified a candidate pool of millwrights who were then referred to the training program at the community college. Thirty unemployed millwrights were selected for an intensive 5-week cross-training program that built upon the prior education and work experience of the trainees. The cross-training program has subsequently been used to prepare other dislocated workers in the areas of electronic repair, instrument repair, and electromechanical repair for emerging jobs as robotic repair technicians (Ashley and Zahniser 1984).

Excerpted and adapted from *Organized Labor Education and Training Programs* (MacKenzie 1984, pp. 39-40).

Reference

Ashley, W., and Zahniser, G. *Helping the Dislocated Worker: Sample Programs.* Research and Development Series no. 243B. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1984. (ERIC Document Reproduction Service No. ED 241 741)

United Auto Workers, Local 1364

Union

United Auto Workers (UAW), Local 1364

Location

Fremont, CA

Other Organizations

Chabot Community College
Alameda County Training and Employment Board

Overview

The AFL-CIO Human Resources Development Institute (HRDI) has been involved in a number of programs to assist displaced workers. One of these, a retraining program, was developed in conjunction with United Auto Workers (UAW), Local 1364 in order to assist auto workers laid off as a result of the sudden closing of a General Motors auto assembly plant in Fremont, California. The closing in Fremont was only one of several plant closings in the Hayward, California community, so competition for available jobs was intense. As in the case of the Pennsylvania retraining program, it was determined that area employers needed persons trained in machine tool skills.

Working in cooperation with the Chabot Community College of Hayward, the UAW and HRDI developed a machine tool retraining program for 24 members of UAW, Local 1364. The classroom training provided by the college consisted of 168 instructional hours delivered over a period of 7 weeks tailored to meet the needs of a local employer who had pledged to hire at least 15 of the 24 trainees. Comprehensive Education and Training Act (CETA) funds administered by the Alameda County Training and Employment Board were used to finance the training. In order to also meet CETA Title VII eligibility criteria, all participants were either "retraining eligible" or economically disadvantaged (*Labor-Involved Services for Displaced Workers* 1983).

Reference

Labor-Involved Services for Displaced Workers: Program Models. Washington, DC: AFL-CIO Human Resources Development Institute, 1983.

Excerpted and adapted from *Organized Labor Education and Training Programs* (MacKenzie 1984, p. 40).

United Mine Workers (UMW) of America Local 56

Union

United Mine Workers (UMW) of America, Local 56

Location

Denver, CO

Other Organizations

United Steelworkers of America (USWA), Local 8031
Oil, Chemical, and Atomic Workers International Union, Local 2-24410
Rocky Mountain Energy and Environmental Technology Center

Overview

Another program developed with the assistance of AFL-CIO's Human Resources Development Institute was a program for members of the United Mine Workers (UMW) of America, Local 56 located in Colorado. Cutbacks in the steel industry affected the mining industry since there was reduced demand for an ore used in hardening steel. Therefore, a retraining program was planned to prepare some of the displaced mine workers for reemployment in new, high-demand occupations. In addition to UMW, Local 56, United Steelworkers of America (USWA), Local 8031 and Oil, Chemical, and Atomic Workers International Union, Local 2-24410 were involved in the retraining program.

The HRDI assisted in negotiating a CETA contract so that 32 dislocated miners could be retrained as welder/pipefitters, machinists, and chemical operators. The training programs, which took place at the Rocky Mountain Energy and Environmental Technology Center near Denver, used skilled craft workers from USWA, Local 8031 as instructors. Although the program was designed to provide 35 hours of training per week for 26 weeks, the center's open-entry/open-exit system permitted some trainees to complete their training in a shorter time period.

Trainees who completed the program had excellent chances of acquiring skilled jobs at good pay. Not only was the demand nigh for workers with their newly acquired skills, but also the HRDI and the unions worked with employers to develop jobs. Rockwell International, for example, agreed to hire some of the graduates. Also, the center's placement rate has been consistently high *(Labor-Involved Services for Displaced Workers* 1983).

Reference

Labor-Involved Services for Displaced Workers: Program Models. Washington, DC: AFL-CIO Human Resources Development Institute, 1983.

Excerpted and adapted from *Organized Labor Education and Training Programs* (MacKenzie 1984, pp. 40-41).

Section 5
Apprenticeship Programs

Alabama Technical College

College

Alabama Technical College
1001 East Broad Street
Gadsden, AL 35999

Contact

Bryan Stone
Industrial Coordinator
(205) 547-5451

Overview

Alabama Technical College and a local steel corporation are jointly training apprentices in the industrial-electrical occupational area. The competency-based program focuses on the teaching of theory and on practical laboratory experiences in the classroom and in an industrial setting utilizing a self-paced, individualized method of instruction.

Implementation Procedures

The program was developed jointly by the Alabama Technical College and industry in cooperation with the Bureau of Apprenticeship and Training, U.S. Department of Labor. Coordinators from both education and industry cooperate in the identification of instructional content, development of performance-based student activities, and management and supervision of student attendance and progress. Testing, interviewing, and selecting for the program are competitive according to government, labor union, and company guidelines.

Contributions by Industry

The steel industry contributes a program coordinator who participates in the program development and supervision. Practical laboratory sites for on-the-job training and associated books and materials are also made available.

Contributions by the College

Alabama Technical College provides a program coordinator who cooperates with the industry program coordinator in the identification of instructional content and laboratory experiences and in providing general program supervision. In addition, instructors, classrooms, laboratory facilities, and audiovisual materials are made available by the college to support the program of instruction.

Benefits to Industry

The steel industry benefits from the availability of highly skilled employees who are prepared in a cooperatively-planned, less expensive educational environment.

Benefits to the College

Positive public relations as demonstrated by increased enrollment and improved employment opportunities for technical school graduates is the greatest benefit to the college.

Critical Elements for Success

High-quality instruction and self-paced learning are essential for the pro-

Excerpted and adapted from *Sharing Resources: Postsecondary Education and Industry Cooperation* (Warmbrod, Persavich, and L'Angelle 1981, p. 47).

gram to meet its objective of training apprentices who perform measurably better on the job.

Bainbridge Junior College

College

Bainbridge Junior College
U.S. Highway 84, East
Bainbridge, GA 31717

Contact

Robert U. Coker
Chairman, Division of Vocational Education
(912) 246-7642

Overview

This is a joint effort between the college and a local industry to provide electrical and mechanical maintenance apprenticeship training. The major feature of the cooperative effort is that the college deals with the theoretical concepts one day per week and the industrial staff assists the students with the hands-on application of the concepts in the industrial environment 4 days per week.

Implementation Procedures

The course content is taught jointly by the college and plant personnel. The plant personnel, management, and union administer the hands-on component of the programs. Students must complete the 4-year (800 contact hours) programs in order to be eligible to be a journeyman. The school/industry members share in the operation and supervision of the program, including student selection, program administration, and evaluation.

Contributions by Industry

Tools and equipment are contributed for the hands-on phase of the programs. In addition, master craftsmen guide and direct the apprentice through various job experiences that are necessary for journeyman certification. Finally, the college tuition, fees, textbooks, and supplies are provided to the apprentice.

Contributions by the College

Bainbridge Junior College contributes the instructional staff for the theoretical concepts and laboratory activities phase.

Benefits to Industry

The industry benefits financially in not having to develop, equip, and staff laboratories for the theoretical concepts phase. In addition, the professional background, experience, and skills of college vocational personnel in curriculum development and implementation are major educational benefits.

Benefits to the College

The financial benefits to the college are in not having to purchase the equipment and tools necessary for hands-on activities to develop the skills of the apprentices.

Critical Elements for Success

Cooperation between the school, industry, and the union in screening and selection of students, identification and delineation of content, and evaluation and refinement of content to reflect the state-of-the-art are all essential elements for success.

Excerpted and adapted from *Sharing Resources: Postsecondary Education and Industry Cooperation* (Warmbrod, Persavich, and L'Angelle 1981, p. 49).

Cumberland Community College

College

Cumberland County College
Sherman Avenue and
Orchard Road
Vineland, NJ 08360

Contact

Thomas A. Henry
Assistant to the President
(609) 691-8600

Overview

This 26-week program incorporates an existing associate degree program at the college and an industry training program in engine lathe operation and associated machine shop practices. The college provides related training 1 evening per week while the industry provides specialized technical training on site for 40 hours per week. Students receive academic credit for the training.

Implementation Procedures

As a result of an agreement between Cumberland County College and the industry, this program represents the first 6 months of a 4-year industry apprenticeship training program. The agreement identifies the work hours per week, pay schedule for the trainees, and the evaluation procedures to be employed in assessment of the program.

Contribution by Industry

Tools and equipment are contributed for the on-site portion of the program.

Contributions by the College

The college contributes the instructional staff and the curriculum that was established at the college.

Benefits to Industry

The industry benefits by acquiring properly prepared personnel. In addition, funding is available through the State Department of Labor and Industry for tools, equipment, and materials. As a result, the cost of the equipment necessary to support the program is made available through sources other than company financing.

Benefits to the College

The greatest benefit is that Cumberland County College is fulfilling its mission to assist local industry in meeting its human resource requirements.

Critical Elements for Success

Success has hinged on the willingness of the college, the industry, and the State Department of Labor and Industry to cooperatively design, operate, and manage a program that meets the needs of the students and industry.

Excerpted and adapted from *Sharing Resources: Postsecondary Education and Industry Cooperation* (Warmbrod, Persavich, and L'Angelle 1981, p. 50).

Lorain County Community College

College

Lorain County Community College
1005 North Abbe Road
Elyria, OH 44035

Contact

Carl J. Filipiak
Coordinator
Apprentice Training
(216) 365-4191

Overview

Lorain County Community College and the local steel industry cooperatively prepare apprentices in five major craft areas. The apprentices receive 640 hours of campus-based, lecture/laboratory training in approximately 130 different subjects pertinent to the 5 major crafts. The purpose of the campus training is to help develop the students' academic background so that the industry training may concentrate on developing the skills and knowledge necessary for success in the crafts.

Implementation Procedures

Curricula in the five major areas are developed by the college and the local steel industry training department.

Contributions by Industry

Tools, equipmer training aids, films, videotapes, and uipment related to the five craft areas are made available to the school. In addition, the local steel industry provides substitute instructors or instructors for specialized topics.

Contributions by the College

The college contributes professional administration and implementation to the educational plan. Further, faculty members provide instruction in academic areas on which the apprentice can build a strong technical knowledge base. Finally, facilities in an educational environment are available for use by the industry.

Benefits to Industry

The financial and educational benefits are that the industry is provided with a low-cost, high-quality program that is based on the needs of the industry and the students. Further, the students are more academically prepared to pursue a training program, thereby saving the company training costs and time.

Benefits to the College

Lorain County Community College is given or lent expensive and specialized equipment. Involved faculty members are kept up to date on changes in industry. The college is able to be of greater service to the community.

Critical Elements for Success

A clear line of communications is essential to ensure that the needs of the students and of the industry are addressed and that the goals of the program are achieved.

Excerpted and adapted from *Sharing Resources: Postsecondary Education and Industry Cooperation* (Warmbrod, Persavich, and L'Angelle 1981, p. 48).

Part III
Case Studies of Industry-Education Joint Ventures

OVERVIEW OF PART III

Many postsecondary institutions have collaborated with industry in order to establish and maintain quality, educational programs. These case studies describe two different types of industry-education joint ventures:

1. High Technology Programs

2. Cooperative Education and Faculty Return-to-Industry Programs.

Ten case studies of collaborative arrangements between postsecondary institutions and companies manufacturing or using advanced technologies are presented in this section. Training programs in advanced computer applications, microelectronics, medical electronics, advanced manufacturing, and advanced office technologies are discussed. The contributions of both the schools and the participating companies are examined.

Business and industry often provide employment or field experience to students while they are enrolled in college and receiving job-oriented instruction. In this section, five case studies, describing a variety of programs, are presented. College personnel also can update their technical competencies by returning to industry for short periods of time. In this section, descriptions of four different programs are provided.

Section 6
High Technology Programs

Milwaukee Area Technical College

College

Milwaukee Area Technical College
1015 North Sixth Street
Milwaukee, WI 53203

Other Organizations

Allen Bradley Company
Computervision Corporation
National Science Foundation
National Computer Graphics Association

Program Area

Computer Graphics

Contact

Philip Langerman
Executive Dean
(414) 278-6600

Overview

The Allen Bradley Company cooperated in forming and supporting the Milwaukee Area Technical College's (MATC's) core curriculum in computer graphics through its membership in Partners in Progress, participation in MATC's advisory committee on computer graphics, and through other activities. The most visible activities have involved aid in the development of MATC's computer graphics faculty through a skill-work program. Instructors spend a summer working and gaining practical, hands-on experience at Allen Bradley. Allen Bradley also funds the transportation of MATC instructors to industrial shows. MATC's experienced instructors aid in skills upgrading and technology transfer by passing along their state-of-the-art knowledge to Allen Bradley employees. Employee attendance at the MATC summer or evening courses in computer graphics is also underwritten by the company. Formerly, Allen Bradley has hosted a 4-day workshop in computer graphics for managers at its Milwaukee plant. The workshop instructor was on the MATC computer graphics faculty. Finally, Allen Bradley actively recruits MATC graduates whose machine design or other technical education has been supplemented by the computer graphics courses.

Background Information

MATC is a 4-campus network of post-secondary facilities serving a population base of 1.1 million people in a 5-county area. The college offers 65 associate degree programs and 80 vocational certificate or diploma programs through 2,300 day and evening courses, including related instruction for various apprenticeship programs. Its 1978-1979 enrollment was 68,863 part-time and full-time students. These students were served by almost 2,000 part-time and full-time faculty and staff.

MATC was introduced to computer graphics when its faculty and staff became involved in a computer graphics training program at the General Electric Medical Systems Division. Subsequently, an advisory committee was formed to plan a computer graphics program. The committee concluded that emphasis should be on teaching well-developed basic occupational skills in all technical programs, with computer graphics courses added as a new tool to improve productivity.

Excerpted and adapted from *Preparing for High Technology: Programs That Work* (Abram et al. 1982, pp. 7-10).

The Allen Bradley Company manufactures industrial controls, electronic components, and magnetic materials. Computer graphics is relatively new to the product design field, and Allen Bradley has been investigating this technology in its developmental engineering section with the goal of increasing productivity. Allen Bradley's expectations are based largely on the fact that computer graphics software allows translation of a production drawing into specifications for tool design as well as tooling illustrations, which are then used to make tools for manufacture of the product. The availability of the production drawing as a computer graphic offers other advantages, such as product modification and cost estimations during the many stages of product design and manufacture.

To handle its computerized design and production needs, Allen Bradley is working on its own computer graphics training program. Such a program will eventually be offered to employees along with the company's other in-house training programs. However, this program would apply specifically to Allen Bradley's system of product design. Technicians with strong backgrounds in basic product design and manufacturing, supplemented by computer graphics courses, will still be recruited from postsecondary technical schools by Allen Bradley.

Allen Bradley, in its attempts to provide and maintain strong linkages with local postsecondary educational systems, initiated a skill-work program with MATC. Two MATC instructors spent the summer of 1981 working at Allen Bradley to gain experience and to learn about technological advances in their fields. Transportation for selected instructors from MATC was provided by Allen Bradley to attend an industrial show on the current state-of-the-art equipment and materials in computer graphics.

Program Description

The development of MATC's computer graphics curriculum is unique in that industry itself was just becoming familiar with the technology and had not exhibited a need for large number of trained computer graphics technicians. However, the advisory committee identified 11 occupational program areas that require computer graphics skills. The programs are grouped under three industrial areas: Computer-Aided Design (CAD), Computer-Aided Manufacturing (CAM), and Computer-Aided Graphic Arts (CAGA).

An introductory course relevant to all 11 programs was developed and first offered by MATC in June 1980. An advanced applications course was offered in the Mechanical Design program the following semester, and an Electrical Applications course in the fall of 1981. Other applications courses are planned for Civil Technology, Architectural Technology, Numerical Control, and Graphic Arts.

Managers from industry (e.g., a local CAD manager) teach some of the courses, and employees from local industries attend classes with regular full-time students. Employee-students are primarily designers and draftpersons but many also include managers and supervisors from industries anticipating or already using computer graphics equipment and procedures. During the fall of 1980, a one-day seminar on computer graphics applications in the areas of mechanical, electrical, and civil engineering, and in numerical control was offered by MATC. The seminar was attended by 174 participants representing 60 industries and 9 colleges. A 1-day seminar focusing on both CAD/CAM and business graphics also was offered in the fall of 1981. This seminar was attended by 220 persons representing 101 organizations. The 1981 and 1982 seminars were cosponsored by the Wisconsin chapter of the National Computer Graphics Association and MATC.

Funds for development of the computer graphics curriculum, retraining of faculty, and preparation of a training facility were provided by a National Science Foundation (NSF) grant. Computervision Corporation provided equipment and software, and in June 1980 the system was installed. In 1982, MATC had four computer graphics storage tube design stations, with digitizer/plotters, minicomputers, and associated software, partially funded by Computervision Corporation and NSF.

MATC has formed an organization of businesses and industries entitled Partners in Progress. Over 15 companies (including Allen Bradley) and 6 educational institutions or professional groups belong to the partnership. The commitment of the partnership is to provide education and training in advanced technologies. Subscribing partners (i.e., those making a financial contribution) hold membership on the Advanced Technology Council, which is responsible for establishing priorities for funding advanced technological projects. Subscribing partners also have the opportunity to influence critical areas of worker development, such as computer graphics instruction.

As a result of MATC's leadership in the development of a computer graphics curriculum and the promotion of its Partners in Progress program, the National Computer Graphics Association (NCGA) established its Wisconsin state chapter headquarters at MATC. This provides ready access to the professional asscciation for stronger links with education and community leaders. The NCGA chapter plans include--

- holding seminars and workshops in the computer graphics applications areas;
- creating a forum for users, vendors, industrial managers, and educators;
- developing a resource center for applications information; and
- publishing a newsletter to inform industry and the education community of recent events in the computer graphics area.

