Linking College and Work: Exemplary Policies and Practices of Two-Year College Work-Based Learning Programs

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- APPENDIX B: Biographies of NCRVE-NCOE Research Team Members

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EXECUTIVE SUMMARY

Two-year colleges in the United States have a long history of providing work-based learning, especially in association with occupational-technical education. Recently, the nation has placed greater priority on strengthening school-to-work transition programs involving work-based learning by linking secondary and postsecondary curriculum. The federal School-to-Work Opportunities (STWO) Act has stimulated increased activity in the form of local- and state-level work-based learning policy and program implementation. Given this trend, it is important to examine existing work-based learning in the context of two-year college education. Understanding the features of highly effective programs can assist policymakers, practitioners, and scholars in the development of new work-based learning policies, practices, and

programs.

This study was conducted over a two-year time period from January 1, 1993, to December 31, 1994. The overall purpose of the study was to obtain a better understanding of existing work-based learning policies, practices, and programs in community, junior, and technical colleges in the United States. Phase One of the study, conducted in 1993, was a census survey of the nation's 1,200 two-year colleges to describe the scope and character of work-based learning programs already in existence, including the key features of what local administrators considered their best health and non-health programs. Readers interested in results of Phase One of the study are referred to *Work-Based Learning in Two-Year Colleges in the United States* (Bragg, Hamm, & Trinkle, 1995).

The purpose of Phase Two of the study, conducted in 1994 and documented in this report, was to gain a more in-depth understanding of selected exemplary work-based learning programs. The Phase Two research involved field-based case studies designed to provide qualitative observations and in-depth analysis of two-year college work-based learning programs in the United States. The study examined a range of work-based learning models and occupational-technical education programs, and it documented the quality of the programs from the perspective of various stakeholder groups, especially students, faculty, and employers.

Using survey data gathered during Phase One of the study, eight two-year colleges were identified for further in-depth analysis using qualitative methods. Case studies were conducted by a ten-member team made up of personnel representing the National Center for Research in Vocational Education (NCRVE) and the National Council for Occupational Education (NCOE). A data collection protocol and semistructured interview procedures were introduced to all team members during a two-day training session. Field visits were conducted by a two-person NCRVE-NCOE team to each of ten work-based learning programs in eight two-year colleges. Following the field visits, case study reports were drafted by each team to provide the basis for a day-long debriefing session held in conjunction with the NCOE annual meeting. At this meeting, the major findings, conclusions, and recommendations of the study were generated. Following the debriefing, the case study reports were finalized and combined to create this report.

Based on a careful, multistage selection process, involving extensive data collection and a panel of experts, the following ten work-based learning programs were identified for the study:

- Rowan-Cabarrus Community College, Salisbury, NC - early childhood education, using the clinical-professional and school-based enterprise models
- Wenatchee Valley Community College, Wenatchee, WA - tree fruit production, using both the co-op and school-based enterprise models, along with Tech Prep
- Phoenix College, Phoenix AZ - management/marketing, using the co-op model
- Northwestern Michigan College, Traverse City, MI - resort management, using the co-op and school-based enterprise models
- Delgado Community College, New Orleans, LA - culinary arts, using formal apprenticeships, and radiologic technology, using the clinical-professional model
- Columbus State Community College, Columbus, OH - culinary arts, using formal apprenticeships, and nursing technology, using the clinical-professional model
- Rock Valley College, Rockford, IL - manufacturing technology, using the youth apprenticeship model, along with Tech Prep
- Tulsa Junior College, Tulsa, OK - manufacturing technology, using the youth apprenticeship model

The programs ranged in size from only ten students in a Manufacturing Youth Apprenticeship Program in Illinois to

over 300 students in the Early Childhood Education program in North Carolina. Students who participated in work-based learning programs in two-year colleges are primarily adult students ranging in age from 25 to 35 years. This was true for all the programs except the Youth Apprenticeship Programs where the students were 18 to 19 years old. Enrollments in particular occupational programs were related to gender. Nearly all the students in early childhood education, management/ marketing, and the health occupations were female. The vast majority of students in Tree Fruit Production (agriculture) and the Manufacturing Youth Apprenticeship Programs were male. Minority students were enrolled in all of the programs, but not to the extent one might expect in some locations. For example, in one region where a large minority population resides and works in the dominant industry, only 4% of the students in the work-based learning program associated with that industry were minority. A similar phenomenon was identified in other settings, although not to such an extreme. Finally, although the percentage of Pell grant recipients was known for only a few of the programs, in all of these, approximately 20% of the students received Pell grants.

Although quantitative results regarding program effectiveness were sketchy, some information was accessible. Outcomes data provided by local administrators portrayed the programs as highly successful at transitioning students into the labor force in training-related employment, often into the same firms used for work-based learning placements. Four programs reported 100% job placement rates, and two others provided rates of 95% and 80%. A health program indicated a 100% licensure passage rate. These outcomes are very positive and local leaders were eager to share them. In fact, most of the local stakeholder groups showed pride and enthusiasm for their work-based learning programs, even when outcomes related to educational or academic attainment were less apparent. For example, program completion or graduation rates ranged from 4% to 67%, but most programs reported graduation rates below 15%. The rate of matriculation from high school to a two-year college was 67% for one Youth Apprenticeship Program. Only two programs reported a transfer rate to the four-year college level. The Nursing Technology Program showed a 21% and the Restaurant Management Program reported a 35% transfer rate. Little or no data was provided regarding other educational outcomes such as academic, occupational-technical, or workplace skill attainment.

The research team documented numerous strengths as well as limitations for the ten selected work-based learning programs. A very important objective of the study was to identify common factors, elements, phenomena, activities, and issues that could help to distinguish or explain exemplary policies and practices of two-year college work-based learning programs. The research team focused attention on this objective from the start and was successful in identifying a set of factors thought to contribute to the overall effectiveness of two-year college work-based learning programs. These factors are described briefly here and in more depth later in this report.

**Strong program leadership* entails an individual or small group of individuals who serves as the leader(s)/director(s) and ensures the ongoing success of the program. Strong program leaders/director(s) possess a deep knowledge of the occupation, and they have formal education, credentials, and related work experience. They are actively involved in day-to-day program operations, frequently circulating in local firms where students are engaged in work-based learning. Strong program leader(s)/director(s) are excellent managers and politically savvy. Their hard work, visible commitment, and generous contributions of time and energy keep programs alive and vibrant, and these are essential qualities in a time when education and industry is changing rapidly.

**Exclusive connections between the program and its environment* is another factor. The location of the program relative to its industry is a critical factor that operates in three ways: (1) the programs capture the major share of the training market because other competing programs are small and/or ineffectual, (2) the programs are extremely closely connected to the local industry for which they prepare employees, and (3) the programs are perceived as having a direct impact on the local economy since well-qualified employees transition easily into local companies where they are immediately productive.