Franklin Institute/ Digital Equipment

College

Franklin Institute
41 Berkeley Street
Boston, MA 02116

Other Organizations

Digital Equipment Corporation

Program Area

Computer Service Technology

Contact

Richard Beaton
Academic Affairs
(617) 423-4630

Overview

Franklin Institute is 1 of 24 schools that offer the Digital Equipment Corporation's (DEC) Minicomputer Technology Program (MTP). The flexibility of Franklin Institute seems to be the greatest factor on the part of the school in implementing and maintaining its version of DEC's Minicomputer Technology Program. Responsiveness of the institute's program advisory committee to DEC's annual curriculum review and recommendations, and its continuing budgetary commitment to replace program equipment, are other important factors. Franklin is satisfied with MTP, not only because of the outstanding relationship it affords with DEC, but also because of increasing enrollments. The Computer Service Technology Program operates at capacity and the institute is considering an evening program as well as an optional associate degree program. Computer Service Technology is now one of Franklin's three regularly offered electronics technology programs.

Other factors contribute to the success of Franklin's Computer Technology Service Program, and to Digital's MTP programs. Foremost is the company's commitment to a long-term investment in training. This commitment is evidenced not only by allowances of equipment and provision of training for MTP school instructors, but by the company's willingness to compete with other employers for graduates of MTP programs. DEC's commitment is also reflected in the company's organization, in which Educational Services reports directly to the senior vice-president for Customer Service, and by its relations with Franklin and other MTP schools. Franklin's experience is that DEC is far more generous in its support than is required by its formal agreements. DEC, on the other hand, is satisfied with the outcomes of Franklin's and other MTP schools' programs, because graduates hired by DEC are now able to become productive after only 2 weeks of employment, whereas formerly 18 weeks were required.

Excerpted and adapted from *Preparing for High Technology: Programs That Work* (Abram et al. 1982, pp. 11-13).

Background Information

The Boston-based Digital Equipment Corporation (DEC) is said to be the world's largest manufacturer of minicomputers. It also produces a range of related digital equipment. The company had 44,000 employees in 1980, including personnel providing field service of DEC equipment nationally.

The Bureau of Labor Statistics projects an increase of 154 percent in computer service technician jobs between 1978 and 1990, making it the fastest growing computer-related occupation. DEC planners and the president of the company anticipated the increase, as well, and made a long-term commitment to the development of a training program to prepare individuals to work as computer service technicians. The result of DEC's commitment was the development of the Minicomputer Technology Program (MTP).

The MTP involves participating educational institutions in a contractual arrangement to offer training in return for equipment and other benefits. Allowances offered by DEC to the MTP schools include outright gifts, or allowances, of computers and associated equipment. In addition, the company provides training to the schools' instructors at its own training facilities. Twenty-four schools are now involved in delivering MTP training. Franklin Institute of Boston is one of the earliest.

The Franklin Institute is a private technical college offering a variety of 1- to 3-year instructional programs based on science, engineering, and technology. Associate degree program areas include the engineering and industrial technologies. A small school, Franklin serves an average of 1,000 students each year. It operates its own in-house computer center, permitting time-sharing for unlimited use by faculty and students. The institute maintains an affiliation with the Boston University College of Engineering.

Program Description

DEC selects schools to participate in the MTP on the basis of several considerations. Since DEC expects to hire a substantial number of the graduates, the schools must be located in geographic areas where computer business activity is concentrated. Generally, these are urban areas. DEC looks for schools with existing curricula in electronics, and considers the ease of adding a computer technician program, as well as the tenure of the faculty. In addition, DEC looks for schools that will aid the company in meeting its equal opportunity and affirmative action goals.

Although DEC suggests a curriculum for the MTP, participating schools work with DEC to adapt the curriculum to their individual circumstances. The MTP installed at each school is reviewed at least annually by DEC Educational Services staff in consultation with the company's field service representatives who are most familiar with the school and its graduates. Recommendations are formulated and presented to the school's program advisory committee. The objective of these reviews is to improve the marketability (and, thus, the value to DEC) of the MTP graduates' skills.

Although DEC is in competition with other employers for these graduates, it has been successful in attracting more than half of all MTP graduates. The company is pleased with the success of the program because graduates now are able to become productive after only 2 weeks of employment, whereas formerly 18 weeks were needed.

There are several factors that appear to be vital to the success of DEC's Minicomputer Technology Program. Foremost is the corporate commitment to a long-term investment in training. The company's commitment also goes beyond its allowances of equipment and training of instructional

staff. Indicative of DEC's philosophy is its willingness to contribute heavily to a training program that does not guarantee the company a supply of skilled employees except at competitive wages.

Franklin Institute chose to offer the DEC-affiliated Minicomputer Technology Program as a 1-year program leading to a certificate of proficiency. This choice was made in order to reduce the cost to students and to provide as much access to students as possible. Franklin is the only MTP school offering a 1-year program; the approximately 24 other cooperative institutions have implemented a 2-year curriculum leading to an associate degree.

The objective of Franklin's version of MTP, called the Computer Service Technology Program, is to respond to the current and anticipated demand for technicians who can install, troubleshoot, repair, and maintain computer equipment and digital electronic systems. To this end, the program material and laboratory activities emphasize the following areas of preparation:

- A solid foundation in electronic circuits, digital logic, and integrated circuit technology; computer systems and programming
- System installation and checkout procedures
- Theory of operation and system component troubleshooting, and
- Employer representation and customer relations

Report-writing and topics in mathematics are integrated into the appropriate technical courses. The Computer Service Technology Program devotes more than half of the total instructional hours to laboratory experience with hands-on emphasis.

To accommodate the program, Franklin spent $75,000 to prepare an appropriate facility, and employes a full-time technician to maintain the equipment utilized in the program. The program budget also provides for annual replacement of equipment damaged as a result of the high-use laboratory classes.

Franklin Institute/ Tufts-New England Medical Center

College

Franklin Institute
41 Berkeley Street
Boston, MA 02116

Program Area

Medical Electronics Technology

Other Organizations

Tufts-New England Medical Center

Contact

Richard N. Beaton
Academic Affairs
(617) 423-4630

Overview

The rising costs of health care frequently are in part attributed to the increasingly sophisticated equipment being used by health care facilities. Such equipment includes ultrasound, thermal, and x-ray diagnostic machines, cardiovascular and other monitoring systems, dialysis and cardiopulmonary machines, and automatic gene-synthesizer machines. No modern hospital can operate without technicians to operate, calibrate, maintain, and repair such equipment.

The Medical Electronics Technology Program for training medical electronics technicians started in 1973 in affiliation with the Franklin Institute of Boston. The curriculum design was a joint effort by individuals representing Tufts University, Tufts-New England Medical Center (TNEMC) and affiliates, and the Franklin Institute, after consideration of existing programs and suggested curriculum components.

Both Franklin Institute and the Medical Center have benefitted from their teaching relationship. TNEMC provides Franklin's medical electronics students with clinical internship positions at the Medical Center, including hands-on experience with the latest equipment in use at the hospital and at affiliated medical facilities. In addition, some of the courses in the Medical Electronics Technology Program are taught by TNEMC personnel.

The Medical Center has benefitted from the relationship with Franklin in several ways. There is greater ease of finding and recruiting qualified technicians with realistic, work-site experience and familiarity. Technician interns from Franklin provide part-time help to TNEMC, and part of their tuition is contributed to the budget of TNEMC's Medical Engineering Department. Finally, TNEMC receives access to specialized test equipment owned by the Franklin Institute's electronics labs.

Excerpted and adapted from *Preparing for High Technology: Programs That Work* (Abram et al. 1982, pp. 15-18).

Background Information

The Tufts-New England Medical Center, located in Boston, is a 452-bed hospital providing all types of medical care except obstetrics, primarily on a referral basis. In addition to the 17 residency programs for physicians, TNEMC provides 38 allied health training programs, including the Medical Electronics Technology Program.

The Franklin Institute is a private technical college in Boston offering a variety of instructional programs based on science, engineering, and technology. A Medical Electronics Technology Program was in operation at Franklin at the time that the discussions between Franklin faculty and Tufts-New England Medical Center staff concluded that there was a need for different and more comprehensive training for medical electronics technicians.

The discussions and notions for a new kind of medical electronics training program stemmed from a study done by the Technical Education Research Center analyzing the job skills needed by medical electronics technicians. The 1972 study suggested that medical electronics technician trainees required skills such as those used by artisans or radio/television repairers. The Franklin and TNEMC staff, however, felt that the best preparation for such technicians should be a combination of engineering training and knowledge of human physiology.

Program Description

The Medical Electronics Engineering Technology Program now established at Franklin Institute is a 2-year program of study and cooperative work experience leading to an Associate in Engineering degree. It provides a unique blend of subject matter and advanced courses in mini- and microcomputers, electronic devices, electric and electronic circuitry theory, medical instrumentation, human physiology, medical instrument safety and grounding techniques, semiconductor circuitry, and principles and design of medical electronic equipment.

Laboratories of the Franklin Institute Electronic Engineering Department are used for courses in electrical and electronic circuitry and semiconductor circuits. Those portions of the program taught at Franklin are essentially the same as the curriculum for the Electronic Engineering Technology Program.

In-hospital laboratory experience is provided through affiliations with the Medical Engineering Department of TNEMC. Students are directed by hospital technicians in the repair, calibration, and applications of medical devices. Courses in human physiology are taught at TNEMC and are modified versions of the same physiology courses given to the medical and dental students. Students also observe and participate in animal experiments conducted at the research facilities of the hospitals in order to gain experience in the use of medical equipment on live subjects. Students have the use of the medical school's library and are given assignments requiring use of the library.

During their final semester, students gain clinical experience through a rotating "internship," similar to the training of a medical student on rounds, involving working in several Boston-area hospitals. Students are part of a team responsible for particular tasks, and they assist in all work performed. Students are to observe a variety of approaches to both technical and human problems commonly encountered in the use of the medical equipment. Last-semester students are also individually matched with an experienced, professional hospital tech-nician who serves as a mentor, friend, critic, and role model. This final part of the program is intended

to help the students accept and adjust to hospital environments.

Administration of the Medical Electronics Technology Program involves a contractual arrangement between Franklin and TNEMC. Franklin has formal jurisdiction over the program but the courses and training conducted at TNEMC and affiliated hospitals are governed by the faculty in charge there. Tufts and the affiliated hospitals update and upgrade the content of the courses taught within their domains. They also train the students on the latest equipment in use at the hospitals. The ability of the two institutions to coordinate the teaching materials is sometimes strained, particularly where the instrumentation taught at the hospitals is out of sequence with the circuitry classes at Franklin. In some cases, advanced circuitry and other technologies in medical instrumentation and equipment (such as ultrasound and nuclear technology) are not covered in the classes at Franklin. These then must be covered by those teaching the instrumentation at the hospitals.

Tufts-New England Medical Center has found the cooperative arrangement with Franklin rewarding in several ways. The financial support provided by Franklin for teaching staff contributes to the salaries of four full-time personnel at TNEMC. The expansion of TNEMC reference material and test equipment is also significant. The clinical rotation of students, which is coordinated and scheduled by TNEMC, decreases the work load on TNEMC technicians. Both TNEMC and affiliated hospitals realize benefit in being able to hire qualified graduates who have had practical experience at the work site, and who know the specific equipment, procedures, standards, and policies of the work site.

The program arrangement between TNEMC and Franklin has benefitted Franklin by enabling its own instructors to stay current with new medical equipment technologies, and by sharing the expenses, facilities, and expertise of the hospital. The latest equipment is available for training without having to set up a special lab at Franklin. Certain courses, such as those in human physiology, are more aptly taught by the medical personnel at Tufts than could probably be taught in classrooms at Franklin. The students benefit because they receive hands-on experiences and move between facilities, giving them competence and familiarity in a variety of active work settings.

Franklin accepts a new class of approximately 18 to 20 students for the program each year, keeping the number low because of the limitations of the medical facilities and the demands of the individualized training at the hospitals. The students themselves reportedly take an unusually mature attitude toward their training and toward a career in the medical area. The program is demanding, and could be spread over a 3-year period. Because of its rigor, only about 60-65 percent of each entering class graduates.

Graduates of the Medical Electronics Technology Program are prepared for employment as medical electronics technicians, biomedical engineering technicians, biomedical research assistants, medical instruments manufacturers' representatives, and biomedical equipment technicians. Most of the graduates have gone to work in hospitals, and 10 percent of them have been employed by TNEMC. The program is gaining national recognition with the annually increasing recruitment of graduates by hospitals distant from Boston.

A number of factors are key to the success of the program. Foremost among these is the high quality of the hospital professional staff who teach. The director of medical engineering at TNEMC and the instructor in physiology at Tufts University School of Medicine are both presently involved. These people are enthusiastic and dedicated to the excellence of the program.

A second factor is "the hospital connection" by which students are exposed to the latest equipment and techniques, and are provided with role models. The

hospital-based portions of the instructional program are provided to Franklin at a modest cost.

A third factor is the strong engineering background acquired by students through a spectrum of courses taught at Franklin. A solid basis in circuitry theory, troubleshooting, digital logic, and mathematics enables program graduates to understand, from a knowledgeable engineering perspective, the kinds and sources of problems as well as the normal parameters of medical instrumentation. Such knowledge is of particular importance in gauging the accuracy of medical data collected by electronic diagnostic or monitoring equipment. This determines whether certain anomalous data reflect actual patient readings or are artifacts of the electronics themselves.

A fourth factor in the success of the program is the support of TNEMC and other eventual employers in the Boston area who participate in the clinical internship aspect. These linkages provide for curriculum revision. They also function as information resources on the latest technologies and procedures in the field for persons already employed as medical electronics technicians or in related technical occupations.

Piedmont Technical College

College

Piedmont Technical Institute
Emerald Road
P.O. Drawer 1467
Greenwood, SC 29648

Program Area

Robotics Technology

Other Organizations

Cincinnati Milacron Incorporated

Contact

Gerald R. Owens
Occupational Education
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Overview

The cooperative relationship between Cincinnati Milacron and Piedmont Technical College began with a South Carolina Special Schools pre-employment training program. The relationship was strengthened by the Technical Education College System administration's decision to locate the Robotics Resource Center at Piedmont, placing it in close proximity to the Milacron plant.

Milacron has contributed to the development of the center by providing a T3 robot and by providing inservice experiences for the center's staff. Milacron has hired technician graduates from Piedmont programs in electronics and industrial technology.

The Piedmont Robotics Resource Center exemplifies a direct response to current and future changes in an advanced technology by a 2-year technical college, with the assistance of private industry and state support. The cooperative relationships between the center and private industries demonstrate the potential that exists for postsecondary schools and industry to work together to meet current and future employment needs. An additional benefit should be an increase in productivity and economic growth, both locally and nationally, as new, more productive technologies are brought into full operation.

Background Information

Piedmont Technical College is 1 of 16 2-year technical colleges in South Carolina's Technical Education College System (TEC). TEC's mission is to aid economic development in the state by helping to create jobs and by training people for those jobs. Recognizing the rapid changes in technologies used by business and industries, the leaders of TEC developed the "Design for the Eighties," an ambitious program to meet the expected needs of South Carolina industries during the next 5 years.

As part of the "Design for the Eighties," five advanced technology resource centers have been established in five technical colleges with plans to develop others

Excerpted and adapted from *Preparing for High Technology: Programs That Work* (Abram et al. 1982, pp. 19-22).

as needed. Piedmont Technical College houses the Robotics Resource Center, with other centers at Midland Technical College (Advanced Office Occupation Resource Center), Greenville Technical College (Advanced Machine Tool Resource Center), Tri-County Technical College (Microelectronics Resource Center), and York Technical College (Computer Resource Center). The centers represent a major commitment on the part of TEC to incorporate state-of-the-art technology into its 1- and 2-year training programs in all 16 colleges in the system.

Development of the Robotics Center at Piedmont began in April 1981, in response to the construction of Cincinnati Milacron's robot manufacturing plant nearby. Like all of the resource centers, it will serve three major objectives:

- To impart knowledge and training about each specialty area to faculty at the other technical colleges in the TEC system
- To aid in transferring new technology to local industries and businesses through seminars, conferences, training programs, and workshops
- To serve as a learning center for students

Cincinnati Milacron is currently engaged in the manufacture of a line of high-technology robots, the T3. This kind of robot can execute lengthy programs and its "hand" can follow complex paths in the process of completing a program. The latter capability is due to a two-dimensional "search-and-find" capability, one of its several software options. The T3, known as the "Cadillac" of robots, uses up to six computer-controlled axial movements to complete a variety of industrial operations such as spray painting, welding, power tool operation, loading/unloading, and parts inspection and handling.

With widespread use of industrial robots, there will be a need for specially trained persons to assist in installation, servicing, and maintenance operations. Perhaps the single largest need initially will be for programmers to design the computer command packages for performing various industrial robot operations. These programmers will need the assistance of technicians who understand how robots work and who can assist in programming. To become well-rounded technicians, these individuals (as well as those performing installation, field maintenance, and service work) will require mastery of all the related basic subjects electronics, hydraulics, pneumatics, and programming. However, in 1982 only one postsecondary facility (Macomb County Community College, Warren, Michigan) offered an operational, full-scale 2-year training program for students of robotics.

Cincinnati Milacron, looking ahead to the growth of robotics and the need for trained robotics technicians, became involved in advising and aiding postsecondary institutions in developing robotics training programs. Thus, Piedmont Tech is currently developing training programs in robotics for instructors and will eventually expand the programs to train students. To aid in the training, Milacron has placed robotics equipment on consignment at the Piedmont facility and has provided consultation and technical assistance on robotics systems to the Piedmont staff. Milacron's commitment to support robotics training, combined with some unique characteristics of Piedmont Technical Institute, will help develop high-quality, comprehensive training programs within the next few years.