**Frequent and effective communication with local employers* was the essence of the kinds of "close" relationships needed to sustain work-based learning programs. The relationships are nourished by formal and informal communication mechanisms that are carefully planned or sometimes simply emerge out of necessity. Seemingly, the more college personnel and employers/employees are in contact with one another, the stronger the relationship grows. Often the work-based learning programs are bolstered by education-employer partnerships that produce spin-off programs to other parts of the college curriculum, including customized training. Extremely close ties between the two-year college and local employers result in nearly all of the programs providing an "exclusive" training ground for entry- and sometimes also middle-level jobs.

**Beliefs about program excellence* help to perpetuate the idea that a work-based learning program is successful and that students and graduates are held to high standards. These beliefs may represent a cultural phenomenon that emerges, at least in part, because of the complex and fluid organizational structure that accompanies work-based learning programs where different stakeholders play crucial roles at different times. The sharing of beliefs of excellence is beneficial to the exemplary programs in several respects. It bonds the various constituencies together and sustains a commitment to the programs. It provides a common understanding of the significance of goals and outcomes, and it helps to perpetuate a positive reputation. Yet, these beliefs may also have limitations because of their potential to limit openness to new ideas, thereby creating a closed system. When this occurs, efforts to reach out to new and diverse stakeholder groups, especially students, may be stifled. Actions to expand or modify in keeping with economic, technological, or societal changes may be diminished. Also, mechanisms to collect rigorous evaluative information in an objective manner may be viewed as superfluous since "everyone knows the program is successful." Local program leaders should monitor "beliefs about program excellence" continuously to ensure they are contributing to keeping the programs vital and effective.

**An effective school-based learning component* ensures the programs maintain support from other college personnel and upper-level college administrators. Exemplary programs are well-connected to the rest of the college curriculum, maintaining prominence within the mainstream of campus life. Programs that operate successfully within the structure of the college are supported fully by the occupational-technical and academic curricular functions as well as student support services. Two-year colleges operating school-based enterprises as a part of the work-based learning program seem particularly well-situated to maintain a close linkage with all other curricular activities. A primary advantage of locating the program toward the center of the college is to ensure a fair share of resources and heightened visibility with other internal personnel.

**Adequate and diverse financial support* is critical if two-year colleges expect to maintain a sufficient funding base to support existing and potential work-based learning programs. An important benefit of having adequate and steady streams of funding is the ability to create an environment where long-range planning can occur and program growth can be predicted and managed. Exemplary programs seek funding from local, state, and federal sources as well as from the private sector. The nature of private support is usually in the form of providing equipment and supplies, designating personnel to monitor or supervise students working on-site, allocating dedicated space within their facilities, and awarding funds to support student stipends and scholarships. The latter form of support is especially apparent in Youth Apprenticeship Programs where local firms contribute several thousands of dollars toward sponsoring youth apprentices.

**Innovative program and pedagogical features* such as multiple teaching, learning, and support strategies are very evident in exemplary programs. Their presence helps to support the notion that teaching- and learning-associated work-based learning is indeed practical, realistic, and applied, while also being academically challenging. Included among the multiple strategies identified in this study are structured individualized plans for student success, college and workplace

mentoring systems, articulation agreements from the secondary to the two-year or four-year college levels, a mix of work-based learning models and pedagogical strategies, and personalized documentation combined with formal assessments and standardized performance-based competency profiles.

The factors associated with work-based learning provide insight into the key features of successful programs. We would be remiss, however, to fail to report some of the more troublesome concerns that emerged from our field research. Many of the issues identified by the research team were not altogether unique to this study, but reinforce concerns already known. Yet, in some of the cases, the issues raised are different from those reported in extant literature sources because they address concerns with promulgating work-based learning within the two-year college setting. The issues identified by the research team relate to the proper positioning and sequencing of work-based learning within students' learning programs; problems with too few, inadequate, or poorly prepared and monitored worksite organizations; employer preferences for adult workers and perceptions of problems with engaging youths in serious work-based learning experiences; potentially discriminatory practices associated with selecting students from large pools of applicants; and excessive demands on students because of the extension of college curriculum beyond normal expectations.

Finally, six recommendations are offered by the NCRVE-NCOE research team, primarily to policymakers at all levels of government as well as to local practitioners. These recommendations take into consideration the unique needs and contributions of two-year colleges relative to the creation of coordinated workforce preparation systems at the local, state, and national levels. The recommendations are directed toward the provision of adequate and stable funding; the need for educators to play a more prominent role in preparing employers and employees to provide meaningful work-based learning experiences; the increased recognition of postsecondary work-based learning opportunities, especially for adults; the merits of reconfigured and strengthened co-op education models where adult students take responsibility for monitoring more of their own learning as well as that of others; the need for senior college administrators to show more active and visible support for work-based learning; and the need for more systemic approaches involving the creation of standards and credentialing mechanisms and state or regional delivery strategies.

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INTRODUCTION

In recent years, the concept of work-based learning has drawn increased attention from the public and private sectors for two primary reasons: (1) to create and sustain effective workforce preparation systems and (2) to improve teaching and learning practices. First, work-based learning provides a tangible way to bring together education and work to strengthen the economy. This argument is at the heart of the federal School-to-Work Opportunities (STWO) Act passed by the U.S. Congress in May 1994. This new federal legislation is an outgrowth of many years of deliberation about how to improve existing workforce preparation systems. In reports issued by numerous groups (e.g., the Brookings Institution [Nothdurft, 1989], Jobs for the Future [1990, 1991], National Alliance of Business [1992], U.S. Department of Education [1991, 1993], U.S. Department of Labor [1989, 1992], U.S. General Accounting Office [1991], and the William T. Grant Foundation [1988a, 1988b, 1991]), a strong relationship is purported between poor or inadequate schooling and low academic and technical skill levels among recent high school graduates and some adult workers. Rapid changes in the workplace are expected to heighten skill demands relative to new job entrants and incumbent workers. Without greater attention and resources directed to preparing the workforce, the nation's economic difficulties are expected to continue or even grow (Marshall & Tucker, 1992; Reich, 1991). Often solutions involve the development of improved workforce preparation education and training systems. Work-based learning is a strategy to build stronger partnerships between schools and employers, to enhance technical and academic skills among workers, and, ultimately, to contribute to the nation's economic well-being relative to the rest of the world.

The economic argument for work-based learning is circulated widely, but it is not the only rationale given. A case is also made for work-based learning as a means of improving teaching and learning practices in efforts to reform schooling. In the view of some educators, work-based learning represents a more highly effective pedagogy than traditional school-based instructional methods. Advocates suggest work-based learning is more practical and realistic (sometimes also called situated, contextualized, or simply applied). Learning imbedded in work provides a richer context than traditional schooling where the teaching of subject matter is abstract and decontextualized. Berryman and Bailey (1992), Hamilton, (1990), and Rosenbaum, Stern, Hamilton, Hamilton, and Berryman (1992) assert that work-based learning offers a means to bridge the gap between theory and practice that exists in many traditional school settings, a gap that diminishes student motivation to learn.