Program Description

An incentive for Cincinnati Milacron to locate its new plant in South Carolina was the provision of a preemployment training program through the South Carolina Special Schools Program. In 1979, when the robot manufacturing plant was under construction in nearby Greenwood, Milacron placed seven pieces of equipment in the Piedmont Technical School. Milacron also provided experienced plant personnel to conduct training sessions in the use of Numerical Control (NC) production equipment. The preemployment training sessions focused on machine operations skills necessary to produce robots; however, the Robotics Center will concentrate on technician-level skills for implementing and maintaining robot systems.

When the Resource Center was visited in July 1981, the center was preparing to provide seminars and courses for instructors from other TEC colleges. The two instructors assigned to the center were completing their own inservice training at that time. They had attended a 1-week training session at the General Electric Heavy Industrial Robotics Lab in Schenectady, New York. They also spent 6 weeks in a work experience program at the Cincinnati Milacron plant. Additional visits had been made to the Cincinnati Milacron Robotics Conference in Ohio, to the Wright-Patterson Air Force Base CAD/CAM Center, and to robotics manufacturers in Michigan.

Through the "Design for the Eighties" programs a total of $32,000 was provided for inservice and developmental expenses. A full year of release time for one of the Center's instructors was provided by these funds. The information and experiences gained from the visits and workshops helped in formulating the center's plans for selecting and locating equipment and developing curricula.

Curricula as planned in 1981 included short courses for faculty inservice training and private industry personnel, with special training sessions for 2-year technician graduates expected to begin in the summer of 1982. Long-range plans were to provide a full 1-year certificate program in robotics for electrical, civil, and industrial engineering technician students. The format of the curriculum was envisioned as a series of organized modules to serve several learning objectives. Two robots were loaned to the center: a highly sophisticated T3 robot from Cincinnati Milacron valued at $80,000, and a simpler robot from the Seiko Corporation valued at $40,000. State support, budgeted at $76,000, had been allocated for the purchase of other robots and related equipment.

In 1981, plans were underway to prepare a truck-van to serve as a mobile classroom and lab. The mobile unit, containing several smaller robots and a full range of instructional resources and demonstration devices, would travel to the other technical colleges. The mobile classroom would provide instructor inservice training and student training sessions. The mobile unit was expected to help extend the center's capacity to serve as a technology transfer agent by providing on-site early orientation and training.

Although the center was not fully operational when visited, it represents an innovative and forward-looking approach to meeting the future training needs for technician-level personnel. To help ensure that the center's training programs and technology transfer efforts are appropriate and responsive to changes in robotics technology and industries' needs, a national advisory council of robotics researchers, developers, manufacturers, and users is currently being assembled. Members are expected to include Georgia Tech, Purdue University, Rensselaer Polytechnical Institute, and Carnegie-Mellon University, as well as knowledgeable representatives from the Heavy Industrial Robot Applications Lab or General Electric, from Robot Systems, Inc., in Atlanta, from the McDonnell-Douglass Corporation, and from Cincinnati Milacron.

Portland Community College

College

Portland Community College
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Program Area

Records Management;
Word Processing

Other Organizations

Port Authority of Portland
Employers Benefit Insurance Company

Contact

E. Paul Williams
Academic Affairs
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Overview

The close cooperation between Portland Community College (PCC) and its advisory committees for the Records Management and Word Processing Programs represents an expansion and elaboration of the typical relationship between such entities. Members of the committees worked with faculty members on a weekly basis to identify job responsibilities, establish performance requirements, develop courses of instruction, and validate the existence of related job openings in the Portland area. When the faculty encountered difficulty in gaining program approval by the state, they were assisted by the advisory committees in gathering evidence of the need for the job-related programs. Advisory committee members and PCC faculty also met with State Employment Division personnel to review and reclassify employment statistics to reflect records management and word processing occupations.

The Records Management Program at PCC is one of the most up-to-date and comprehensive being offered in the United States, according to the results of an Association of Records Managers and Administrators, Inc., and the Institute of Certified Records Managers joint study. Much of the Records Management Program's and the Word Processing Program's success stems from the close involvement of companies such as the Port Authority of Portland and Employers Benefit Insurance Company (EBI). Through their participation on PCC's advisory committees, they helped in the development of two high-quality training programs and facilitated the programs' approval by the state, by helping PCC gather and present employment evidence and forecasts that may not have otherwise been accessible.

Background Information

Port Authority of Portland, Oregon

The Port Authority of Portland is a quasi-governmental agency that owns and operates the International Airport and the Marine Terminal in Portland, Oregon. Approximately 275 employees are involved in administrative functions, including engineering, legal, financial, and personnel

Excerpted and adapted from *Preparing for High Technology: Programs That Work* (Abram et al. 1982, pp. 23-26).

staff. Employment in the Port Authority is approaching 650 individuals. The Port Authority has been in existence for 90 years.

The Records Management Department serves administrative departments and employs a staff of seven, including a librarian. The department is responsible for managing all incoming and outgoing information for the entire Port Authority operation, which includes current records and records and correspondence going back 25-50 years or more. The Port Authority operations involve a high volume of information handling, storage, and retrieval.

The staff of the Records Department reviews all incoming mail and selects out essential documents, keeping the original and sending a copy to the appropriate recipient. The original copies are then photographed for entry into either the microfiche or microfilm data-retrieval system.

The major benefits of implementing the Records Management Department and electronic records storage and retrieval system are a 98 percent reduction in floor space for file storage and reductions in file cabinets and supplies. Secretarial work time in other departments has increased because the Records Department staff performs the required record handling, including purging all departmental files annually. Executives and managers can access needed information in the system via electronic desk-top scanners. Additionally, system security and control has been improved.

The Records Department uses 2 manually operated microfilm cameras purchased at a cost of $20,000 and 1 automatic camera for filming large volumes (5,000 photographs per minute) of materials at a cost of $8,000. Annual supply costs for the system are approximately $2,000 per year. The efficient life expectancy of the equipment is from 5 to 10 years.

The manager of the Records Department commented that while the "paperless office" is not yet a reality in most companies, there will be a continual increase in businesses' use of electronic equipment and a need for trained employees to operate modern information management systems.

Employers Benefit Insurance Company

The EBI Company, in operation for 11 years, is the largest volume private carrier of worker's compensation in Oregon and, as such, handles approximately 6,000 claims a month plus its other insurance business clients. The company instituted a Word Processing Center (WPC) six years ago to handle the growing volume of paperwork. Seventeen people are employed in the WPC, 14 of whom are operators. The center serves 290 employees, with 80 percent of the center's work load coming from the Claims Department. Monthly output from the center averages 75,000 to 80,000 lines of final draft typing, with an error rate consistently less than one percent. On an average day the center will complete 250 letters containing several pages each, plus additional reports that average 100 pages or more in length. The output of the 14 word processor operators is estimated by the center manager to be equal to the output of 50 regular typists, a productivity gain ratio of 3.5 to 1. About 80 percent of the material is in the form of tape transcriptions; the remaining portion is typed copy. Normal turnaround time for regular scheduled work is one to three days, whereas rush materials can be completed in one day.

The Dvorak keyboard on the word processing equipment in the center contributes to faster typing speed. The key configuration on the Dvorak keyboard was scientifically determined by its inventor, August Dvorak, and being different from the key arrangement found on the common typewriter, requires relearning by experienced typists. Once learned, it contributes to a net gain in typing output over the traditional key arrangement, particularly when

typing is done continuously for several hours at a time.

In addition to special training on the operation of word processing equipment, operators must learn about the capabilities of the system in order to take advantage of the technology. Operators (called word processing technicians at EBI) must be fluent in spelling, grammar, and punctuation. Shorthand skills are not required.

The first and second year of the center's operation involved many adjustments, as work flow patterns and procedures were worked out. The manager of the WPC provided orientation and training to managers of other staffs to facilitate the transition from using individual secretaries and typing pools to using the centralized WPC. During the transition period, the company did not need to hire new employees with special training. Such a need did appear about the third year of operation. At that time Portland Community College began developing a training program in response to the emerging local employment opportunities for word processing jobs.

Portland Community College

Courses at Portland Community College (PCC) are organized and integrated into a broad variety of programs. At PCC, students may choose from associate degrees and certificate career programs, college transfer programs, special interest and enrichment courses, apprenticeship training, management/supervisory development, and high school completion courses.

The college district encompasses 1,500 square miles, including all of Washington County and parts of Multnomah, Clackamas, Yamhill, and Columbia counties. The college serves nearly 75,000 students each year. Operational costs of $1,344 per student are the lowest in the state.

Program Description

Microprocessor applications and related computer technology have brought about dramatic changes in modern office systems in Portland over the past 10 years. In response to the changes that had taken place by 1977 in the records management departments and word processing centers in Portland-area businesses, the faculty of PCC's Department of Business Education began to develop new associate degree programs in records management and word processing. Advisory committees for both records management and word processing were established with representatives from the Port Authority, EBI, and other businesses playing key roles in planning appropriate programs.

Obtaining program approval from the Oregon State Department of Education was a major problem. PCC was required by state rules to provide documentation of job opportunities as part of the approval application process. The job titles for word processing technicians and managers and for records management technicians and supervisors were deleted from the U.S. Department of Labor's *Dictionary of Occupational Titles* (DOT) in the editing process, leaving only low-level entry and higher-level manager job titles. The 2-year curriculum for the programs focused on mid-level jobs such as junior and senior word processing technicians and supervisors, forms analysts, report analysts, record center supervisors, and records management junior analysts. Because of the title deletions, there were no state employment data for these mid-level occupational openings.

The PCC faculty, in conjunction with the advisory committees, began to collect the necessary evidence to show that there was a growing need for the programs. Analyses reviewed existing jobs and career progressions in local companies. National studies and data from the American Records

Management Association were collected and analyzed, and appropriate information was compiled and presented to the Oregon State Department of Education. The entire process took 2 years for the initial planning stage through the final approval, which came in 1979. The first courses were started in the fall of 1980, with the first graduates completing the programs in June 1981.

One PCC faculty member was released from regular teaching duties for a year and a half to work with the advisory committee members in developing the Records Management Program. She and other faculty members, using the list of competencies developed by the advisory committee, reviewed PCC's existing courses and selected those that provided appropriate educational experiences. One existing course was revised and four new courses were developed. These were combined with other courses at PCC to create the Records Management Program. The four new courses included Introduction to Micrographics, Forms Management, Records Systems and Design, and Record Management Co-op and Seminar.

Because the state department stipulated that the word processing courses be considered supplementary occupational training for upgrading incumbent workers, most of the courses were initially scheduled in the evenings and as seminars and conferences. The series of courses required to qualify or upgrade a person for employment as a word processing operator can be completed in 6 months at PCC, which is about the same amount of time required for on-the-job training of experienced typists at EBI.

A different problem encountered by the PCC faculty is the mistaken image many managers in local businesses have of records management technicians as "glorified file clerks." There has been some resistance on the part of the business community to change old concepts and to recognize the advantages of modern office technology. However, once the new systems become operational and managers see the improvement in productivity and reduced costs, they are very supportive of the changes. With enthusiasm for the new approaches increasing in the Portland area, the demand for trained personnel from the college has increased, as has student interest in the programs.

North Lake College

College

North Lake College
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Irving, TX 75038

Program Area

Precision Optics

Other Organizations

Texas Instruments Corporation

Contact

Cliff Weaver
Occupational Education
(214) 659-5229

Overview

The Precision Optics Program at North Lake College was initiated by Texas Instruments (TI) Corporation of Dallas, Texas. The program is designed to accelerate the progression of the student from entry-level to skilled optical fabricator. Students completing the program generally have a skill level equal to 4 to 7 years of on-the-job training.

Background Information

North Lake College is a new member of the Dallas County Community College District, a consortium of seven community colleges located throughout Dallas County. The average age of North Lake's approximately 9,000 students is 29, although the majority of credit-taking students are between the ages of 18 and 22. Of the college's 285 faculty members, 65 are full-time, 100 are part-time, and 120 are in the Community Service Program.

North Lake offers a four-semester associate degree program in precision optics. In this program, students learn to fabricate lenses for a forward-looking infrared (FLIR) system used in weapons guidance, tank fire control, and airborne targeting. The FLIR system is manufactured by Texas Instruments Corporation in Dallas, Texas.

Program Description

Development of the Precision Optics Program at North Lake College began in January 1979. In planning and initiating the program, several problems were encountered, such as difficulty in obtaining qualified students. Texas Instruments personnel interviewed four individuals for each student admitted to the program. Another problem was that there was no existing curriculum to meet the specific training requirements of TI's precision optics system. To meet these requirements, some components of the optical technology program at TI's Colorado Springs facility

Excerpted and adapted from *Preparing for High Technology: Programs That Work* (Abram et al. 1982, pp. 35-36).

were adopted, and the remainder had to be developed at North Lake College by the TI education coordinator.

The availability of a qualified instructor to teach precision optics courses was also a problem. Texas Instruments provided an individual who, although experienced in precision optics, had little or no teaching experience in the classroom. Training for the teacher in the development of lesson plans, use of instructional media, evaluation of students, and other instructional procedures had to be worked out on a trial-and-error basis during initial phases of the program.

The Precision Optics Program was initiated by TI and developed in conjunction with North Lake College within a 3-month period--a relatively short time compared to the 1-year period required for new program development. Start-up of the program was facilitated by the recruitment of students, an instructor, and equipment by TI. The equipment is mostly power-driven machinery for fabricating lens systems and some measurement hand tools.

A minimum of 60 credit hours is required to earn the associate degree. The program is designed to accelerate the progression of the student from entry-level to skilled optical fabricator through a combination of classroom instruction and on-the-job training. Applicants for the program are initially either Texas Instruments (TI) employees or individuals recruited by TI at the company's Job Grade 2. Upon successful completion of the first academic training period of 10 weeks, students are automatically promoted by TI to Job Grade 7. They are then assigned to a shift at the company's plant for on-the-job training and evening classroom instruction at North Lake. Students generally require 2.5 years to complete the program, resulting in a skill level equal to that normally acquired after 4 to 7 years of on-the-job training.

Although the program was initiated and is largely operated by TI, North Lake College anticipates a more active role in program operations through provision of its own instructor and open public enrollment that began in 1982. In 1981, the college provided a classroom on its campus and offered instructional advice as needed. In 1982, the equipment loaned by TI became the property of North Lake College.

Texas Instruments is pleased with the quality of individuals trained at North Lake. Ten weeks of training in the Precision Optics Program is purported by TI's program coordinator to be equivalent to 2-3 years' experience on the job. In addition, workers trained at North Lake College are viewed by TI as having a better understanding of performance, quality, and cost factors associated with their jobs.

Durham Technical Community College

College

Durham Technical
Community College
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Durham, NC 27703

Other Organizations

Program Area

Microelectronics Processing
Technology

Contact

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Overview

When General Electric (GE) built its microelectronics facility in Durham, North Carolina, GE knew that it would need electronics technicians and approached Durham Technical Community College. By adding several credit-granting courses to its already existing electronics engineers program, Durham Technical Community College was able to develop a new program in microelectronics processing technology that met GE's requirements.

Background Information

Durham Technical Community College began in 1948, when a program of Practical Nursing was established under the Vocational and Adult Education Department of Durham City Schools. The school became one of several Industrial Education Centers in 1961 and continued until the name was officially changed in 1965 to Durham Technical Institute. In the fall of 1986, the name was officially changed to Durham Technical Community College. The college, a charter member of the North Carolina Department of Community Colleges, currently serves 3,600 students through 25 technical training programs.

As part of the North Carolina Community College program to support the growth of microelectronics industries in the state, Durham Tech began in 1980 to develop specialized occupational training for microelectronics technicians and process operators. Development of specialized, company-specific microelectronics courses was due to the construction of the General Electric (GE) Company's Microelectronics Facility in the Durham area.

Representatives of GE met with Durham Tech faculty in December 1979 and indicated that GE would need electronics technicians

Excerpted and adapted from *Preparing for High Technology: Programs That Work* (Abram et al. 1982, pp. 37-38).

who could perform equipment maintenance and processing (manufacturing) jobs. The electronics engineering program at Durham Tech was reviewed by the GE representatives and judged to be appropriate for preparing equipment maintenance technicians. The program was considered sufficient to provide essential background training for microprocessing technicians. Several additional specialized training courses in integrated circuit production, testing, and quality control procedures were also needed.

Program Description

After meeting with the GE representatives, Durham Tech faculty members decided that several credit-granting courses would be developed. Thus, they offered as one additional quarter of specialized training in microelectronics processing technology. The courses would be open to any graduate of an accredited 2-year electrical engineering technology degree program. Durham Tech would have sole authority to screen and accept applicants. This is an unusual arrangement for such company-specific training programs, in that employers usually have considerable influence in deciding who is admitted into such a training program. While GE is not obligated to hire persons completing the special courses, GE does consider Durham Tech as its primary source of technicians for job openings.

The president of Durham Tech hired an electrical engineer to develop the content for the new courses and serve as the principal instructor. Arrangements were made between Durham Tech and the Department of Electrical Engineering at Duke University for the newly hired instructor to spend several months at Duke, gaining first-hand experience in its semiconductor processing laboratory.

The president of Durham Tech and the new microelectronics instructor visited Foothills College and several microelectronics firms in California in April 1981 in order to expand their understanding of the type of training that should be offered and the kinds of equipment necessary for the training. During their visit to one of the firms in the Santa Clara "Silicon Valley," they were advised by a company vice-president of a "reverse engineering" instructional approach. This approach could be used to provide students with an in-depth understanding of how integrated circuits are manufactured, without substantial investment in expensive fabrication equipment and facilities for instruction. This approach, which amounts to "dissecting" a silicon chip, layer by layer, rather than constructing a chip from the core out, gives important, first-hand experience in all phases of integrated circuit design and construction. This approach was adopted as the basis for the equipment-related training course.