Rosenbaum et al. (1992) note that work-based learning can provide the vehicle to employ cognitive apprenticeships, revealing parallels between the roles of teacher and learner and master and apprentice. Building on this notion, Berryman (1995) suggests a new paradigm for learning that is based on the cognitive apprenticeship idea. According to Berryman, cognitive apprenticeships address four characteristics of an ideal learning environment: (1) content, (2) methods, (3) sequencing, and (4) sociology. She believes cognitive apprenticeships can provide valuable approaches to teaching and learning when combined with work-based learning opportunities. Research conducted by Evanciew (1995) confirms the effectiveness of the cognitive apprenticeship paradigm when used in conjunction with youth apprenticeships, an approach to work-based learning advocated in the STWO legislation.

By facilitating apprenticeship-style learning in the workplace, linked to relevant and challenging school-based learning, Halperin (1994) suggests that many more students, particularly those considered noncollege bound, will be better served than with traditional pedagogical approaches. The idea of work-based learning has gathered momentum partly because it is seen as an approach that has the potential in theory, if not yet in practice, to reach all students, particularly the noncollege bound (Kazis & Goldberger, 1995). Corson and Silverberg (1993) are among those who argue the

existing educational system is failing noncollege-bound youth and limiting their potential to transition successfully into stable, high-wage employment. The basis of this problem is a deep-rooted separation between work preparatory (vocational) and college preparatory (academic) education:

America's emphasis on college preparation has isolated academic from vocational education and weakened schools' ability to prepare youths for the demands of employment. . . . Because many youths learn best through hands-on experience, the separation between academic and vocational high school programs aggravates the difficulties youths have in acquiring important basic skills. Many youths, particularly those confronted with depressed local job markets and evidence that high school completion does not lead to rewarding employment, view the link between academic and successful employment as tenuous. (p. 3)

Particularly among reformers of secondary education who advocate a closer integration between vocational and academic education, the work-based learning concept has received a warm reception (e.g., see several chapters in Grubb, 1995a & 1995b). To many experts, the notion of integration of vocational and academic education and the idea of work-based learning are highly compatible. Kazis and Goldberger (1995) state that "the two innovations are mutually reinforcing" (p. 171). Supporting both the economic and pedagogical rationale for work-based learning, Bailey (1995) suggests that better connections between vocational and academic instruction and workplace learning can "play an important role in strengthening the effectiveness of the workforce" (pp. 36-37).

Postsecondary Involvement in Work-Based Learning

Whereas the idea of offering work-based learning opportunities to more high school students--or possibly even all students--seems innovative or possibly even revolutionary, such experiences are not uncommon for students in two-year community, junior, and technical colleges (henceforth referred to as two-year colleges). Based on a nationwide survey of two-year colleges conducted in the fall of 1993, over three-quarters of the nation's two-year colleges reported engaging students in work-based learning. Occupational-technical education and customized or contract training are two areas where students actively participate in work-based learning opportunities (Bragg, Hamm, & Trinkle, 1995). On average, each of the nearly 500 two-year colleges responding to the 1993 survey reported that 18% of all students enrolled in occupational-technical education were participating in some form of work-based learning. One-quarter of the colleges reported that the majority of students in customized or contract training were engaged in work-based learning. Outside of occupational-technical education in areas such as transfer or liberal studies, remedial or developmental education, and continuing or community education, very few students engaged in work-based learning.

These findings corroborate results of the most recent National Assessment of Vocational Education (NAVE), showing that work-based learning is widespread at the two-year postsecondary level in occupational-technical education. In relation to the NAVE study, Boesel, Rahn, and Deich (1994) found that within the postsecondary level "the range of work experience programs and the variety of linkages with employers and other non-university organizations is quite broad" (p. 143). They described vocational-technical education programs at the postsecondary level as being substantially stronger than secondary programs, particularly in community colleges.

The specific model of work-based learning (e.g., co-op, clinical-professional, youth apprenticeship) used by two-year colleges is related to the occupational-technical programs offered by the schools (Bragg et al., 1995). For example, most two-year colleges offer certificate and/or associate degree nursing programs, and nearly all of these programs require that students participate in the clinical-professional work-based learning model. With this approach, students take a combination of vocational and academic coursework offered in classrooms and laboratories on campus. In addition, students must engage in learning at the work site to obtain a credential in the profession. Other health occupations such

as dental hygiene and radiologic technology require that students participate in similar work-based learning experiences. In addition, other professional fields such as education, law enforcement, and social work engage students in the clinical-professional model of work-based learning. Although some health-care providers provide financial subsidies and other political support, rarely are students paid by employers for their time in clinical-professional work experiences. Programs utilizing the clinical-professional model are often the most expensive of any educational programs offered by two-year colleges.

Outside of a few professional fields such as health and education, co-op is the work-based learning model of choice for the fields of business and marketing, engineering, agriculture, and human services. Besides the clinical-professional model, co-op is the most prevalent work-based learning model in the two-year college environment. Boesel et al. (1994) report,

[T]he anecdotal evidence from a variety of small studies of postsecondary co-op programs appears to be positive. Researchers have found that compared to non-co-op students at the same college, co-op students are more interested in their jobs, see a connection between their job and future (career) jobs, report more opportunities for learning at their jobs, and see the connection between school and work. The effect of these connections on subsequent labor market outcomes is still unknown. (pp. 144)

The NAVE described the co-op model as the most widespread of all work-based learning models. However, that report (Boesel et al., 1994) did not attempt to identify the professional-clinical model among the postsecondary programs studied as was done by Bragg et al. (1995). Rather, it focused on work-based learning models more prevalent at the secondary level such as co-op and school-based enterprise.

Co-op has some important differences from the clinical-professional model because it is not as highly regulated by external bodies and often it is not as structured. For these reasons, co-op has become quite widespread at both the secondary and postsecondary levels. This model has the added benefit that students are usually paid for their time in the work setting. Acknowledging these important differences from the clinical-professional model, there are similarities. For instance, co-op encourages a combination of vocational and academic coursework that is coordinated with work experience, and students earn college credit for these experiences.

Two approaches are predominant with the co-op model: (1) students are taught on campus for part of the day, and they work for another part of the day; or (2) students rotate between college and work on a semester-by-semester basis (U.S. Congress, Office of Technology Assessment, 1995). Even though this second approach is more prevalent in four-year colleges and universities, it does occur in two-year colleges as well. Whichever approach is used, highly successful co-op programs require written agreements between schools and employers, specific worksite training plans, frequent supervision of students, and ongoing assessment by a worksite and school coordinator (Stern, Finkelstein, Stone, Latting, & Dornsife, 1994a). Boesel et al. (1994) attribute several positive benefits to co-op at the postsecondary level such as heightened student interest in jobs, clearer connections between the current job and future jobs, more opportunities to learn on the job, and better linkages between school and work. The economic outcomes of postsecondary co-op experiences are relatively unknown.