In the spring of 1981, two sections of a new three-credit course, "Introduction to Semiconductor Processing and Microelectronics," were offered at Durham Tech. This course focused on fundamentals of microelectronics but did not provide laboratory experience because necessary equipment had not yet been acquired.

The major problem Durham Tech has encountered in developing the microelectronics courses has been acquiring needed laboratory equipment. Representatives from GE in Durham offered some equipment from a recently purchased GE subsidiary in California, but the transfer of equipment had not been accomplished by the fall of 1981. The State Department of Community Colleges agreed to provide funds for equipment that could not be obtained through other sources. Until equipment from GE has been received, however, the state funds will not be available. Because the state is also currently developing the Microelectronics Center of North Carolina at Research Triangle Park, there is considerable competition for microelectronics equipment and program development funding. The problem is exacerbated by the scarcity and

high cost of integrated circuit processing equipment and the desire of the local universities to obtain any surplus equipment for their own programs.

Even if equipment were purchased by the state for use at Durham Tech, the funds would come from "New Industries Training" appropriations, which stipulate that such equipment will not become the permanent property of the school and could be transferred in the future to another school. This situation could jeopardize Durham Tech's long-range goal of establishing a permanent program and facility to provide training for other microelectronics industries. The president of Durham Tech is seeking to have state-purchased equipment become the property of the school in order to ensure the continuation of current training courses.

Durham Tech has employed several successful strategies in responding to GE's specific training needs. The school hired an instructor with appropriate background and provided here with state-of-the-art, hands-on experiences in Duke University's semiconductor processing laboratory. Visits to existing programs and related industries provided opportunities to learn about relevant curricula and equipment requirements. An instructional approach ("reverse engineering") was identified that will provide necessary student learning experiences with a minimum of equipment expenditures. (Even with a minimum amount of equipment, expenditures are expected to be around $53,000.) Response time was shortened by deciding to offer several additional courses to graduates of an existing program, rather than develop an entirely new program. Acquiring needed equipment remains the major difficulty in developing the courses, but the president and staff of Durham Tech and GE continue in their efforts to resolve the problem.

Macomb Community College

College

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Other Organizations

F. Joseph Lamb
Unimation, Inc.
Auto-place
Pick-O-Matic

Program Area

Robotics Technology

Contact

Edward J. Lynch
Occupational Education
(313) 445-7000

Overview

By working closely with local industries, the Macomb Community College (MCC) has developed three curricular plans in robotics technology. Each curricular plan is designed to meet the individual needs of students and to teach students to install, program, and maintain the basic types of robots.

Background Information

MCC is a comprehensive, 2-year postsecondary college located approximately 10 miles north of Detroit. MCC comprises a 2-campus complex of classrooms and laboratories with an enrollment of 33,000 students, a full-time faculty of approximately 345, and almost 500 part-time and adjunct faculty. The college offers associate degree programs in arts, applied science, and general studies. It also awards certificates in career curricula, general studies, and behavioral sciences. Many MCC students can choose a cooperative education option if they are enrolled in the business, office, general education, or industrial curricula.

Planning for the robotics program began early in 1978, a time when industrial robots were just appearing in the highly industrialized area a few miles from the college. Development of the program was funded by matching school and state funds. The robotics program was approved by the MCC Board of Trustees in the spring of 1980, and by the summer of the same year, the first class of students was enrolled and attending classes.

Program Descriptions

MCC offers its students three curricular plans in robotics. Plan A is for individuals who have an associate degree or bachelor of science degree in related fields, have 4 years of industrial experience, or have prerequisite courses. These

Excerpted and adapted from *Preparing for High Technology: Programs That Work* (Abram et al. 1982, pp. 39-40).

individuals may be granted advanced placement in a two-semester, 25 credit-hour curriculum. Completion of this program earns students a certificate of orientation to robotics.

Plan B is for individuals who have had the prerequisite courses, training, or related experience to benefit from a six-semester, 51 credit-hour program with an emphasis on basic electronics, hydraulics, pneumatics, controls, circuitry, automatic lubrication systems, and mechanical drives and linkages. Students who complete this program receive a certificate in robotics from MCC and an acknowledgement from the Society of Manufacturing Engineers (SME) that they have completed the course in robotics technology.

Plan C students are those with no industrial experience who are entering the job market for the first time. These individuals matriculate into the college's Industrial Cooperative Education Experience Program, and complete a 2-year curriculum (3 years with co-op time) for an associate degree. They are also certified by the American Welding Society for welding and by SME for basic fluid power and robotics technology.

Initially, the robotics program was heavily dependent upon industrial cooperation. Students gained hands-on experience by traveling to companies such as F. Joseph Lamb, Unimation, Inc., Auto-place, and Pick-O-Matic. Since that time, however, MCC has purchased more than $200,000 worth of equipment, and students now have greater access to hands-on assignments and practice at the school. The program now has three robots in the MCC robotics lab: an Auto-Place robot, a Seiko robot, and the more sophisticated Unimate 2000. With these models, students learn to install, program, and maintain the basic types of robots.

The robotics laboratory is tied into other MCC laboratories as part of the program's objective to provide hands-on experience in related technologies. In the metrology laboratory the robotics students learn to qualify the robots, off-line, in terms of resolution, repeatability, and accuracy. The procedures allow students to determine, before actual plant operation, whether their programs for a robot will work exactly as they designed them. Robotics students also have access to the design department's computer graphics laboratory, where they learn to design hydraulic circuits and automated transfer line units, and to program robots off-line.

Two full-time staff persons share the major responsibility for the program. The program employs a number of other part-time instructors, who are recruited from industry.

In addition to the program's three robots, plans are being made to obtain other machines of various capabilities to expand the range of hands-on experience for students. Arrangements are underway to obtain some new robots as donations from local industry. The program's advisory committee is hoping to obtain others through a lend-lease arrangement. This arrangement is viewed as one of the best program strategies, since it allows the program to keep up with the latest equipment in use in industry, as technological innovations are made and higher levels of performance are reached.

Of the first class of 23 students who graduated with an associate degree in robotics technology in 1981, 18 were hired within their specialty. With new facilities, which doubled the program's space in 1982, the program will be able to graduate 150-200 students per year. Four hundred potential students were turned away in 1980 after the program was filled.

Cincinnati Technical College

College

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Program Area

Laser/Optics Technology Program

Other Organizations

Local industries

Contact

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(513) 559-1520

Overview

Offered by the Cincinnati Technical College (CTC), the Laser/Optics Technology Program, begun in 1976, is one of their newest programs. The program is one of the few programs in the country designed to train students to meet the growing industrial need for laser/optics technicians. Technicians must have knowledge of the theory of electro-optic system operations, as well as practical, hands-on experience, and should have the ability to apply their knowledge of electro-optics to the product area of the employer.

Through its course of study and lab experience, the Laser/Optics Program provides students with in-depth education and training experiences in the scientific and technical aspects of how laser/optics systems work. Because of the lack of more powerful laser equipment, the program must teach certain target effects and control functions through simulations. Graduates do receive advanced science and math preparation, which qualifies them for a variety of high-level technical occupations related to laser/electro-optics systems.

Background Information

CTC's co-op education plan is a key component of many of its technical programs. This plan combines solid academic and technical education with alternating terms of work experience. This results in 90 percent of the graduates' completing their education through a co-op plan. CTC has 3,900 students enrolled in 50 degree and certificate programs, with 220 full-time plus 100 part-time instructors. The number of co-op employers increased from 37 in 1966-67 to 500 in 1980-81.

The impetus to begin a laser program came from the dean of the Physical Science and Mathematics Division of CTC. He learned of a laser employment-needs survey that was conducted, prior to 1976, by a scientist-instructor at the University of Cincinnati. The survey results suggested that the local need for laser technicians warranted the development of a program at CTC. The dean persuaded the instructor to leave the University of Cincinnati and join the faculty of CTC to start a new program in laser/optics.

Excerpted and adapted from *Preparing for High Technology: Programs That Work* (Abram et al. 1982, pp. 41-43).

Program Description

The first step prior to developing the new program was to update the original laser employment-needs survey. New data were collected which confirmed the need for laser/optics technicians and the willingness of local industries to support such a program. The second step was to submit a proposal to develop the new program to the Board of Regents, who subsequently approved the project.

One problem in planning the curriculum was the translation of theoretical information about lasers into an appropriate level of content for educating technicians. The problem was solved when the CTC instructor discovered the availability of laser program guidelines and content materials from the Technical Education Research Center (TERC). The TERC guidelines were modified with the assistance of a representative from a similar TERC-guided laser program in Texas.

An advisory committee of representatives from major industries in the area had been established early in its planning. Committee members served as reviewers for the initial curriculum plan and provided valuable information about what technicians should know and be able to do in the respective companies. Based on the committee's advice, the TERC curriculum was revised and the full curriculum plan was finalized. The committee members were instrumental in locating and securing arrangements for student co-op work-experience openings with local companies.

The curricular plan included five new laser/optics courses and other appropriate courses in mathematics, electronics, physics, human relations, communications, computer language, and economics, as well as the cooperative employment experience. Students were first enrolled in the program in 1978, and the first seven graduates completed the program in 1980. All of the graduates were hired in their field. Eleven additional graduates completed the program in 1981, nine of whom found employment in their field and two of whom chose to pursue other activities.

Although the program has been operating successfully, there are several problems remaining. Because of the reductions in state funds for higher education, the program has not received the level of funding originally anticipated and necessary to purchase all of the equipment desired. Currently, the laser lab has about $70,000 worth of equipment, including several 5-watt lasers and a 20-watt laser, which is the largest in the lab but is not powerful enough to conduct actual cutting, welding, or drilling operations. The desired laser should have 400 watts of power and would cost around $150,000. As a student project, students built a carbon dioxide gas laser at the approximate cost of $600, compared to an average purchase price of $1,500 for a manufactured unit. This gas laser is used to supplement the lab equipment.

The program's instructor and the dean of the division have not had success in securing grants for the purpose of purchasing equipment through the National Science Foundation (NSF). They have submitted several grant applications and made several contacts with NSF officials to obtain directions and information about appropriate grant program specifications and procedures. Their requests (through 1981) have been turned down, although NSF reportedly funded similar programs in 4-year postsecondary institutions. Cincinnati Tech's efforts to obtain equipment from federal government surplus equipment depots in Columbus and Cleveland resulted in further frustration, when CTC faculty were informed that they could not obtain surplus equipment without an NSF grant number.

Another problem that faculty and students encountered was the shortage of cooperative work experience openings in local industries. The school classifies co-op openings according to how closely

related they are to the field of study. The categories are "directly related," "indirectly related," and "not related." The initial seven graduates of the program, when hired, filled the co-op slots that had been available to them. Elimination of other co-op slots was due to the general economic slowdown, which forced many industries to delay their plans for introducing laser systems in their plants. Local openings in electronics companies in the area provided "indirectly related" co-op positions for laser/optics students. Because of a dramatic increase in CTC's Electronics Program enrollment in 1979, the number of openings available for laser/optics students in 1980-81 was greatly reduced.

In 1981, the program was able to place half of the laser/optics students in "related" or "indirectly related" co-op openings. The demand for laser technicians slowed along with the economy, but the long-range employment prospects for laser/optics graduates are good.

Tri-County Technical College

College

Tri-County Technical College
Highway 76, P.O. Box 587
Pendleton, SC 29670

Other Organizations

High-technology and microelectronics industries

Program Area

Microelectronics

Contact

Gary Spangenberg
Director of the Microelectronics Center
(803) 646-8361

Overview

The Tri-County Technical College developed a Microelectronics Resource Center in response to a challenge set forth by the Technical Education College System (TEC) of South Carolina. The Tri-County initiative represents a combination of approaches and techniques designed to establish a centralized facility and staff capable of quickly and steadily infusing new microelectronics technology into the TEC system and South Carolina's industries. The project capitalized on both regional and national experts to develop a state-of-the-art curricular plan and model facility. Through the selection of modern and flexible equipment, the Center will be able to incorporate innovations and closely follow future changes in microelectronics. An advisory committee composed of representatives from leading national corporations will continue to provide information on future trends to guide the Resource Center's growth and direction. The most unique feature of the Resource Center is its plan to help the faculty of other schools stay up to date in the field, and to serve the technological needs of current and future industries in the state.

Background Information

Tri-County Technical College is one of 16 2-year technical colleges in South Carolina's Technical Education College System (TEC). TEC's mission is to aid economic development and job creation in the state by training people for new jobs. Recognizing the rapid changes in technologies used by business and industries, the leaders of TEC developed the "Design for the Eighties," a program to meet the expected needs of South Carolina industries during the next 5 years.

Tri-County College was selected to be part of the "Design for the Eighties" program. The challenge was to develop, within 1 year, a Microelectronics Resource Center that would keep all 16 technical colleges in TEC, as well as South Carolina industries at the technological "cutting edge" of microelectronics. Through its training and demonstration activities, the center is to facilitate the transfer of microelectronics technology to local businesses and industries. The center is to help create

Excerpted and adapted from *Preparing for High Technology: Programs That Work* (Abram et al. 1982, pp. 45-46).

new jobs, and to boost economic development in the state by training technicians for new businesses and industries attracted into the state by the availability of a trained technical work force.

Program Description

The dean of instruction and the engineering technology faculty at Tri-County established three objectives for meeting the challenge:

- To assess the state-of-the-art and future trends in microelectronics.
- To identify and recruit a recognized expert in the field to direct the Resource Center.
- To develop a curriculum plan to meet the training requirements for microelectronics technician-level occupations in South Carolina.

To meet the first objective, a faculty team from Tri-County travelled to California's "Silicon Valley," where the members learned about the microelectronics programs at various community colleges. They also attended a conference of the American Society for Engineering Education and toured Intel and Hewlett-Packard Corporation facilities. During a visit to the IBM Training Center in Atlanta, it was suggested that Tri-County's Microelectronics Resource Center adopt a "fast-follow" approach to keeping pace with technological changes. Personnel at IBM theorized that industry generally does not expect technical school programs to be product-specific in their training. They suggested that the Resource Center training program strive for no more than a 2-year lag behind the most current innovations in the field--that is, the program should "follow fast" on the heels of new technology.

Armed with the information gained from their visits to the school programs, conferences, and corporation sites, the Tri-County faculty team initiated a national search for a director who could bring leadership and expertise to the Resource Center. The search identified and recruited an individual with appropriate engineering technology qualifications and experience. The new director joined the Tri-County faculty in the fall of 1981.

A curriculum plan appropriate to a "fast-follow" approach in microelectronics was developed with the completion of a DACUM* planning session held in the summer of 1981. Representatives of IBM, Texas Instruments, Xerox, and National Cash Register participated in the DACUM process, along with other consultants and technical experts. The outcome of the planning session was a matrix of competencies for various microelectronics-technician jobs.

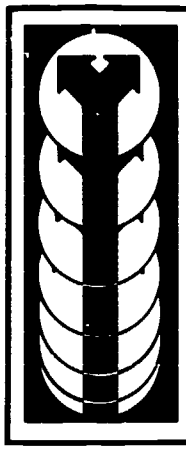
A peer advisory committee, consisting of representatives from educational institutions and industries in South Carolina, also was established. The committee meets three to four times a year to deal with needs assessments, staff development, equipment, and curriculum concerns. A national advisory committee, composed of representatives from leading high-technology and microelectronics industries around the country, also has been established. The national committee provides information on trends in the field and aids in keeping the Microelectronics Resource Center's program at the leading edge of the technology.

An inventory of needed equipment and a floor and work-station plan were developed for the facility. Equipment purchases proceeded as the "Design for the Eighties"

*A systematic group process using technical experts and employers to analyze an occupation and identify relevant job competencies, knowledge, and attitudes to be taught in a course or series of courses.

appropriation of $104,000 became available. Tri-County also received $32,000 from "Design for the Eighties" to support 1 year of release time for a faculty member to coordinate the program planning and development activities. The planning and development effort took about 9 months to complete.

The Microelectronics Resource Center also serves the faculty in the other TEC system schools by conducting inservice training sessions and by assisting other schools in updating their microelectronics-related curricula. The center serves business and industry in South Carolina by providing educational and training courses, seminars, and workshops to assist employees of the companies in keeping up with changes in microelectronics technology.



Section 7
Cooperative Education and Faculty Return-to-Industry Programs

Lane Community College

College

Lane Community College
4000 East 30th Avenue
Eugene, OR 97405

Contact

Bob Way
Department Head
(503) 747-4501

Overview

Through the Cooperative Work Experience Program, Lane Community College places students in career-related employment that complements their ongoing studies. The collegewide program has 1,800 students working with 800 employers. The college is responsible for the awarding of credit, selection and placement of students, and the visitation of students at work sites.

Implementation Procedures

The program entails working closely with college faculty so that the curriculum schedule allows time for students to work off-campus. Prior job development is needed so that work sites are available for placement of students.

Contributions by Industry

Industry contributes facilities, equipment, and materials. Supervisory time of employees is also contributed.

Contributions by the College

The college supports staff time and travel expenses, and the time employed in recruiting, selection of students, and placement.

Benefits to Industry

Industry is able to train potential employees to meet specific needs and to preview and recruit potential permanent employees.

Benefits to the College

The college is able to reduce the costs by using industry equipment, supplies, and floor space. Other benefits include donation of material to the college and contacts with available guest speakers.

Critical Elements for Success

The program's success hinges on the belief by the faculty that work experience is educational and the belief by industry that the program concept is valid. Support from industry in placing program students and support from the college in providing motivated instructors is essential.

Excerpted and adapted from *Sharing Resources: Postsecondary Education and Industry Cooperation* (Wambrod, Persavich, and L'Angelle 1981, p. 87).

Arizona Western College

College

Arizona Western College
P.O. Box 929
Yuma, AZ 85364

Contact

Al Daniels or
Bob Wallace,
Coordinators of
Cooperative Education
(602) 726-1000

Overview

Arizona Western College places students for work experience in positions with government agencies that relate to their major fields. Students complement a minimum of 6 credit-hours in a degree program with on-site experience by writing and completing objectives for their participation in the program.

Implementation Procedures

The college establishes a contract with an agency, sells the program to on-line supervisors, identifies job sites, recruits and places the students, establishes measurable objectives, and evaluates student performance.

Contributions by Industry

Industry provides supervisory personnel, training time, equipment, "world-of-work" situations, and input through advisory committees.

Contributions by the College

The college contributes instructional personnel and coordinating personnel to work with the agencies and recruit, screen, and place students.

Benefits to Industry

Industry is afforded reduced training costs, a review of possible employees, and the productivity of students while they are on the job. The agencies are also able to have regular and meaningful contact with the college and to keep current with educational research.

Benefits to the College

The college is better able to serve its students and its community. Other benefits include decreased lab and lab instructor costs, and the opportunity to stay current with new industrial developments.

Critical Elements for Success

Convincing agencies, supervisors, and faculty of the program's merits facilitates its success. Proper coordination, record-keeping, and selection and screening of students are also essential.

Excerpted and adapted from *Sharing Resources: Postsecondary Education and Industry Cooperation* (Warmbrod, Persavich, and L'Angelle 1981, p. 88).

J. F. Drake State Technical College

College

J. F. Drake State Technical College
3421 Meridian Street North
Huntsville, AL 35811

Contact

Drexel E. Boothe
Dean of Students
(205) 539-8161

Overview

In this cooperative education effort the student obtains relevant on-the-job work experience and works with the most modern up-to-date equipment in an industrial setting. After an enrollment period of from three to four quarters, students may elect to enroll in the cooperative education option. Students who participate in this program alternate quarterly between work and school.

Implementation Procedures

The implementation process includes development of program objectives, and obtaining support from participating companies through a "Cooperative Education Agreement." Specific activities such as job development and student recruitment are also required.

Contributions by Industry

Industry contributes equipment, materials, and institutional staff.

Contributions by the College

The college provides students who have already secured basic training in an occupational area, in addition to supervision and evaluation of the students.

Benefits to Industry

Industry works in conjunction with the educational institution to train technicians who will have experience in that industry's jobs upon graduation from school. Cooperative education decreases an employer's training expenses, and increases the availability of highly trained personnel for jobs within the industrial setting.

Benefits to the College

Cooperative education connects the college with industry, allowing the college to keep abreast of the constantly changing technology of industries within the community. The placement of students is also successful due to working relationships established through the cooperative education effort.

Critical Elements for Success

Critical elements for success of this cooperative educational effort include: defining each participant's responsibilities before beginning the educational

Excerpted and adapted from *Sharing Resources: Postsecondary Education and Industry Cooperation* (Warnbrod, Persavich, and L'Angelle 1981, p. 89).

process, maintaining two-way communication once the program is established, selecting students who are motivated to succeed in the programs, and providing adequate supervision of the students on the job.

Johnson and Wales College

College

Johnson and Wales College
8 Abbott Park Place
Providence, RI 02903

Contact

Gerald A. Fernandez
Coordinator
Cooperative Education
(401) 456-1008

Overview

The 2-year Culinary Arts program at Wales College represents a cooperative effort between higher education and industry. As part of the second year of instruction, the top one-third of the students participate in an internship program at participating restaurants within the community. This experience reinforces the theory taught in the classroom and gives the student actual work experience. While in this setting, the student is paid and evaluated by the employer.

Implementation Procedures

This program started in 1977 and utilizes a standard curriculum. The internship requires the following procedures: the participating restaurant must be approved by the college; the employer must agree to vary the student's work experience; students will be paid a wage commensurate with their abilities (this must be at the minimum wage level at least); the employer must complete evaluations of the student's performance; the employer reserves the right to terminate the student with just cause.

Contributions by Industry

Industry contributes a laboratory setting that includes instructors, equipment, materials, and reimburses students for their participation.

Contributions by the College

The college offers a direct contact for industry with future personnel. The college provides program guidelines, supervision, and career counseling for all students.

Benefits to Industry

Students who have participated in this cooperative education program have a tendency to return to the employers who provided them laboratory experience, thus giving industry ready-made employees who require no retraining. In addition, these students bring new techniques and methods to the marketplace.

Benefits to the College

Students earn a wage during the program that can help offset the cost of their

Excerpted and adapted from *Sharing Resources: Postsecondary Education and Industry Cooperation* (Warmbrod, Persavich, and L'Angelle 1981, p. 90).

education. Class sizes are smaller, thereby allowing instructors more time to spend with each student.

Critical Elements for Success

Among the elements behind the program's success are establishment of and compliance to goals and objectives, appropriate college and employer supervision of students, establishment of criteria for both employer and student selection, maintaining communication between student, college, and employer.

Delgado College

College

Delgado College
615 City Park Avenue
New Orleans, LA 70119

Contact

Sylvia Dobard,
Director
Cooperative Education
(504) 483-43616

Overview

Delgado College's cooperative education program integrates classroom theory with practical experience by providing students with specific periods of attendance at the college and specific periods of employment.

Implementation Procedures

Implementing cooperative education requires careful planning, institutional support, and competent staffing. The planning phase has three main components: stating program objectives, developing support for the program, and making programming decisions. Once the program is ready to be implemented, specific activities such as job development and student recruitment are required.

Contributions by Industry

Industry contributes expertise and provides training and wages.

Contributions by the College

The college provides for the supervision and evaluation of students.

Benefits to Industry

Students become familiar with employer practices and organization. The program serves as an excellent source of temporary and potentially permanent employees. The infusion of new people also provides new ideas and viewpoints. The cooperative program provides the company with a low-cost training program since the cooperative student generally earns a salary that is below the average salary paid to a graduate.

Benefits to the College

The establishment of a relationship with the cooperating organizations can reduce the "isolationism" of the college. The faculty can be kept up to date and stimulated by the interaction with industry. Cooperation with industry often has the advantage of utilizing modern facilities and equipment that are sometimes too costly for the college to supply. The placement of graduates of a cooperative program is easier for the college because of the graduates' background and experience.

Excerpted and adapted from *Sharing Resources: Postsecondary Education and Industry Cooperation* (Warmbrod, Persavich, and L'Angelle 1981, p. 91).

Critical Elements for Success

Advocacy and support from administrators and faculty members, sufficient financial support, cooperation with industry and governmental agencies, and adequate staff to properly conduct the program are critical elements in the program's success.

Orangeburg-Calhoun Technical College

College

Orangeburg-Calhoun
Technical College
P.O. Box 1767
Orangeburg, SC 29115

Contact

Patrick Black, Chairman
Technology Division
(803) 536-0311

Overview

The program allows instructors at the college to enter industry during the summer months while retaining their position as employees of the college. In return, industrial personnel teach quarterly courses at the college while remaining industrial employees.

Implementation Procedures

An agreement is drawn up between the college, the industry, and the participants. The instructor working in industry is assigned a work area. The industrial employee is assigned a course outline by the college. Service and not money is the basis for exchange.

Contributions by Industry

Industry contributes access to production lines and processes for participating instructors. It also contributes the time of personnel assigned to each course.

Contributions by the College

The college contributes access to the educational setting for industrial employees. It also contributes the labor of one of its employees in industry for a period of time.

Benefits to Industry

Industry benefits by having access to an additional person with academic training in a related field of study.

Benefits to the College

The college benefits by having instructors who are current in their knowledge of technology and its applications.

Critical Elements for Success

Cocperation between the college and a participating industry is essential. A written agreement should be signed for each exchange, and an understanding of the legal ramifications of the program is needed.

Excerpted and adapted from *Sharing Resources: Postsecondary Education and Industry Cooperation* (Warmbrod, Persavich, and L'Angelle 1981, p. 101).

Hagerstown Junior College	College	Contact
	Hagerstown Junior College 751 Robinwood Drive Hagerstown, MD 21740	Michael H. Parsons Dean of Instructional Affairs (301) 790-2800

Overview

Occupational faculty members work in industry to reinforce, update, or expand the skills and knowledge required to keep current in their professions. Through the 5-year duration of the program, the college hopes to update faculty in all 14 of its occupational programs.

Implementation Procedures

Instructors desiring to participate in the program locate a host industry and submit proposals that explain the details of their intended project. On-site assessments by the instructors' dean or division heads are followed by evaluation reports completed by the on-site supervisor. Instructors then prepare plans detailing how the return experiences will be incorporated into their teaching.

Contributions by Industry

Industry contributes personnel time to cooperate with the college in providing return experiences.

Contributions by the College

The college contributes administrative time and the instructional time of personnel participating in the program.

Benefits to Industry

Industry receives the services and advice of participating instructors. Increased understanding between the college and industry occurs following the experience. Finally, the industry benefits through the updated training that students of participants receive.

Benefits to the College

The college is able to update its occupational staff's training, and consequently to offer current experiences to its students. Communication links established with participating industries are excellent for public relations and student placement.

Critical Elements for Success

Funding to conduct the program is essential. Careful asessment of faculty proposals and post-return implementation plans is necessary. The program also requires close communication between the college, its faculty, and host industries.

Excerpted and adapted from *Sharing Resources: Postsecondary Education and Industry Cooperation* (Warmbrod, Persavich, and L'Angelle 1981, p. 102).

Spartanburg Technical College

College

Spartanburg Technical College
P.O. Drawer 4386
Spartanburg, SC 29302

Contact

Jane Reece
Project Developer
(803) 576-5770

Overview

Instructors at the college are released from their teaching duties for periods of from 2 to 15 weeks in order to work in industrial, business, or health settings. Qualified substitutes maintain their instructional responsibilities while these instructors participate in the program.

Implementation Procedures

Instructors who wish to participate locate an appropriate placement and make a list of objectives of the experience. After obtaining permission from the dean, the instructor signs an agreement form with the industry. Participants do not receive a salary from the industry.

Contributions by Industry

The industry provides a setting for the return experience and personnel to help the participant.

Contributions by the College

The college supplies substitutes for the instructors and a temporary source of labor to the industry.

Benefits to Industry

The industry obtains students who are current in the technical training that their instructors provide.

Benefits to the College

The college is able to maintain a faculty that is current in new trends in technology.

Critical Elements for Success

A grant enables the college to provide pay for substitutes. Support from the participating industries allows the program to function.

Excerpted and adapted from *Sharing Resources: Postsecondary Education and Industry Cooperation* (Warmbrod, Persavich, and L'Angelle 1981, p. 103).

Central Piedmont Community College

College

Central Piedmont
Community College
P.O. Box 4009
Charlotte, NC 28204

Contact

Carl E. Squires
Vice President
Career Programs
(704) 373-6860

Overview

To update their teaching, instructors at Central Piedmont Community College observe in industry for a 10-week period. Substitutes are hired to assume their teaching responsibilities during the observation time. Following the observation, the instructor prepares an update booklet on the industry for dissemination within the college and nationally. Updates in 26 occupational fields are planned.

Implementation Procedures

The college seeks a minigrant from industry to pay the substitute salary and publication costs for an update project. A faculty member willing to participate and an industry willing to offer a placement are identified. Following the observation period the faculty member produces a current practices booklet.

Contributions by Industry

Industry contributes minigrants for the update and personnel time in helping instructors observe in industry.

Contributions by the College

The college provides administrative coordination, travel costs, and some printing costs.

Benefits to Industry

Industry receives employees who are more current in their fields because they have been taught by instructors who have either been in industry recently or have benefited from reading the booklet of a colleague who has had a recent work experience.

Benefits to the College

The college benefits by maintaining better prepared instructors.

Critical Elements for Success

Initial acquisition of project funds is important, as is the continued acceptance of the project by industry and faculty.

Excerpted and adapted from *Sharing Resources: Postsecondary Education and Industry Cooperation* (Warmbrod, Persavich, and L'Angelle 1981, p. 104).

Part IV
Case Studies of Special Services and Programs for Adults

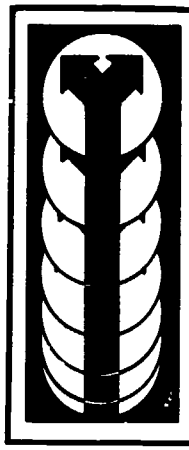
OVERVIEW OF PART IV

The case studies in this part deal with programs for dislocated workers, programs for persons with disabilities, and programs for improving occupationally related basic skills.

The dislocated worker case studies describe successful programs in St. Louis and in Pittsburgh. Both cities have had severe unemployment due to recession and plant closings. These case studies present those cities' responses to the needs of dislocated workers. Both case studies describe the operation of the programs as they existed up to and including 1984.

Three model programs for persons with disabilities are in Section 9. Project Transition for mentally retarded adults, Job Path for hard-to-employ individuals, and Projects with Industry for disabled persons are described. The case study on "Serving Adult Learning-Disabled Students" describes the program for such purposes at Ventura College in California.

Basic skills projects are described in Section 10. Reported in case study form these case studies describe the approaches basic skills specialists can take to develop integrated basic and technical skills training programs. In these examples, businesses and industries have expanded their basic skills offerings while satisfying organizational goals for cost-effectiveness. The first two case studies describe basic skills programs at the college level that also combine career development and job-seeking skills with the training. The last two case studies describe public and private sectors' cooperative efforts to train workers.



Section 8
Dislocated Worker Programs

St. Louis Community College

College

St. Louis Community College
5801 Wilson Avenue
St. Louis, MO 63100

Program Office/Center

Metropolitan Reemployment Project
5600 Oakland Avenue
St. Louis, MO 63110

Other Organizations

New Spirit of St. Louis Labor/Mgt. Committee
St. Louis Regional Commerce Growth Assn.

Contact

Michael H. Maguire
Project Director
(314) 644-9142

Context of the Problem

From 1979 to 1984, the city of St. Louis and the surrounding metropolitan area experienced severe unemployment, with over 40,000 workers laid off or displaced by plant shutdowns. More than 7,000 jobs were lost in heavy industry and other blue-collar occupations.

Because of work histories in stable, long-tenured, high wage jobs, many of the unemployed were ill-prepared to cope with their job losses or to find new employment. In response to the growing problem of worker displacement, the New Spirit of St. Louis Labor/Management Committee, in cooperation with the St. Louis Regional Commerce and Growth Association, initiated the Metropolitan Reemployment Project on a pilot basis to provide assistance to the dislocated workers.

Purpose of the Project

The Metropolitan Reemployment Project (MRP) was designed to assist employees and employers affected by the structural changes taking place in the metropolitan economy. The services available included: counseling the unemployed, providing information regarding job openings, facilitating job placement, retraining opportunities, and providing strategies for career change. The project also provided employers with an outplacement program by initiating, developing, and delivering exclusive plant- or industry-centered job workshops. The MRP staff also provided employers with information on potential employees and aided in their job placement.

Excerpted and adapted from *Helping the Dislocated Worker: Sample Programs* (Ashley and Zahniser 1984, pp. 14-17).

Organizational Characteristics of the Project

Participating Agencies and Organizations

In 1984, the Metropolitan Reemployment Project was operated by St. Louis Community College and cosponsored by the New Spirit of St. Louis Labor/Management Committee and the St. Louis Regional Commerce and Growth Association (RCGA). Other cooperating organizations were the St. Louis Labor Council, AFL-CIO; the Missouri Division of Employment Security; and the Fund for Improvement of Postsecondary Education (FIPSE).

Funding

The Metropolitan Reemployment Project was funded at $134,453 in 1981 for 1 year under Title III of the Comprehensive Employment and Training Act (CETA). Funding during 1982 was provided by Civic Progress, Incorporated, in the form of a $150,000 grant. The St. Louis Community College provided $100,000 of in-kind support, including facilities, administrative support, and the loan of a director for the project. Civic Progress, Incorporated, provided a $180,000 grant in 1983 for the operation of the project. The project also received a grant from the fund for Improvement of Postsecondary Education (FIPSE) of the U.S. Department of Education to support a training effort entitled "The Experienced Workers Retraining Project." St. Louis Community College also provided support for the Retraining Project, which offered business services programs in computer applications (288 clock hours), and electronics (280 clock hours). The Metropolitan Reemployment Project staff provided training in job interviewing techniques, placement, resume preparation, financial planning, and communication skills. Further, in 1984-85, the Reemployment Project expected to receive $325,000 from the Missouri State Manpower Office under the Job Training and Partnership Act (JTPA).

Additional in-kind contributions to the Reemployment Project in the form of personnel or services were provided by the Missouri Department of Employment Security, the Missouri Department of Elementary and Secondary Education, the RCGA, and the St. Louis Metropolitan Area Private Industry Council.

Staff and Facilities

The full-time staff for MRP was originally the director, three counselors, one part-time job development specialist, a part-time management information system specialist, a full-time secretary, and a part-time aide. In September 1983, the staff increased to 13 full-time people.

The central offices and classroom facilities were located on the campus of St. Louis Community College. Two outreach offices also operated in Illinois. One was located at the Illinois State Job Service in East St. Louis, and a second at the Coordinated Youth Service, Incorporated, in Granite City, Illinois. The Experienced Workers Retraining Project, supported by the Institute for Continuing Education, was also located at St. Louis Community College.

Nature of Services

The project was intended to help people help themselves gain new employment, and provided a range of services toward that end. Counseling services were provided for laid-off workers in the form of workshops and on an individual basis.