Other work-based learning models such as school-based enterprise, formal adult apprenticeship, or youth apprenticeship exist in the two-year college environment, but they are offered much less frequently (Boesel et al., 1994; Bragg et al., 1995; Casner-Lotto, 1988; Stern et al., 1994a). Few two-year college administrators perceived of school-based (or school-sponsored) enterprises as an exemplary approach to work-based learning in their institutions. This is not to suggest school-based enterprises do not exist or that they are not effective in the context of the postsecondary level. It does indicate, however, that relative to other models such as clinical-professional or co-op, school-based enterprises are

not seen as the basis for exemplary work-based learning (according to the definition offered in this study). Similar conclusions were drawn regarding formal adult apprenticeship programs. Casner-Lotto (1988) reports that adult apprenticeships are not a rarity in two-year colleges, but when they exist they are usually small and highly job specific. The programs usually support the local skilled trades such as electrician, carpentry, or culinary arts through an affiliation with the U.S. Department of Labor. Casner-Lotto also reports that little is known about the quality of these programs, and the partnerships between education and labor are often tenuous.

Similarly, little information exists about the newer school-to-work model of youth apprenticeship, particularly at the postsecondary level. In an October 1993 report, Corson and Silverberg described evaluation results of 15 school-to-work transition/youth apprenticeship demonstration programs funded by the U.S. Department of Labor. They indicate that "none of the sites had any experience in implementing the postsecondary components of the program" (p. xi). Although not yet evident in practice, secondary-to-postsecondary articulation has been viewed as an essential part of youth apprenticeship programs. In a survey involving all states that have passed youth apprenticeship legislation, Smith (1994) found that a common feature is articulation of curriculum to the postsecondary level. He reports, "[S]tate legislation proposed flexibility on the part of both secondary and postsecondary educational systems to accommodate alternative paths to technical and professional competence" (p. 211).

Kazis and Roche (1991) suggest that youth apprenticeships can be a logical extension of the Tech Prep model where integrated vocational-technical and academic curriculum is delivered through two years of high school education articulated with two years of college. Although Tech Prep was not defined as a work-based learning model in the study conducted by Bragg et al. (1995), it was examined as a potential component of such programs. Findings from this study show that few existing two-year college work-based learning programs utilized Tech Prep or established formal articulation agreements with secondary schools. This finding is corroborated by earlier results of a study by Bragg, Layton, and Hammons (1994), which shows that during the 1992-1993 school year only about one-third of the nation's Tech Prep consortia were incorporating work-based learning into curriculum reform at either the secondary or postsecondary levels.

The School-to-Work Opportunities Act

In 1994, the U.S. Congress passed the School-to-Work Opportunities (STWO) Act. A primary objective of this federal bill is to assist youth and young adults to transition to work. The school-to-work goals are to be closely integrated with the objectives of the Goals 2000: Educate America Act, a federal bill passed earlier in 1994. Among other purposes, the Goals 2000 Act calls for the creation of content and performance standards intended to raise the quality of education for all students. Both the STWO and Goals 2000 legislation promote educational reforms designed to improve the quality of teaching and learning for all students, but particularly for the noncollege bound. The STWO and Goals 2000 legislation help to move broad-based educational reforms to the mainstream of the nation's educational agenda. Grants to begin developing and implementing local and state school-to-work systems have been awarded jointly by the U.S. Departments of Education and Labor since 1994.

No one model is endorsed by the STWO legislation; however, several work-based learning models are described as promising such as the career academy, co-op, and youth apprenticeship. Tech Prep is also mentioned as a model that local schools and colleges could implement with STWO Act funding. No matter which model is utilized, the STWO Act specifies that relationships should be strengthened between the following entities: (1) vocational and academic education, (2) educators and employers (i.e., school and work), and (3) secondary and postsecondary education. A work-based learning component, school-based learning component, and connecting activities that connect the school and workplace are essential to any school-to-work system funded under this new federal legislation. Successful

completion of a school-to-work program should result in a high school diploma, a certificate, or a degree from a postsecondary institution, and/or an occupational skill certificate that should be a portable, industry-recognized credential certifying competency and mastery of specific occupational skills.

Three components form the foundation of the federal STWO bill. First, the school-based learning component requires the integration of vocational and academic education, career exploration and counseling, instruction in a particular career area, selection of a career major by grade 11, and periodic evaluations linked to the challenging academic standards specified in the Goals 2000 Act. In addition, the school-based learning component endorses articulation of curriculum between secondary and postsecondary education. In addition, the completion of some type of academic credential (i.e., certificate or degree) is highly encouraged. This requirement is similar to the postsecondary component of the 2+2 Tech Prep core curriculum.

The work-based learning component involves paid or unpaid work experience, workplace mentoring, and instruction in general workplace competencies as well as in all aspects of the industry. Students should acquire competencies to progress to higher-level skills consistent with the demands of a particular occupation. By obtaining this type of instruction, students are expected to be better prepared for advancement in a career.

Finally, the school-to-work connecting component is designed to ease the transition from in-school to out-of-school learning. Connecting activities should help to ensure students are well matched with employers' work-based learning opportunities. This component is designed to ensure that the school-to-work linkages create a systemic approach. It can be carried out by employers, faculty, counselors, parents, students, administrators, and any others participating in the school-to-work experiences. Examples of connecting activities are support services such as career counseling starting in the early grades, staff development, technical assistance, and job placement. Another connecting activity is a follow-up evaluation of graduates to determine the extent to which intended outcomes have been attained and to encourage student placement in positive workplace learning experiences.

Postsecondary Work-Based Learning and the STWO Act

Little research exists to explain how various existing work-based learning models fit with the school-based learning, work-based learning, and connecting activities components central to the federal STWO Act, particularly at the postsecondary level. A survey conducted by Bragg et al. (1995) and a more recent synthesis of the literature by U.S. Congress, Office of Technology Assessment (1995) are the only studies known to address this issue directly. For example, Bragg et al. (1995) show that several of the existing work-based learning models provide such elements as coordinated classroom and workplace learning, the integration of occupational-technical and academic curriculum, and periodic evaluation of student progress. Both studies point out limitations that are present in existing work-based learning models relative to STWO legislation. Bragg et al. (1995) found that few of the models uniformly incorporate such components as training and credentialing of workplace mentors, inservice of college faculty and staff in work-based learning concepts, and incentives for business. Also, recruitment of targeted student groups and job placement, both elements recommended by the STWO Act, are lacking. These results suggest that most if not all of the existing work-based learning models should be modified and/or enhanced to meet the legislated expectations of the STWO Act.