Trained professional career counselors worked with laid-off (or soon to be laid-off) workers on a one-to-one basis to assess their needs, strengths, and employability skills. From these meetings, each client developed a job search strategy As the clients explored their backgrounds and

their future goals with the counselor, some decided to make a career change. In those cases, alternative training possibilities would be explored. The goal of these counseling services was to help dislocated workers help themselves in their future career decisions.

Training and support were provided through a job club and through workshops on resume writing, interviewing, and job search techniques. In addition to these individualized counseling services, project staff referred clients to community agencies that provided services for laid-off workers.

The MRP counselors worked closely with the Missouri Job Service to identify appropriate job placement referrals. Counselors also provided vocational testing and helped clients in using a career resource center.

Operating Schedule

Initially, separate workshops were offered on a variety of topics, but these were consolidated into a single, 1-day intensive session. In this workshop, each client received assistance or training in resume preparation, job search techniques, and interviewing skills during a single visit. Individual counseling sessions were then scheduled to follow the workshop. Clients could return more than once for additional counseling and job search assistance.

Workshop sessions were offered in various locations, including union halls, employer sites, and at the community college. Experience had shown that a neutral site was a better location because it was nonthreatening. Such a setting did not aggravate the hostility and frustration that dislocated workers might feel toward their former employers or unions due to the loss of their jobs.

Intake interviews were provided by counselors and would last from one to two hours. During the counseling session, clients were guided in identifying their transferable skills and relating them to other jobs that are described in the *Dictionary of Occupational Titles* (DOT). Following the intake interview, clients would be referred to a workshop session for interview training, which was delivered by using videotape and practice sessions. Clients also could make appointments for more formal assessment services, such as completing aptitude batteries or interest inventories.

Following the counseling and workshop sessions, clients in need of other services were referred to the appropriate agency or organization. Clients who attended a workshop were contacted at least once a quarter if they did not return for counseling or report on their job search progress.

The project also provided special services to businesses and industries in the area. When a company needed to hire a new employee, it could contact the project for referrals. When an employer called, project staff members provided prescreening of applicants, copies of resumes, work histories, other information about clients, and direct referrals.

When a company laid off workers, the project offered outplacement services, career counseling services, and workshop sessions, where project staff members assisted employees in resume preparation and in planning job search strategies. Staff also provided local job market information and taught techniques of networking, as well as how to conduct an effective job search. Interviewing techniques were demonstrated and practiced, and staff provided help in preparing letters of application and making telephone contacts. The project also offered information about many other community resources, including training programs that were offered by various schools (public and private) and social and financial services.

The goals of the project for 1983 included opening two new part-time outreach offices at the Florissant Valley Campus and at Meramec in Kirkwood. Additional outplacement counseling services were planned

for 1,500 clients, and workshops were planned for 1,000 clients. The project operated a computerized job bank to make appropriate referrals for available job openings.

Project counselors worked closely with both the Missouri and Illinois Job Services Placement offices in securing job leads for their clients. The staff also developed new relationships in cooperation with local companies, labor organizations, agencies, and educational institutions as a way to focus resources on creating new jobs and retraining dislocated workers for new future employment.

Program Characteristics and Features

A major MRP component, critical to the reemployment of clients, was job development.

This effort consisted of many different activities and strategies that were conducted on a regular basis by the job development specialist. For example, the job developer performed the following:

- Made direct calls to companies in the area to inform them of MRP's services
- Worked with companies that announced future growth or layoffs
- Attended personnel association and business organization meetings
- Visited adult education classes in community schools and advised them on ways to cope with layoffs
- Contacted religious and support groups to promote project services
- Provided sample letters and other materials for companies to use in announcing layoffs
- Promoted the pool of MRP clients to area employers while searching for job opening leads through referrals

The part-time job developer reported making an average of 20 scheduled contacts per week with companies. "Cold" calls to unscheduled companies also were made. Information gathered through follow-up visits to employers who hired MRP clients was used to guide, revise, and improve the services provided by the project.

In 1984, the project planned to add two additional full-time job developers to perform similar activities. In addition, they would locate and write on-the-job training contracts through JTPA to place clients in jobs where they would be trained by the employers.

Outcomes

MRP project staff maintained records on the number of clients served each quarter, the status of clients, and the average cost of services per client. Of the total number served through 1984, approximately 75 percent were male, 30 percent were union members, 25 percent were black, and 60 percent were married.

The number of clients served increased each year of the project. Over 3,000 clients were served through one-on-one counseling, and a greater number attended workshop sessions. An average of 31 percent became reemployed. Many clients entered training each year, with about 10 percent entering training during the first half of 1983 out of a total of 723. Over 1,000 clients were served during 1983, with an average cost per client (direct unit cost) of $110 and a direct placement cost of $477.

The MRP project does not claim direct or total credit for all placements, but it had a very positive effect on its clients and on the community at large. In 1984, the project was considered a necessary part of community response to the needs of dislocated workers in the St. Louis area, and would continue to operate as long as the need existed.

Community College of Allegheny County

College

Community College of Allegheny County
800 Allegheny Avenue
Pittsburgh, PA 15233

Program Office/Center

Dislocated Worker Training Program
800 Allegheny Avenue
Pittsburg, PA 15233

Other Organizations

The College's four branch campuses: Allegheny, Boyce, Center-North, and South

Contact

James Holmberg
Dean of Instructional Planning
(412) 237-3050

Context of the Problem

Pittsburgh suffered severely from the shock of the recent recession, from a pronounced slump in the area's steel industry, and from changing technology within local plants. More than 30 steel companies, both large and small, including makers of both carbon and specialty steel, have plants in the Pittsburgh area. In recent years, many of these firms permanently closed or temporarily shut down portions of their plants. In 1979, 90,000 residents were employed in the steel mills. In 1984 approximately 44,000 were employed in the steel mills, even after an increase in steel sales. The spin-off unemployment in other firms, brought about by the slump in steelmaking, led to the layoff of an estimated 100,000 workers. In response to this situation, Community College of Allegheny County and the county commissioners initiated a cooperative retraining effort. Approximately 6,000 dislocated workers were to receive educational and skill training services at the college.

Purpose of the Program

The purpose of the Dislocated Worker Educational Training Program (DWETP) was to enhance the employability of dislocated workers by helping them start from their present skills and experiences and build a specialized program for each participant. The program staff members attempted to achieve this purpose through a combination of career counseling and guidance, job search and motivational workshops, communication and math training, and technical skills training. Program participants were provided with the tools and decision-making skills that enabled them to exercise control over the options they pursued and the new jobs they accepted.

Excerpted and adapted from *Helping the Dislocated Worker: Sample Programs* (Ashley and Zahniser 1984, pp. 18-22).

Organizational Characteristics of the Program

Participating Agencies

The program was planned, administered, and operated by the Community College of Allegheny County. Clients were served via the college's four branch campuses located strategically around the county: Allegheny Campus, Boyce Campus, Center-North Campus, and South Campus.

Funding

The program was funded originally at a sum of $1 million, which was contributed to the college by the Allegheny County commissioners from surplus county funds. Other funds came from student grant and loan programs, such as PELL Grants, Pennsylvania Higher Education Association Loans, GI benefits, and Trade Readjustment Assistance training benefits.

Staff and Facilities

Dislocated workers who entered the program used the facilities and regular curricula of the college's four campuses. The workers chose from among 221 career and occupational development opportunities, of which more than 100 could lead to entry-level job skills within 1 or 2 semesters. Individuals could elect to enroll in degree-granting credit courses that led toward: an Associate in Arts (AA), Associate in Science (AS), or Associate in Applied Science (AAS) degree; a diploma; a certificate; or a certificate of recognition. Alternatively, workers could tailor a program to their own needs via the college's continuing education program. The college's staff designed 4 courses targeted to dislocated workers' personal and academic needs: Career and Personal Development (15 hours), Job Search Skills (20 hours), Academic Skill Development--Communication Skills (36 hours), and Academic Skills Development--Mathematics (36 hours).

Staffing for the program came almost solely from the college's regular staff. The planning was conducted under the leadership of the dean of educational services and the program coordinator. The director of institutional research, the dean of public affairs, and deans and program coordinators from each of the college's four campuses worked with them. To supplement permanent staff, intake interviewers were hired on a part-time basis. The dean of educational services and the program coordinator provided collegewide coordination for the program. The institutional research director conducted tracking and evaluation programs necessary for county reporting requirements and for ensuring a quality education for DWETP students.

Similarly, the dean of public affairs obtained appropriate national and regional media coverage for the program. At each campus, a program coordinator was assisted by the intake interviewers. These individuals provided personal support and follow-up services for each client and developed extra-curricular events for each campus's DWETP students.

Nature of Services

The DWETP program offered comprehensive, flexible retraining options for eligible dislocated workers. The program funded the cost of a client's tuition, books, and other college-related fees, but not living expenses. Personalized intake counseling and assessment at accessible locations throughout the county were offered to each worker entering the program. Based on the intake interview, staff recommended a personalized course of study or special series of workshops for the client. Options included complete degree programs, one-year certificates, special academic review courses in mathematics or communications, job search training, courses leading to a GED, or nondegree continuing education courses.

Throughout each dislocated worker's retraining experience, personalized counseling, support, and assistance were available. An efficient management information and tracking system provided counselors, instructors, and program coordinators with current information to aid in personalized planning and counseling efforts. Students met frequently with campus coordinators to monitor their academic progress, obtain special tutoring in troublesome subject areas, revise educational goals, or chart their selection of new courses. The college also provided a blocking option for students having pronounced difficulties with basic academic skills. This option placed students having serious problems together, where they were able to lend mutual support and encouragement to each other. Also, the instructors cooperatively reviewed individual students' problems and planned remedial coursework that was coordinated across all subject areas. They designed special curricular materials that reflected the student's experiences and backgrounds.

In addition to the personalized career and academic attention, the DWETP students also received assistance in other areas of their lives. Intake interviewers, campus coordinators, and other associated with the program were well informed about community social service providers. On an as-needed basis, appropriate referrals to these agencies were made. The formation of peer support groups among the DWETP students was encouraged at each campus. Additionally, the program staff developed informational newsletters for the DWETP students and offered periodic social events, such as family outing days. DWETP students' access to college athletic facilities also was planned.

Operating Schedule

The Dislocated Workers Educational Training Program began on April 8, 1983 with a 5-month open registration program. Dislocated workers who were eligible (e.g., residents of Allegheny County who were receiving unemployment compensation or whose benefits had been discontinued within the previous 18 months) either called a special college hotline number or mailed in a coupon taken from newspaper ads. Special inquiry flyers had been distributed throughout the county at social service agencies, union halls, employment service offices, and other strategic locations. In response to these initial inquiries, a formal application packet was sent to each individual. The college staff conducted a follow-up with all initial applicants who filed an official application form and immediately notified those who were ineligible.

Beginning in June 1983, every eligible applicant underwent an intensive, one-to-one interview with a knowledgeable, intake interviewer. The interviewer had received intensive training on the nature of the labor market, the college's programs and services, criteria and details of the DWETP subsidy, and techniques for conducting interviews and making referrals. Each interview was held in an accessible location to the worker and lasted about an hour. During the interview, the interviewer determined the client's career interests, abilities, and needs and recommended an appropriate course of training. Usually, the students were immediately referred to noncredit continuing education courses and workshops: job search and career self-assessment training and brush-up academic work. Then, in the fall of 1983, most clients were expected to enroll in credit courses.

In order to maintain continued eligibility for funding, all applicants had to--

- enroll in career-related continuing education courses by December 1983 and/or begin a credit program at the college by fall of 1984;
- attend classes through two consecutive semesters, once enrolled in a credit program, and continue in a similar manner until the program was completed;

- maintain satisfactory academic progress (i.e., cumulative grade point average of C or above); and
- notify the college immediately upon becoming employed, in which case the program coverage ended at the close of that particular semester.

To facilitate clients' adjustments to the college environment and the ability of program and college staff to meet their individual needs, the college's institutional research department regularly compiled profiles of the students, administered course evaluations, and assessed students' educational goals and development. This information was sent regularly to program coordinators at each of the four campuses. Using this information, the coordinators maintained personalized follow-up contact with clients, planned special events and programs for them, and worked with instructors to design curricular materials.

Although the official closing date for program applicants was 2 September 1983, entrance into the program was extended to December 1983. The college made a commitment to see each student through to either completion of the course of study or to employment. No placement commitment was made to students. However, in 1984, the staff anticipated greater involvement of the college's job placement staff, and the local business, industry, and government communities.

Program Characteristics and Features

The Community College of Allegheny County program for dislocated workers demonstrated a strong and unique partnership between local elected officials and the postsecondary educational community. Because county commissioners funded the program from county funds, the program and those who enrolled in it assumed a legitimate and important status within the community. Additionally, the support from local officials fostered a sense of community-wide cooperation, especially among agencies serving the dislocated workers.

The college's program provided approximately 6,000 of the county's more than 100,000 dislocated workers with opportunities to develop new occupational skills via a personalized retraining or educational development program. To offer this type of program required an organized and cooperative effort. The program's coordinator, the college's dean of educational services, the dean of public affairs, and the director of institutional research formed the core planning staff. Assisting them, on an as-needed basis, were the DWETP coordinators from each of the four branch campuses, deans from each of the four campuses, and other staff from each campus who were accustomed to working with the unemployed.

From the outset, the planning group and the college staff made a commitment to serve as many individuals as possible in a personal way. Consequently, throughout the program's open registration period, individualized contact was made with the registering dislocated workers. Additionally, an effort was made to provide continuity among the staff who were most involved with the workers. For example, as informational requests came into the college, basic demographic and biographical information (including addresses and telephone numbers) was recorded. This was done so that general, 3-hour meetings could be held for large groups of the dislocated workers at convenient and accessible locations.

Each individual who requested information was telephoned or notified about the meetings by mail. These meetings served as a forum for college staff to provide detailed information about the program, to offer information to the workers about Unemployment Insurance benefits or other

relevant compensation information, and to help the workers cope with the stress of unemployment.

To provide a sense of continuity for the workers, several of the counselors developed materials for and taught several of the noncredit courses, including courses featuring job search, resume writing, interviewing, and self-assessment techniques. For the workers who enrolled during the summer months, especially those choosing credit and degree-granting programs, there were no official activities until September. The planning staff thought that many individuals would want to begin activities immediately. As a result, the special courses in academic skills, job search skills, and career and personal development were created.

The program coordinators from each campus and the program's director developed many of the materials for these special courses themselves. Basic core materials were used for all the campuses (e.g., in the career and personal development courses, the Vocational Interest Experience and Skill Assessment materials from the American College Testing Program were used). However, each campus was free to develop special materials, such as workbooks, special labor market materials, or class handouts, and to utilize course delivery methods that seemed most relevant for their particular clients.

As the DWETP program got completely underway in the fall of 1983, the college's program staff intended to strengthen the commitment to personalized support and follow-up contact for the students. Many of the dislocated workers enrolling in the program were older, had worked at the same job for many years, or may never have attended college or completely finished high school. With the emphasis on the flexible training options and activities mentioned earlier (e.g., the blocking option, the social events for the students and their families, and the specialized newsletters about emerging occupations and area labor market trends), the college tried both to facilitate the workers' adaptation to normal student life and to provide them with a special identity.

No special labor market analysis was conducted to decide specifically which occupations were most appropriate for the dislocated worker to enter because program clients would be entering regular college programs that already are based on labor market information and employment demand surveys. Although the goal was to help the students become as employable as possible, the program also enabled them to exercise some control over the options that were available to them and the occupations they entered. The program staff believed that dislocated workers should be given whatever tools they needed to take the next step in becoming more employable. If the next step for an individual involved learning a new skill rather than jumping immediately into another dead-end job, then that person should invest in training. The job search and career and personal development courses came early in the overall program so that workers could find new, productive jobs and finance their own training. However, every effort was made to ensure that the new employment experience had good potential employment longevity.

In order to carry out programmatic objectives, the program's planning and administrative staff needed strong cooperation and support from the college's institutional research staff. At the outset of the program, the staff had no idea about the number of people that would be handled, nor of the exact type of information required. Thus, staff had difficulty planning for clients' informational needs. However, over the 5 months of open registration, the research staff developed special statistical reports and established an efficient database that assisted program planners and administrators throughout the program's duration. For example, demographic profiles were developed for each client and for each of the four campuses. These reports included age, sex, employment history of each worker, status of unemployment benefits, skill background, educational history, educational needs, job interests, and career plans. Additionally,

assessments were made of clients' needs for formal skill training or short-term workshops.

In 1984, plans were continued to track program clients throughout their academic careers, to build in a data component that would assess the institution's ability to respond to the clients, and to provide follow-up information after clients graduated or dropped out. The research staff had their own computer terminal and control over data turnaround time. Data were transmitted rapidly throughout the summer to all staff associated with the DWETP program. The availability of this information enhanced the planning process, helped the staff to be more concrete about their goals, and led to some modifications in the career development and job search courses. It also helped the program administrators more effectively handle over 8,000 inquiries received from dislocated workers during the registration period.

Outcomes

During the period from 8 April to 2 September 1983, the DWETP staff handled 8,275 inquiries received via the telephone hotline or by coupons returned from local newspaper advertisements. Of these inquiries, 5,702 individuals returned applications. Each applicant was interviewed, and 153 applicants were seen twice because they were referred to a branch campus that had a more suitable program. For the fall of 1983, 3,250 applicants enrolled in credit programs; 92 percent chose 2-year associate degree programs, and the other 8 percent chose 1-year certificate or short-term diploma programs. The average age of the clients was 34, with 21 percent between 36 and 45. Most had worked in prior jobs for 6 to 7 years. Over 80 percent had not attended school beyond high school, over 70 percent were male, and 45 percent were interested in pursuing vocational-technical curricula.

Section 9
Programs for Persons with Disabilities

State Departments of Rehabilitation

Agency

State Departments of Rehabilitation

Location

National Distribution

Other Organizations

Private Industry

Overview

Numerous successful programs throughout the nation serve individuals with disabilities and emphasize cohesive vocational planning and placement strategies. Of these, three comprehensive programs are highlighted in this section as examples. They are *Project Transition, Job Path*, and *Projects with Industry.*

Project Transition

Project Transition (Virginia Department 1979) is a program serving the Northern Virginia area and has been funded through federal grants, the Virginia Department of Rehabilitative Services, and community services boards. Its goal is to assist mentally retarded adults in becoming competitively employed in secure jobs that have been carefully matched with their vocational abilities and career interests. Project Transition emphasizes a one-to-one relationship between the disabled individual and the job placement specialist. This unique relationship ensures that the disabled individual will demonstrate successful adjustment to the job as well as satisfactory performance. The approach used by Project Transition includes the following features:

- Intensive one-to-one pre-placement orientation lasting approximately 2 weeks, using actual training sites in the community
- Full-time on-the-job training and supervision by the placement team from 2 weeks to 2 months
- Transportation, as required, to and from the work setting
- Maintenance of close family ties
- Occupational skill training and work adjustment
- Comprehensive job analysis for each potential job site
- Maintenance of close employer contact
- Involvement of various community resources to ensure a comprehensive, cohesive, and consistent approach to employment

Project Transition emphasizes social and economic independence through entry into the competitive working world.

Excerpted and adapted from *Vocational Rehabilitation in Employment Training* (Sullivan 1984, pp. 14-17).

Job Path

Another example of a very successful vocational planning and placement model is Job Path (1980), a supported work program designed to enable hard to employ individuals to obtain and retain jobs. Five basic components are an integral part of the supported work program:

- Real job assignments as part of the training period for the purpose of transmitting job skills essential in the competitive job market
- Successful experiences so that the disabled individual is not overwhelmed by initial job responsibilities
- Firm but supportive supervision
- Regular evaluation and feedback in order to increase self-confidence and the development of individual responsibility
- Opportunities for peer support in order to gain mutual strength and understanding

The first stage of training in Job Path is designed to teach the participants good working habits and to develop their basic skills. Each participant is placed in a public sector employment site for up to 6 months. During this period individuals are paid the minimum wage. The second stage occurs when the trainees are placed in a private sector site. Trainees are matched to either the private or public training site on the basis of skills, personality, and potential of the trainee to meet the needs of the employer. The third stage of the transitional program occurs when the trainees move from Job Path's payroll to the payroll of the organization that hired them on a competitive basis. The hiring of Job Path trainees occurs in two ways: first, what began as a training opportunity turns into a competitive job slot; and secondly, trainees are hired by firms on a direct-hire basis.

Job counseling is an integral part of the Job Path model. Job counselors provide the support system for the trainees. The counseling component of Job Path has four methods of support for both the supervisor and the disabled individual:

- Job counselors visit the training sites on a regular basis in order to observe the trainee at work and to identify strengths and potential problem areas. Job counselors meet briefly with the individual to provide needed support.
- Job counselors meet regularly with supervisors to discuss the disabled individual's progress and possible areas of concern.
- Job counselors provide individual counseling for each trainee.
- Group counseling is provided for each trainee.

The counseling component is a continuous one and continues throughout the first months of placement, gradually being reduced over the course of the year.

Job Path's transitional employment program emphasizes work adjustment, job development, job counseling, and follow-up. It has been successful in making successful employees out of a large number of disabled individuals who had been thought to be unemployable.

Projects with Industry

Projects with Industry (PWI) is a job development, planning, and placement program, cooperatively administered by both private industry and rehabilitation agencies. Pati, Adkins, and Morrison (1981) have indicated that all phases of job development and planning have their focus in the model, but that primary focus tends to be on work adjustment and actual job placement. In 1984 over 100 PWI programs were found throughout the nation.

As expressed by Pati, Adkins, and Morrison (1981), PWI is founded upon four major assumptions:

- Work settings provide the most reliable arena for evaluating the skills and aptitudes of potential employees. Work site evaluations prepare disabled individuals for competitive employment.
- The employer, as well as the disabled worker, needs help in training and placement.
- Employers are in an excellent position to identify job disabled individuals. They may be involved in defining the qualifications for jobs and designing training programs.
- It is in industry's best interest to institute employment practices for disabled individuals. Partnerships with rehabilitation service providers is the best method for instituting and promoting such practices for the betterment of the employer, the disabled individual, and coworkers.

In all of the PWIs established, the usual situation is a close working relationship between industry and rehabilitation personnel that achieves the common goal of eventual, successful adjustment and placement. Consequently, Projects with Industry performs three functions:

- The program creates an effective and continuous partnership between business and service agencies in the rehabilitation process.
- As a result of Projects with Industry, rehabilitation services are more responsive to the needs of employers as well as the needs of disabled individuals.
- The potential of disabled individuals is more fully realized.

Summary

The ongoing partnership between service providers and private and public employment personnel is the key to the success of these programs. These successful partnerships emphasize meeting the needs of the employers, while not ignoring the human service needs of the disabled individuals. Pressman (1981) states that programs with this emphasis have an advantage because they provide realistic and demanding work experiences, thus increasing the opportunity for good work placements for the disabled individuals. These programs combine the opportunity for experience in the employment sector as well as exposure to technological expertise of vocational educators. As a result, the programs play a key role in the partnership between educational service providers and business and industry.

References

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Ventura College

College

Ventura College
4667 Telegraph Road
Ventura, CA 93003

Program Office/Center

Learning Disabilities Center
4667 Telegraph Road
Ventura, CA 93003

Other Organizations

California State Legislature

Contact

Orlene Murphy
Learning Disabilities Specialist
(805) 642-3211

Overview

A new challenge for California's community colleges was created when the California State legislature passed Assembly Bill 77, providing for the educational rights and privileges of adult learning-disabled (LD) students. The colleges were presented the challenge of meeting the educational needs of the large number of adults in California who are learning disabled but wish to further their education beyond high school.

The Program at Ventura College

Ventura College accepted this challenge and began their learning-disabled program in the fall of 1977. The local Department of Vocational Rehabilitation was contacted and notified as to how the college could serve their clients. Current students were made aware of the program through posters and presentations to classes. During the first 4 months, 24 students were diagnosed as learning disabled through testing. The tests used were the Peabody Individual Achievement Test, the Wechsler Adult Intelligence Scale, and the Vallet Perceptual Motor Inventory.

LD Courses

Four special courses were developed by the faculty to meet the needs of learning-disabled students. These courses are:

Improving Your Learning Potential

This course is designed to improve learning efficiency through perceptual-motor training. Each student receives

Excerpted and adapted from *Yearbook of Special Education, 1980-81 Sixth Edition* (Barsch 1980, pp. 18-21).

individual instruction in this laboratory course. Help is given to improve memory retention and academic concentration. Other activities are designed to improve posture, bilaterality, rhythm, and muscular strength.

Advances in Perception

This course helps students explore their learning styles. Students develop a learning style inventory which can be used to determine learning style preference.

Self-Adjustment to College

Many learning-disabled adult students have experienced years of academic failure, which result in a poor self-image. Counseling sessions are needed to deal with this. Tension-release exercises and assertiveness training are also provided. Students also keep a daily diary on audio tape of their feelings and experiences.

Maximizing Occupational Potential

Through simulated work settings, students experience work tasks and the work environment. Students experience work tasks in a variety of fields, such as plumbing, roadworking, and clerical, and they are evaluated as to their potential in each job area. Students are also required to maintain the dress and appearance necessary to get and hold a job.

Advanced Perceptual-motor Training

The metronome is used to help learning-disabled students in studying. To aid perceptual-motor response, the following activities have been implemented using the metronome:

- *Multiplication.* The times tables are recited to the beat of the metronome. The beat is increased as competency is developed.

- *Reading.* A metronome beat is found with which the student is comfortable in reading. To help the student increase the rate of reading, the speed is increased by 20 beats per minute. When the reading assignment is begun, the student ignores the beat and grows into it with practice. This process increases reading speed without a loss of comprehension.

- *Spelling.* Students make a list of the words they cannot spell and practice these words one letter at a time. Each letter is touched and said aloud on the beat at a rate of about 40 beats per minute.

Faculty in the program have developed a continuous assessment model which provides direct daily measurement of academic behaviors. This progress is displayed in the form of a histogram or polygon.

Biofeedback is helpful to students in developing learning efficiency. Combining biofeedback techniques with autogenic training creates a new technique for psychosomatic self-regulation. This therapeutic method involves simultaneous management of mental and somatic functions. The college has successfully used this technique to reduce test anxiety.

Ventura College's program for learning-disabled students has created new opportunities for this special population.

Section 10
Programs for Improving Occupationally Related Basic Skills

North Iowa Area Community College

College

North Iowa Area Community College (NIACC)
500 College Drive
Mason City, IA 50401

Program Office/Center

Community Services Division
500 College Drive
Mason City, IA 50401

Other Organizations

Sponsored by state, federal, and local funds applied at 85 program sites

Contact

Linda Schmidt, Community Services Coordinator
(512) 421-4224

Overview

North Iowa Area Community College (NIACC) provides career development services to its constituents in several northern Iowa counties. The region served is predominantly rural, with one small city (population of 35,000), several smaller towns (less than 2,000 population), and a number of villages (several hundred persons). Most materials used for this career development program were locally produced by adult basic education (ABE)/general education development (GED)/English as a second language (ESL) instructors.

Sponsoring Institution Agency

The program is sponsored and administered with state, local, and state-administered federal funds by the North Iowa Area Community College. NIACC has one central campus with two outreach centers for the ABE/GED/ESL program. The College's Community Services Division has six coordinators for the various adult education programming areas. The coordinator of the ABE/GED/ESL program at NIACC is responsible for staff recruitment, staff development, programming, and other necessary functions. The program is offered at the central campus and 85 other program sites in the NIACC service area. Sixty-eight instructors staff the program. The total number of ABE/GED/ESL students enrolled in fiscal year 1983 exceeded 2,500.

Program Description

NIACC offers a variety of career development services as part of its ABE/GED/ESL programming. Most are conducted at no cost to participants; however, some are offered at nominal cost to recover special expenses. NIACC aiso provides an independent study lab for ABE/GED participants. In addition to independent

Excerpted and adapted from *Career Development in Adult Basic Education Programs* (Deems 1983, pp. 21-23).

study materials for ABE/GED, career development services, such as career (life) planning, testing, vocational counseling, and training in job-seeking skills, are provided at the lab.

Not all services are provided at all program sites, and the primary career development services are conducted at the central campus. If persons at the local program site show sufficient interest, special career development classes are conducted in the local setting.

About 7 percent of the participants are members of a racial or ethnic minority group, a rate that is approximately double that of the area's minority population. Participants by age groups for fiscal year 1983 included 831 in the 16 to 24 age group, 807 in the 25 to 44 age group, 189 in the 45 to 64 age group, and 619 in the 65 plus age group.

The career development services provided include the following:

- Interest and aptitude testing and individual counseling.

- Twelve hours of classes focusing on the skills needed to find, get, and keep a job. This training includes understanding and appreciation of the world of work and focuses on techniques of an effective job search, including finding job openings, filling out application forms, preparing a resume, and being interviewed. Videotape practice interview sessions are held as a part of the training.

- Independent and small-group study materials on survival skills are available at all program sites. This series includes a wide variety of topics, from understanding death to paying taxes. Other topics of special interest in career development are dual careers, communications, grooming, self-concept, following directions, keeping a job, and job-seeking skills.

- A seminar entitled "Moving Up" is offered to retail merchants and clerks, particularly for those retail stores that employ one or more ABE/GED participants. Two facilitators work with: (1) clerks, to help them identify, understand, and practice ways to be more effective employees, and (2) managers/owners, to help them identify, understand, and implement ways to help employees be more effective.

Life survival skills are offered to special agency clientele (i.e., Substance Abuse Center). The number of contact hours varies from 10 to 20, depending on agency and client needs. The courses and workshops include the following:

- "Unemployment and Me"--A workshop that helps the unemployed person understand the stresses of unemployment, job-seeking skills, and selling oneself, and provides support sessions to deal with the pressures of being unemployed.

- "Changing Careers"--A course that includes individual skill assessment, career exploration, and job-seeking skills.

- "Careers and Schools Beyond GED"--A workshop that explores careers, jobs, and schooling options for individuals completing the GED, and that assesses individual's interests.

- "Careers/Self Worth"--A course that explores the values, self-concept, relationships, interests, skills, and abilities of the participants.

Results

Because of staff limitations and an open-entrance/open-exit enrollment format, data about persons taking part in career development activities are primarily observational. Instructors report high retention, with over three-fourths of enrollees completing the class or independent study. Expectations of ABE participants when enrolling are not always realistic, and instructors report that some participants believe that a job is guaranteed when the class is completed. Unfortunately, the economic conditions of the area since 1980 have allowed only a few job openings to exist. Some participants have become part of the "discouraged" group of unemployed and seem to have given up hope of finding work until a new factory opens.

Some ABE instructors provide follow-up contact with participants, but because of funding limitations such follow-up is done on the instructors' own time. Plans are being completed to include regular follow-up as part of a revised course to be offered to ABE clients and the general public. Specific programs relating to job seeking include a field trip to the local job service office. Staff maintain a close linkage with job service personnel. Instructors report that ABE clients are more willing to visit the job service office after participating in the course.

Most clients are women and many are single parents. These persons feel it is unwise to relocate to another community, which tends to increase their frustration at not finding employment.

Suggestions

The coordinator and instructors offer the following suggestions for those developing programs:

- Identify and assess the learning needs of the specific community or neighborhood to be served. Do not assume that the characteristics of one community are the same in another. Only after identifying participant learning needs is it possible to select the most effective career development program goals and practices.

- Use locally produced instructional materials. They have two advantages: (1) instructors become familiar with course content, and (2) instructors can adapt existing materials for the specific needs of the clientele. Both administrators and instructors will find it is worth the extra time and effort for instructors or teams of instructors to develop their own materials. Instructors should be paid for the extra work of producing materials.

- Provide inservice training for the ABE/GED/ESL instructors. Inservice training is essential A large percentage of the coordinator's time should be devoted to staff development. Several inservice sessions for all instructors should be held each year, and inservice programs on specific topics, even though of interest to only a few instructors, should be provided.

- Provide staffing for planned follow-up with participants. Some instructors have conducted follow-up on their own time and report that their contacts have been well received. In several instances, they believe their contact has supported participants in a successful job search.

- Maintain close, cooperative ties with the local job service office.

A field trip to the office with a chance to meet job service staff and to ask questions may be beneficial for job service personnel and ABE clients. In some instances, contacts by job service staff may substitute for regular follow-up by ABE instructors.

- Retain a job developer on the staff who not only helps locate new job openings, but provides a community contact with employers.

Materials

Most of the materials used in NIACC career development courses were produced locally by the coordinator, individual instructors, and teams of instructors. In very few instances, commercial materials were used by individual instructors.

Drake University

College

Drake University
College for Continuing Education
Des Moines, IA 50311

Program Office/Center

Center for Professional and Executive Development
College for Continuing Education
Des Moines, IA 50311

Other Organizations

Mayor's Task Force on Unemployment and Training (Des Moines)

Contact

Ann Schodde, Director
Center for Professional Executive Development
(515) 271-2529

Overview

Drake University operates a displaced workers' retraining program with federal employment and training funds. However, its structure and content can be adapted for use in adult basic education settings to provide career development and job seeking skills.

Sponsoring Institution/Agency

The Mayor's Task Force on Unemployment and Retraining in Des Moines sponsors the retraining project. It is conducted through the Center for Professional and Executive Development in the College for Continuing Education at Drake University.

The Mayor's Task Force receives federal, state, and private monies through the state's Office of Programming and Planning via the Des Moines Private Industry Council (PIC). The Mayor's Task Force subcontracts with providers for specific retraining programs. Drake University's Center for Professional and Executive Development, provides a 10-week course, "Basics of Supervision," for qualified displaced workers.

Program Description

The course is designed to retrain displaced workers for entry-level supervisory positions. To qualify, participants must have either a high school diploma or must have passed the general educational development (GED) exam. To date, about one-half of the participants have a GED background. The content of the supervision training includes (1) the concept of supervision; (2) managing time, resources, and

Excerpted and adapted from *Career Development in Adult Basic Education Programs* (Deems 1983, pp. 24-26).

people; (3) written and spoken communication skills; (4) affirmative action guidelines; (5) basic concepts of fiscal management; (6) introduction to computers; (7) assertion training; and (8) self-management. The course totals 300 contact hours and is held for 6 hours each day, 5 days per week, for 10 weeks.

An integral part of the total course is the career development and job-seeking skills component, which totals 60 contact hours. One day each week is devoted to career development, and participants are expected to give some additional study time to the topic.

The content is organized as follows:

- Week 1--*How Did I Get Here? What Is Happening?*

  Topics include information and discussion about (1) cultural changes taking place, with emphasis on persons being "caught" in a time of change, and (2) the hiring game.

- Week 2--*Who Am I? What Can I Do?*

  Topics include (1) an introduction to the concept of skills, (2) beginning skill identification, (3) identifying most productive working and living conditions, and (4) introduction to preparing a piece of paper (resume).

- Week 3--*What Do I Want to Do with My Life?*

  Topics include (1) values clarification, and (2) thinking about and beginning to establish life goals and priorities.

- Week 4--*What Do I Do Best? How Can I Test My Options?*

  Topics include (1) selecting and identifying "best skills," (2) the concept of field surveying, and (3) completion of at least one practice field survey.

- Week 5--*How Do I Put It All Together?*

  Topics include (1) strengths of temperament, (2) external considerations, (3) life goals, (4) preparation of ideal job descriptions, and (5) beginning to develop a plan of action.