Bragg et al. (1995) also investigated who has primary responsibility for various work-based learning elements (see Table 1). Is the primary responsibility that of the colleges, employers, or other agencies? Or is it shared? In relation to health programs, nearly every element was the primary responsibility of the two-year college, including selecting, instructing, mentoring, assessing, and certifying students. Similarly, colleges were responsible for a majority of elements of non-health work-based learning, although more sharing of responsibility occurred with employers,

specifically in supervising and evaluating students, determining wage rates, providing certification of mastery, providing mentor training and credentialing, and offering student insurance/liability. For either health or non-health, the primary responsibility for delivery of instruction was the college, giving employers the primary responsibility for providing the workplace setting itself. Administration and delivery of the learning process is the primary responsibility of two-year colleges rather than employers or other agencies. This finding shows some shifting of responsibility should occur if new school-to-work programs are to be based on an equal partnership between colleges and employers.

To summarize, the federal STWO Act and other legislation passed in several states (Smith, 1994) shows a heightened public interest in work-based learning as both an economic and pedagogical intervention. Although much of the focus has been on youth, recent research documents the widespread use of work-based learning at the two-year college level. The clinical-professional model and cooperative education (co-op) are examples of approaches that are predominant at the postsecondary level; and benefits have been documented for students who have participated in these approaches. Other models such as formal adult apprenticeships are sometimes used; however, these programs are typically small and their quality is not well-documented. School-based enterprises and youth apprenticeships are not very evident at the postsecondary level at all. Little is known about how the various work-based learning models are implemented at the postsecondary level. What is known is that two-year colleges seem to have a preponderance of responsibility for delivering work-based learning as compared to employers or other organizations. Yet, details about how these programs operate is not available at a time when public policy suggests a greater investment should be made in work-based learning at both the secondary and postsecondary levels.

Table 1
Location of Primary Responsibility for Selected STWO Act Components

	Health				**Non-Health**			
Primary Responsibility for School-to-Work Opportunities (STWO) Act Components	College	Work-place	Formal/ Shared	Other/ NA	College	Work-place	Formal/ Shared	Other/ NA
Delivery of instruction is the responsibility of ...	x				x			
Student selection is the responsibility of ...	x				x			
Supervision of students is the responsibility of ...	x				*	*	*	
Evaluation of students is the responsibility of ...	x				*		*	
Student wage rates are determined by ...				x		*		*
Certification of mastery is the responsibility of ...	x				*		*	
Mentor training and credentialing is the responsibility of ...	*			*	*	*		*
Instructor/student ratios are determined by ...	*			*	x			
Length of training is determined by ...	x				x			
Student insurance/liability is the responsibility of ...	x				*	*		*

x The majority of responses fell into one category.
* A percentage of responses were nearly equally shared among two or more categories.

THE STUDY

Two-year colleges in the United States have a long history of providing work-based learning, especially in association with occupational-technical education. Recently, the nation has placed greater priority on strengthening school-to-work transition programs involving work-based learning by linking secondary and postsecondary curriculum. Given these trends, it is important to examine existing work-based learning in the context of two-year postsecondary education. It is particularly important to understand the features of highly effective work-based learning programs. Research describing the goals, elements, and outcomes of exemplary work-based learning programs is needed to better understand how to facilitate the role of two-year colleges in newer school-to-work systems.

By conducting research in this area, the following questions can be addressed: Who are the students, faculty, mentors, and others who contribute to work-based learning in two-year colleges? In what curricular areas does work-based learning exist at the two-year postsecondary level and what models are associated with those occupational areas? What do students experience and learn when involved in them? What factors contribute to the creation of highly effective work-based learning programs in two-year colleges? Answers to these questions are needed to assist policymakers and practitioners engaged in creating new school-to-work programs involving work-based learning or in furthering existing work-based learning programs of all types in the two-year college environment.

The purpose of this two-year study was to document the status of work-based learning in community, junior, and technical colleges. Phase One of the study, conducted in 1993, was a survey census of the nation's 1,200 two-year colleges to describe the scope, scale, and character of work-based learning programs already in existence at the two-year postsecondary level. Readers interested in the results of Phase One of the study are referred to the complete report entitled *Work-Based Learning in Two-Year Colleges in the United States* (Bragg et al., 1995). The purpose of Phase Two of the study, conducted in 1994, was to gain a more in-depth understanding of all aspects of selected exemplary work-based learning programs. The Phase Two research involved field-based case studies designed to provide qualitative observations and in-depth analysis of ten two-year college work-based learning programs.

To focus the entire study (Phases One and Two), a definition of work-based learning was provided along with a list of the most frequently used models such as clinical-professional and cooperative education. In our Phase One study and throughout this report, work-based learning is defined as

instructional programs that deliberately use the workplace as a site for student learning. Work-based learning programs are formal, structured, and strategically organized by instructional staff, employers, and sometimes other groups to link learning in the workplace to students' college-based learning experiences. Work-based learning programs have formal instructional plans that directly relate students' work-based learning activities to their career goals. These work-based learning experiences are usually but not always college-credit generating. Instructional programs that involve youth apprenticeships, clinical experiences, school-based enterprises, and formal registered apprenticeships are examples of work-based learning programs.

The Research Objectives

The primary goal of the study was to understand all aspects of successful work-based learning programs operating at the two-year college level. All programs studied were thought to be either mature and exemplary or young and showing promise. Because more is known about health programs than non-health, priority was given to studying non-health work-based learning programs, although two health programs were selected to provide a basis for comparison. Relative to all programs, the study attempted to examine a range of work-based learning models and to document the perceived quality of the programs according to different stakeholders, especially students, faculty, and employers.

The objectives of Phase Two of the study were to

- describe the character and quality of two-year college work-based learning programs considered to be exemplary.
- describe the characteristics, experiences, outcomes, and concerns of key stakeholder groups associated with two-year college work-based learning programs.
- identify common factors, elements, phenomena, activities, and issues that could help to distinguish or explain exemplary policies and practices of two-year college work-based learning programs.
- determine whether there are differences in work-based learning programs in relation to geographic location, population density (rural or urban), or occupational (program) focus.