- Week 6--*How Do I Get From Here to There?*

  Topics include (1) interviewing techniques, (2) using contacts and networks, (3) finding job openings, and (4) resume workshop.

- Week 7--*What's My Best Strategy?*

  Topics include (1) job-getting skills, (2) creating a job, and (3) importance of grooming and appearance.

- Week 8--*What Else Can I Do?*

  Topics include (1) job-getting skills, (2) redesigning jobs, and (3) individual consultations.

- Week 9--*What's My Plan of Action?*

  Topic is setting personal plans of action for first weeks after course completion.

- Week 10--*How Am I Doing?*

  Reports are made by participants on personal plans of action and feedback from facilitator and group is given.

The exact content may vary somewhat, depending on specific needs of the participants.

Results

By 1983, 4 groups had participated in the 10-week retraining program, with a 98.67 percent completion rate. Placement was defined as either (1) employment in a full-time job or (2) enrollment in a full-time educational program. The placement rates are as follows:

- Group A--12 months after completion; placement rate of 95 percent
- Group B--6 months after completion; placement rate of 92 percent
- Group C--3 months after completion; placement rate of 87 percent
- Group D--Just completed; placement rate of 40 percent

Groups C and D were given both the Holland's My Vocational Situation (MVS) and Tennessee Self-Concept Scale on the first and last day of the course. Preliminary statistical analysis indicated significant positive change in participant scores for both instruments.

Suggestions

Facilitators for the career development segment of this program offer the following suggestions:

- Though the schedule generates some frustration (some participants, for example, may be ready to go out on hiring interviews before the material on interviewing), the format tends to have an important cumulative effect and is very workable.
- Helping participants understand that they are individuals caught in a great cultural change helps relieve perceptions that their layoffs have been self-caused.
- Participants need time to think through the whole concept of life goals and then have time to begin setting personal goals. For many participants, the idea that a person can intentionally plan and implement his or her future is a new concept.
- It takes 4 to 6 weeks of class work for many participants to become motivated, begin to think about all of their options, and to become serious about setting life goals. This is confirmed by interviews with participants who indicate that only after they had been involved in the class for a number of weeks did they begin to develop a new occupational self-image.
- Facilitators need to be alert for indications of family stress caused by personal changes of participants. The retraining program now includes a spouse group that enables counselors to address spouses' counseling needs.
- Follow-up sessions are essential to help participants maintain energy and continue their job search. After trying several different approaches, Monday morning meetings were found to be the most productive. During the follow-up sessions, participants report on previous activities and share their plans of action for the coming week. The group offers suggestions and shares information of special interest. Without some kind of regular follow-up, participants tend to lose enthusiasm for their job search.

Materials

Materials used during the career development segment include the *Quick Job Hunting Map* (Advanced) by R. Bolles, Ten Speed Press, 1976; *Your Piece of Paper* (Resume), by R. Deems, Des Moines Mayor's Task Force on Unemployment and Retraining, 1982; and handouts developed by facilitators.

Chicago's Private Industry Council

Agency

Private Industry Council

Other Organizations

Technical Assistant Corporation
CETA
Chicago-area companies

Location

Chicago, IL

Overview

A characteristic employment problem is the inability to find properly trained employees even though thousands of unemployed workers are available. In 1981 and 1982, the Chicago Private Industry Council faced such a problem with word processor operators for major industries and businesses. Positions paying over $20,000 per year were going unfilled.

Being a word processor operator involves a good deal more than being a traditional secretary who knows how to operate the new machinery. Most word processor operators work for local Chicago employers in centrally located pools or groups. Supervisors receive jobs from various departments; estimate the time needed to edit, format, and produce letter-perfect copy; and assign the job to an operator. The operator must be able to edit for spelling, verb-subject agreement, and a number of other flaws. The operator must also be able to produce copy rapidly with no mistakes. All work is proofread and returned to the word processor operator to be redone if errors are found. Correction time is added to total production time. In order to retain a job, an operator must perform at or above specified standards.

A survey of businesses involved with the Chicago-area Private Industry Council revealed the need for trained word processor operators. Administrators of the Comprehensive Employment and Training Act (CETA) program were interested in training CETA-eligible individuals for such jobs but did not have a lengthy history of cooperative efforts with business. Then, a private consulting corporation, Technical Assistance Training Corporation (TATC), proposed developing a word processing training program for applicants eligible for training provided through CETA. The program was designed to integrate basic skills training with job training and used performance levels of employed word processor operators as criteria for program completion.

Careful task analyses of on-the-job word processing were used to develop a curriculum based on realistic goals and expectations. Every attempt was made to assure employers that high standards would be met. The fact that a private business was doing the training seemed to help convince employers that trainers were sensitive to their needs.

Excerpted and adapted from *Job-Related Basic Skills: Cases and Conclusions* (Sticht and Mikulecky 1984, pp. 11-14).

Recruiting and Screening Applicants for Training

Announcements describing the TATC word processing program and its goals were distributed to social agencies having contact with CETA-eligible candidates. These included schools, governmental agencies, and private agencies, such as the Catholic Archdiocese of Chicago. These agencies disseminated information about the program and steered interested applicants to an assessment center to be interviewed.

The literacy ability level required to do well as a word processor operator is quite high (i.e., 10- to 13th-grade level); therefore, success in the training program was dependent, in part, on trainees being able to attain those literacy abilities in a relatively short period of time (14 to 20 weeks). In order to select trainees who were most likely to succeed from among the thousands of potential applicants, a series of literacy screening exercises was developed from actual job materials. Already employed secretaries and word processor operators took the screening exercises so that performance levels could be set.

The first level of screening exercises were cloze tests constructed from representative written samples taken from business correspondence and word processing manuals used on the job. Trainees who scored more than two reading grade levels below the average practicing operator were likely to be screened out of the training program.

A second level of literacy screening involved spotting and correcting errors on actual job correspondence, invoice forms, and business reports. Norms were set on these problem-solving tasks by establishing how well the average secretary or word processor operator performed. Potential trainees were given two chances with each type of problem-solving situation. First, they were asked to identify and correct errors on a piece of print materials. When they had done their best, the test giver showed them what they had missed and how to make additional corrections. Following this, an extremely similar task was given to determine their rate of learning. Acceptance into the training program was based on performance slightly below that of employed secretaries, or the ability to learn quickly. A large percentage of applicants with no or extremely low basic skills were screened out of the program.

Population Selected for the Word Processing Program

All trainees selected for the program were CETA-eligible (i.e., economically disadvantaged, unemployed or underemployed, and identified as having particular difficulties in entering or advancing in private sector employment). One hundred trainees were selected to enter the program in 3 waves of 30-plus students. Approximately 30 percent of the trainees were male; 70 percent were female. The majority, 80 percent, were between the ages of 22 and 44. The racial distribution of trainees was 79 percent black, 15 percent Hispanic, 5 percent Caucasian, and 1 percent Asian. Approximately one-half of the applicants had some secretarial or clerical experience, but a few trainees had no work experience at all.

The screening procedures selected individuals who were CETA-eligible as well as those likely to succeed. If the first wave of trainees did not meet industry standards, it was highly unlikely that applicants in the second and third waves would be offered jobs. Applicants scoring significantly below the job literacy performance level of actual workers were not accepted because it seemed unlikely that they would gain more than two or three grade levels in job literacy abilities during the half-year program. Experience

with the first wave suggested that literacy levels needed to be even more stringent (above eighth-grade reading level) for applicants without some clerical experience. Such applicants needed more time mastering typing and machinery. The extra time usually came from language training.

The Training Program

Classes of 30 to 35 trainees were accepted into the program. These individuals were paid to attend training 40 hours per week. Time each day was divided among language training, typing and word processing training, work habits training, and individual study time. Three full-time teachers (a reading specialist, a word processing specialist, and a business specialist) worked with students throughout the day.

The amount of time a trainee would spend in any given area was dependent upon how much time he or she needed. Some trainees needed more emphasis on language improvement and others in machine skills. On the average, 20 percent of the students' time was spent attending classroom presentations and 80 percent was spent working independently or in student work groups to master information presented in classes.

Assignments were planned to integrate language and machine skills. Much of the classroom simulated actual job demands. Students would compose business communication that other students would edit and later produce in final form on word processing equipment. A good deal of the work involved using actual business communication that was handwritten in rough draft form with editing notations. The job simulation training that integrated language and machine experience ranged from about 5 percent of assignments the first week to nearly 100 percent in the final weeks. Class assignments attempted to replicate the time constraints present in business performance. Though much of the work was done on an individual level, some work made use of worker teams, which again replicated workplace conditions.

Trainee time on task ranged from 80 to 90 percent during any given workday as compared to public school figures of 30 to 50 percent time on task. Instructors met on a weekly basis to determine how each student's time might be most wisely allocated. Individual conferences informed students of their progress and weak areas. Feedback was also provided by wall charts showing the average class performance on a wide selection of language and machine competencies. Individual trainee performance listed by number also provided feedback on individual performance as compared to performance of others in the program.

The most distinct differences between this program and school programs were in the application and integration of training. TATC trainees actually used up-to-date word processing equipment and were aware of the industry standards they had to meet. Their training in language, work habits, and machine use was integrated so that they received focused practice to meet those standards. Unlike many school programs the cooperative program assumed no guaranteed transfer of basic skills training and consistently used job simulation as a major training device.

Program Results

The time needed for trainees to reach job-level competence varied. The earliest trainees were able to find employment in 14 weeks of training. The average time needed for the screened applicants to reach the present standards was 20 weeks, with a few trainees taking nearly 28 weeks.

The recession in 1981 and 1982 limited the ability of cooperating industries to

hire acceptably trained word processors. A third of the cooperating companies stopped all hiring. Several additional companies raised their hiring standards for accurate word processing speed from 55 words per minute to 65 to 70 words per minute.

Even in the face of these economic difficulties, slightly over 70 percent of trainees found word processing employment by October 1982. Other trainees used the training facilities as a base for a job search club.

In summary, the word processing program described here is an excellent example of how trainers can integrate basic skills training with on-the-job training while employing insights from current research.

An Urban Retraining Program for Wastewater Treatment Workers

Agency	Other Organizations
An urban municipality	An engineering consulting firm (training specialists) University consultants (reading specialists)

Overview

This example of a cooperative venture involves the retraining of workers for the new basic skills and technical demands of a job that is changing. An urban municipality had recently opened a new wastewater treatment plant as a result of new clear water guidelines. The new plant incorporated several technical innovations. Workers who needed little technical training to work in the old treatment plant faced an entirely different situation in the new plant. Newer, more effective treatments called for the use of cryogenics (supercooled oxygen and nitrogen), dangerous chlorine gases, and the monitoring of environments for microorganisms by using computers.

As the old plant was being phased out, workers needed to be transferred to the new plant. Before workers could be transferred, however, they needed to be retrained. This retraining involved (1) learning how the new process and equipment functioned, (2) learning safety precautions when working with a variety of dangerous gases, and (3) learning how to maintain the microorganisms essential to the wastewater treatment. Mistakes made through ignorance could be costly in terms of loss of life, plant shutdowns, and equipment and organism replacement. The unstated implication of the training program was that workers unable to be retrained adequately could not be transferred to the new plant when the old one was totally phased out. Unemployment or job demotion seemed the only alternatives available.

The Retraining Program

The municipality initially contracted with an engineering firm to provide technical retraining for workers. The firm had previous experience in retraining engineers and in gathering the best technical expertise available to upgrade technicians efficiently. The firm developed a technical curriculum and arranged for workers to be paid for attending full-day classes at a centrally located training facility set up in a converted elementary school. The trainers were working under the pressures of accomplishing retraining goals with a minimum loss of worker time on the job. The learning format was 2 weeks of classes followed by 2 weeks of on-the-job training.

Excerpted and adapted from *Job-Related Basic Skills: Cases and Conclusions* (Sticht and Mikulecky 1984, pp. 14-17).

This procedure alternated until the employee had attended each of the 10 2-week training modules.

Early in the retraining process it became apparent that the usual technical retraining procedures would not be sufficient for a large percentage of the wastewater treatment workers. Many workers read below an eighth-grade level and several read below a third-grade level. Classroom training materials ranged in difficulty from 11th-grade to college level and included heavy use of graphs, charts, and schematics. Actual on-the-job explanatory material was nearly as difficult. In addition, many of the workers had little or no familiarity with concepts to be covered in the brief, high-powered technical classes.

The engineering consulting firm set up a cooperative relationship with a university consultant and hired a university-trained reading specialist to develop a basic skills component for the retraining program. In addition, the trainers integrated the use of microcomputers to provide more individual practice and feedback to students.

All workers were to be retrained for possible positions in the new plant. Workers identified as having difficulties with literacy spent three additional afternoons a week with a reading specialist. The reading specialist concentrated on occupationally related basic skills demands with these students and on teaching content reading techniques to the engineers who taught the morning classes.

Working with Students

Developing rapport and trust was of primary importance in working with trainees referred to the reading specialist. The reading specialist estimated that nearly 80 percent of these trainees were extremely nervous and worried about appearing to be ignorant or retarded. Most had experienced difficulty in public school and over a quarter had negative experiences in adult basic education classes. Initial attempts to diagnose basic skills difficulties in an efficient, clinical manner resulted in trainees refusing to return. Diagnostic information was more accessible through careful observation of how trainees performed during learning sessions with the specialist.

The major academic goal was to help trainees gain mastery of technical vocabulary, concepts, and materials. The reading specialist set up special study guides to break down assignments into manageable tasks. Special help was given in interpreting graphs and schematic diagrams. About 45 minutes of each 90-minute session was allocated to oral feedback and questioning trainees on what they had read from manuals or work material. The remainder of the time was spent in reading materials for which the specialist had provided a clearly understood reading purpose.

In some cases, the specialist was able to rewrite or redesign training materials to lower difficulty levels. Students would be asked to read general material at a difficulty level they could handle independently. Some used simple tests and handouts to lower difficulty levels. In many cases, difficulty levels were lowered by 40 percent without noticeably losing content. The average mastery level of students whose instructors used rewritten materials improved significantly over students whose instructors did not adjust the difficulty level of their reading materials. It should be noted, however, that lowering difficulty levels of materials below the sixth-grade level was extremely difficult and counterproductive. Students who read below that level did not understand the concepts unaided, even though they were simply expressed.

Program Results

The amount of special training received by workers varied depending upon need and the demands of the particular technical class they were attending at any given time. An average of 20 percent of the workers received some form of special help.

Trainee time on task during a typical day ranged from 30 to 50 percent (which is comparable to an average high school). During lectures some trainees would be engaged while others would not. A good deal of socializing and trips outside for a cigarette or drink of water occurred during practice time on the microcomputer or during classroom application sessions. Time on task for students referred to the reading specialist was somewhat higher since they were placed regularly in structured learning situations during their sessions. Additional time on task with basic skills materials was available to trainees who did supervised outside reading.

The basic skills component of the retraining program can be judged a success by several standards. Nearly half the students who took special basic skills training passed their technical class posttests. It was the concensus of both technical instructors and the reading specialist that fewer than 5 percent of those students would have passed without the special attention they received. Of the students who attended sessions, 70 percent were able to summarize materials in their own words by the end of training. Retention of students receiving special basic skills training was actually higher than that of students who only attended technical classes. Gains in general reading ability were less encouraging. Only about 10 percent of the students taking special training made noticeable gains in their ability to read general material or new material for which they had received no direction or purpose provided by the teacher. According to the reading specialist, students making the most significant gains in job and general reading ability invested 5 or more hours per week in outside reading of materials at an appropriate difficulty level.

There were also some successes in efforts to modify classroom teaching and materials. The reading specialist estimated there had been a 30-40 percent change in the way reading assignments were handled in technical classes. Nearly every instructor made some use of the material the reading specialist had been able to rewrite. Most instructors introduced key vocabulary before assigning readings. One-third of the technical instructors went on to rewrite their own handouts to simpler levels, and one instructor rewrote test items with considerable success.

Areas of greatest program weakness were very similar to weaknesses in traditional schooling. Since basic skills training was not integrated with technical training from the beginning, the effectiveness of such training was severely limited. The reading specialist could provide some remedial attention to referred trainees, but follow-up reinforcement in technical classes depended upon the specialist's success in convincing technical instructors to modify teaching techniques. Instruction was often fragmented, much like traditional schooling. Classroom instructors could voluntarily meet with the specialist and the microcomputer lab director, but most often did not. Student feedback was usually limited to tests and the short-term feedback provided by computer terminals. No one took responsibility for regularly informing trainees of their gains or weak areas or for adjusting their learning schedules. An outgrowth of this style of teaching is very low student time on task--much like typical public school training. Since trainees were passive for a large percentage of their training time, time on task was dependent upon self-discipline and interest. Some trainees attended to learning a good deal of the time and others did not. Even within these limitations, however, the supplementary efforts of the specialist must be judged a

success--especially for the students with whom she had direct contact and the students of instructors with whom she was able to work cooperatively.

Conclusions

There are several conclusions suggested by case studies of programs for improving occupationally related basic skills. It does appear possible to make fairly rapid gains in the ability to comprehend technical material if training is focused on that material. General literacy improvement, however, was not a noticeable direct by-product, but did occur with sufficient time on task (5 hours per week) with appropriate general material. Best results seemed to occur when basic skills training was integrated with technical training. Training that employed job simulations and applications of literacy increased trainee time on task. Actively involved students received two to three times more practice per paid day than did traditionally trained students. The integrated program, therefore, is also more attractive from a cost-effectiveness perspective.

Probably the most significant conclusion to be drawn is that successful technical and basic skills training programs are beginning to emerge in the vacuum left unfilled by traditional schooling. Where schools are unwilling or unable to match basic skills training and materials to specific occupational needs, private consulting firms are successfully filling the gap. They are successful to the degree that they do not assume transfer from general basic skills training to specific job training. Matching training to the application required on the job appears to be key.

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