METHODS

Using survey data gathered during Phase One of the study, eight two-year colleges were identified for further in-depth analysis using qualitative methods. Ten work-based learning programs in eight colleges, including health and non-health programs in two of the institutions, were chosen using a multistage selection process. The following five steps summarize the process:

1. The population of two-year college work-based learning programs for Phase Two of the study in 1994 came from a compilation of the survey data conducted in Phase One of the study in 1993. In that earlier phase, survey respondents were asked to give detailed information about their best health and non-health work-based learning programs. These self-nominations were based on respondents' assessments of existing work-based learning programs according to the following criteria:
    - the existence of a formal structure for work-based learning
    - commitment to work-based learning by various stakeholder groups
    - a proven track record of successes
    - innovative teaching and learning practices

    A total of 399 health work-based learning programs and a total of 322 non-health programs were described by the survey respondents. From this pool of nominations, the work-based learning programs were screened further based on respondents' affirmative responses to the following survey items:

    - coordinated classroom and workplace learning
    - integrated occupational-technical and academic instruction
    - formal contracts or cooperative agreements with institutional partners
    - formal governing/advisory board composed of institutional partners
    - recognized credentials of occupational and academic mastery of completers
2. Using these criteria to screen the population, a subsample of approximately 70 work-based learning programs was identified. These programs were classified according to
    - whether the program was health or non-health.
    - the work-based learning model being employed (e.g., clinical-professional, co-op).
    - the year the program was established.
3. Based on this classification scheme, the programs were analyzed further to identify a mix of work-based learning programs that were also distributed by
    - regions of the United States (e.g., Midwest, Southwest, Northwest)--to address regional differences in

postsecondary systems, labor markets, and so forth.
    - rural (or small town) and urban sites--to address concerns about work-based learning in areas thought to be the most difficult to reach according to the STWO Act.
    - occupational-technical program areas (e.g., nursing, radiologic technology, management, early childhood)--a priority was given to non-health areas because of the lack of information about these programs, although a commitment was made to select a few health programs for comparison.
4. Using this classification schema and supplementary information provided by the sites, 17 colleges were identified as deserving of further consideration for the study. At this stage, all of the other detailed information collected for each program was mailed to four members of the National Council for Occupational Education (NCOE) task force on work-based learning, a key group engaged in formulating and carrying out this entire study. Each task force member was given a summary of the research objectives, the selection criteria, and classification schema and asked to rank order the sites for field visitation. Results of the expert panel showed a great deal of agreement regarding the colleges and programs that should be visited. All four of the task force members rated seven of the seventeen sites among their top ten. Three other sites were rated in the top ten by either two or three of the raters.
5. Based on this ranking process, additional information was collected for the top ten colleges identified by the panel of experts. Telephone interviews were conducted with administrators of each of the colleges to attempt to verify information supplied previously to the research team and to clarify any questions concerning the local programs, policies, and practices. In addition, personnel from state agencies and peer institutions were interviewed to corroborate the exemplary character of the identified programs. Based on this information, four colleges were disqualified, leaving six of the ten selected by the expert panel. In addition to these six, two colleges were added to the sample to strengthen the following areas: (1) the mix of occupational-technical program areas, (2) the types of work-based learning models, and (3) the regional representation within the United States. Verification of the quality of work-based learning programs at these two colleges was conducted similarly to other sites through a review of extant survey data, analysis of supporting documentation, and telephone interviews with site administrators and peer institutions. Selection of these two additional colleges were confirmed by the NCOE expert panel.

   Based on the selection process, eight two-year colleges and ten work-based learning programs were ultimately identified for the study. The following were the selected colleges and programs:

    - Rowan-Cabarrus Community College, Salisbury, NC - early childhood education, using the clinical-professional and school-based enterprise models
    - Wenatchee Valley Community College, Wenatchee, WA - tree fruit production, using both the co-op and school-based enterprise models, along with Tech Prep
    - Phoenix College, Phoenix AZ - management/marketing, using the co-op model
    - Northwestern Michigan College, Traverse City, MI - resort management, using the co-op and school-based enterprise models
    - Delgado Community College, New Orleans, LA - culinary arts, using formal apprenticeships, and radiologic technology, using the clinical-professional model
    - Columbus State Community College, Columbus, OH - culinary arts, using formal apprenticeships, and nursing technology, using the clinical-professional model
    - Rock Valley College, Rockford, IL - manufacturing technology, using the youth apprenticeship model, along with Tech Prep
    - Tulsa Junior College, Tulsa, OK - manufacturing technology, using the youth apprenticeship model

Data Collection Procedures

The data collection was conducted by NCRVE project staff along with members of the NCOE task force on work-based learning (chaired by Russell Hamm), creating a team of ten data collectors. By combining the NCRVE researchers and NCOE practitioners into one research team, we created a working partnership that was valuable to understanding exemplary policy and practices associated with work-based learning. The partnership between the NCRVE researchers and NCOE practitioners provided a means of examining the relationship between theory and practice inherent in work-based learning itself. For each site visit, we assigned a team of two data collectors, optimally a pairing of an NCRVE researcher with an NCOE practitioner.

The Protocol

The data collection instruments and procedures used during each field visit were based on information gathered during Phase One of the study, additional information collected via a literature search, and previous field-based research conducted by the project staff, especially from prior investigations of Tech Prep programs (Bragg, 1992). A protocol was developed for the field visit and consistently employed by all the teams. Using this process met two goals: First, it ensured that a common set of questions and inquiries was applied at each site. Second, using the protocol enabled the team members to gather information consistently about organizational structures and operational strategies to identify factors that contribute to exemplary practice. Also, using the protocol enhanced the confidence among team members in their ability to conduct the research study and contribute to the data collection in a quality manner.

The protocol was based on the research objectives for the study, and it contained a core set of research questions that provided the foundation for all data collection activities (see Table 2). Once the core set of research questions was developed, a list of potential interview questions was generated for each specific stakeholder group associated with the work-based learning programs. The questions were combined into a semistructured interview guide for each stakeholder group. These groups were as follows:

- President and senior administrators of the college
- Program director(s)
- Faculty (occupational and academic)
- Counselors and support staff
- Students
- Employers (minimum of two) and workplace mentors
- Other groups (e.g., labor organizations, Chamber of Commerce)

Table 2
Research Questions

What are the characteristics and mission of the two-year college?

- **Institutional characteristics, outcomes**
- **Student enrollments--demographics**
- **Funding levels and sources**
- **Faculty/mentor characteristics--demographics**

What are the characteristics and goals of the program?

- **What are the specific goals of the program?**
- **What was the motivation for starting the program?**
- **How does the program fit with the mission of the college? Employers' missions?**

Who are the stakeholders: Students, Faculty, Employers, Others?

- **Stakeholder demographics (e.g., age, ethnicity/race, gender)**
- **For each, what is the role and experience with the program?**
- **What was the motivation for getting involved with the program?**
- **What resources did each group contribute and receive?**

What are the components of the program?

- **What model (e.g., co-op, youth apprenticeship) is being implemented? Why?**
- **What are the key components of the model?**
- **How does the model work?**
- **Who has responsibility for the various components of the model?**
- **What is the past experience with this model?**
- **How do the key components fit the local area (context)?**
- **What is particularly innovative about the model?**
- **How do the following components fit?**
  - **School-based learning components**
  - **Work-based learning components**
  - **Connecting activities**

What are the strengths and weaknesses (obstacles) of the program?

- **What obstacles have been overcome? How?**
- **What obstacles remain? How do you plan to approach them?**
- **What are the obstacles to doing *more* work-based learning?**

What are the outcomes/results of the work-based learning program?

- **What are the documented *student* outcomes of this program?**
  - **Retention rates**
  - **Completion rates**
  - **Transfer rates**
  - **Placement rates**
  - **Licensure passage rates**
  - **Earnings**

- **Job/career positions**

- **How are outcomes (benefits) evaluated? How are negative outcomes handled?**
- **How is outstanding performance/participation recognized (formally or informally)?**
- **What are the other outcomes of the program? The college? Employers? Others?**

- **Public relations**
- **Relationships with board/community**
- **Changes in enrollment in other programs**
- **Economic development**
- **Human resource development**

What lessons have been learned about work-based learning?

- **If you could do it all over again, what would you do?**
- **What advice would you give to others just beginning a work-based learning program like this one?**

Pilot Test

A pilot test was conducted in July 1995 with two programs at Columbus State Community College (CSCC) in Columbus, Ohio. With preliminary methodology and instrumentation developed, four members of the data collection team made a visit to CSCC to investigate two programs: culinary arts and nursing technology. Two full days were spent on site to collect data using the protocol which was based largely on qualitative research methods described by Patton (1980). Information gathered at the visit was based on the protocol and research questions presented in Table 2.

Following this pilot test, project staff made final revisions to the data collection protocol and the semistructured interview schedules. Also at this time, brief paper-pencil surveys were created to collect data from persons difficult to reach in sufficient number during the visit, especially students, faculty, and workplace mentors. These surveys were intended for all faculty and workplace mentors actively engaged in the program. In addition, the research teams were given thirty student surveys and asked to collaborate with the personnel at each site to collect information from a representative group of students. (Sampling procedures varied because the programs varied widely in student enrollments from only 10 to nearly 340.) The student surveys collected demographic information and perceptions toward various aspects of work-based learning.

In addition, a school-to-work assessment tool was created to provide a measure of program quality independent from the observations made by local stakeholders. The instrument provided a scaled response to identify the extent to which various aspects of the STWO Act were implemented. In addition, the instrument included a scale to indicate the level of quality of various elements associated with the three components of the STWO Act: (1) school-based learning, (2) work-based learning, and (3) connecting activities. The instrument was completed independently by each research team member and then the teams convened to discuss their observations. The teams were

asked to complete the assessment tool as a group, reflecting the consensus of all team member responses. Both the individual team member responses and the group consensus were contributed to the pool of data collected for this study.

Training of Data Collectors

Once the data collection instruments and procedures were finalized, the team of ten researchers met for a training session. The training was conducted over a two-day period in late August 1994 in Chicago, Illinois. It provided the following:

- **an orientation to the goals of the study**
- **a means of sharing major findings, conclusions, and recommendations from Phase One of the study**
- **clarification about policies, terminology, and practices considered integral to work-based learning for this study**
- **a general understanding of the STWO Act and the importance of examining elements of the legislation in relation to this investigation**
- **a discussion of the issues pertinent to existing work-based learning programs, particularly those linked to various models (e.g., youth apprenticeship, co-op) and urban and rural locations**
- **an in-depth understanding of the site visit procedures and data collection protocol**
- **instructions and requirements for creating a case study report for each site visit**
- **the schedule of activities for the remainder of the project, including the site visits and debriefing session**

The Field Visits

During September and October of 1994, the NCRVE-NCOE research teams conducted site visits to seven two-year colleges. Each visit was conducted over two days or more, typically involving 10- to 12-hour days of on-site interviews and observations. On each site visit, the two-year college and at least two employers where students were actively engaged in work-based learning were visited. In addition, other organizations critical to operation of the program(s) were sometimes visited such as a local Chamber of Commerce or labor organization.

In each visit, persons affiliated with the key stakeholder groups were interviewed. Personal interviews were conducted individually or in small groups, depending upon the persons being interviewed, the confidentiality of information sought, and the accessibility of the interviewees. Data collected via the interviews were recorded in written notes. In nearly all cases, cassette tape recordings were used as an additional source of documentation. Survey instruments, along with pre-addressed and stamped envelopes, were distributed to students, faculty, and mentors to supplement the on-site data collection. Based on a compilation of all of this data, each team was responsible for drafting a case study report to document what was learned in relation to the research objectives.

The format for the case-study reports paralleled the research protocol used in the data collection activities. The following are the primary sections of the case studies:

- **Institutional Characteristics and Mission**
- **Program Characteristics and Goals**
- **Stakeholders**
- **Program Components and Outcomes according to School-Based Learning, Work-Based Learning, and Connecting Activities**
- **Strengths and Weaknesses/Lessons Learned**

Data Analysis and Reporting

The process of analyzing and reporting data for this report was a bit unconventional because the data collected via the eight field visits resided primarily in the heads of the ten members of the research team. Although we did require extensive note taking, and tape recording when possible, much of the understanding and interpretation resided within the people themselves. Therefore, to aggregate the major findings across the sites; to identify common patterns, themes, and issues; and to generate conclusions and recommendations, the ten-member research team was convened for a debriefing session. Draft copies of each case study report were prepared and shared with the entire team for assistance in the debriefing process. Later, after the session, each team finalized its case study report, providing the basis for this document.

Debriefing Session

After the data was collected in late October 1994, all ten data collectors gathered for a one-day meeting held during the fall conference of NCOE in Chicago, Illinois. This session was designed to assist in finishing the individual case study reports as well as to provide a forum for discussion of the major findings, conclusions, and recommendations of the study. The group discussion was facilitated by the project co-directors using a protocol developed prior to the session. The protocol involved having each research team provide a brief description of major findings, lasting no more than 30 minutes per presentation.

Following the overview given for each program, the discussion focused on identifying factors thought to be associated with exemplary work-based learning policy and practice. These factors were defined with examples shared by individual researchers, and then the group was polled to determine the incidence of the factors within particular programs. When the factors seemed to be representative of all or nearly all of the sites, the factors were defined in a way that was broadly representative of what was observed across sites. Ideas that seemed more idiosyncratic were not discarded, but recorded to assist in further interpretation of the data or in generating future research and policy questions. At the completion of the day-long meeting, the research team had generated an extensive amount of information about two-year college work-based learning policies and practices useful in addressing the study's research objectives. The final part of the discussion

centered on issues and concerns evident in the work-based learning programs studied. All ideas generated by the research team were noted on flip charts to assist in data analysis during the meeting and during later report writing. The entire session was video and audio taped to assist in documenting the event. The authors of this report took primary responsibility for synthesizing and reporting the ideas generated during the debriefing session.

Preparation of this Report

Following the debriefing session, each team of data collectors finalized its case study report and transmitted the report and all information pertinent to the research to the NCRVE-University of Illinois site. Then, all case studies were organized into a common format and edited. Draft versions of each case were mailed to the field-study sites for verification of the accuracy of information. In addition, notes and audiotapes obtained during the debriefing session in Chicago were transcribed, reviewed, and used as a basis for the findings and conclusions presented in this report. A draft of the final report was shared with each member of the research team for review and critique.

FINDINGS AND CONCLUSIONS

The focus of this study was on identifying exemplary policies and practices related to work-based learning in the two-year college. A summary of the key features of the two-year colleges and work-based learning programs selected for site visitation is presented in this section. Evident in Table 3 is the fact that seven of the eight two-year postsecondary institutions in the study were community colleges. Only one of the institutions was another form of two-year institution, a junior college. The colleges were located in the South, Northwest, Southwest, and Midwest regions of the country. To address one of the four research objectives, four of the colleges were located in rural areas or small towns of less than 150,000 and four were located in urban areas with populations over 350,000. The enrollments were positively related to size of the local population with the larger colleges located in urban areas and the smaller ones in rural vicinities. The exceptions were a rural college in the South with a reported head-count enrollment of over 16,000 and an urban college in the Midwest with a head-count enrollment of 9,000.

Summary Description of the Work-Based Learning Programs

The occupational-technical areas represented in the study were the two health programs of nursing and radiologic technology. The remaining programs were all in the non-health areas of early childhood education, agricultural/horticulture, marketing/ management, restaurant management, culinary arts, and manufacturing technology. The occupational-technical areas of culinary arts and manufacturing technology were represented in two of the programs selected for the study because they were thought to be particularly effective representations of youth and adult apprenticeships. Other models that were studied in relation to these programs were clinical-professional, school-based enterprise, and co-op. Two of the programs also had a Tech Prep component.

Several programs used more than one model to provide students with work-based learning experiences, usually mixing co-op or school-based enterprise with another work-based learning model. In a few sites, the school-based enterprise model was used early to midway through students' educational programs to provide structured learning in a safe but realistic work setting. Later on, as students reached the midpoint or even later in the program, work-based learning occurred in the actual workplace using co-op or clinical-professional experiences. A form of this progression was evident in the two youth apprenticeship programs as well. In one program, the youth apprentices first entered an academy housed in a dedicated area in a local manufacturing firm; in the other program, the apprentices were in a joint vocational school. In either setting, students acquired vocational and academic competencies pertinent to the local manufacturing firms. Later, after students had mastered the competencies designated appropriate for the academy or joint vocational school, they advanced to an apprenticeship arrangement in a firm.

Table 3
Key Characteristics of Two-Year Colleges and the Selected Work-Based Learning Programs

Two-Year College	Location	Local Population	College Enrollment	Work-Based Learning (WBL) Model	Program Area(s)	Program Enrollment
Rowan-Cabarrus Community College	Salisbury, NC	22,670 (Rural)	16,873-Undup, Head Count	Clinical and School-Based Enterprise	Early Childhood Education	339
Wenatchee Valley Community College	Wenatchee, WA	17,257 (Rural)	4,000-Head Count; 2,000-FTE	Co-op and School-Based Enterprise/Tech Prep	Horticulture/Tree Fruit Production	55
Phoenix College	Phoenix, AZ	923,750 (Urban)	19,800-Head Count; 6,500-FTE	Co-op	Management/Marketing	144
Northwestern Michigan College	Traverse City, MI	15,156 (Rural)	5,747-Head Count; 2,483-FTE	Co-op and School-Based Enterprise	Resort Management	92
Delgado Community College	New Orleans, LA	531,700 (Urban)	29,546-Head Count; 23,640-FTE	Formal Apprentice/Clinical	Culinary Arts/Radiologic Technology	187/110
Columbus State Community	Columbus, OH	569,570 (Urban)	17,042-Head Count; 9,851-FTE	Formal Apprentice/Clinical	Culinary Arts/Nursing Technology	87/344

College						
Rock Valley College	Rockford, IL	134,500 (Rural-Small Town)	9,113-Head Count; 4,320-FTE	Youth Apprentice and Tech Prep	Mfg. Technology	10
Tulsa Junior College	Tulsa, OK	368,330 (Urban)	30,481-Head Count; 19,422-FTE	Youth Apprentice	Mfg. Technology	16

The progression of work-based learning experiences evident in the programs studied has several potential benefits. For students, it provides a logical sequence of learning experiences to assist in the transition into the workplace. For colleges, there is an enhanced level of control over the early stages of the program, ensuring that all students experience a range of workplace experiences in a relatively risk-free environment. Finally, for employers, there is an assurance students have mastered basic academic, technical, and workplace competencies before they take positions in local firms.

The programs ranged in size from only ten to over 300 students. The two largest programs, one in Nursing Technology and another in Early Childhood Education, had over 300 students. Several programs had moderate enrollments of between 80 and 200 students; these programs included management/marketing, restaurant management, and culinary arts. The two programs with the smallest enrollments of less than 25 students were the Youth Apprenticeship Programs. Besides these two programs, the size of the program was not related to a particular occupational-technical area or work-based learning model. However, a factor that did seem to be related to program enrollment was the availability of adequate resources of all types from the colleges and local employers, especially human and financial resources.

Students who participated in the programs were primarily adult students ranging in average age from 25 to 35 years. This was true for all the programs except the Youth Apprenticeship Programs where most students were 18 to 19 years old. Typically, the adult students had returned to the colleges on a part-time or, less frequently, a full-time basis to make career changes. Most if not all had prior work experience, and some already had completed college. A small percentage of students had obtained associate, baccalaureate, or even graduate degrees prior to enrolling in the work-based learning program.

In addition to age, there was a propensity for enrollments in certain occupational-technical programs to be gender related. For example, nearly all the students in early childhood education, management/marketing, and the health occupations were female. In contrast, the vast majority of students in tree fruit production (agriculture) and manufacturing technologies were male. Minority students were enrolled in all of the programs, but not to the extent one might expect in some urban or geographic locations. For example, in one region where a large minority population is evident in the labor force, only 4% of the students were minority, raising concerns about access and selection

into the work-based learning program. Finally, although the percentage of Pell grant recipients was known for only a few of the programs, in all of these approximately 20% of the students received the Pell grant.

Work-Based Learning Program Outcomes

Table 4 presents selected outcomes attributed to each of the programs. In addition, the table shows how the major components of the STWO Act--the school-based learning component, the work-based learning component, and the connecting activities component--were implemented. (An in-depth discussion of the findings from each field study appears in Appendix A.) Program staff provided qualitative observations; however, quantitative evidence of the outcomes of the programs was scarce. Most of the program staff were able to report job placement rates. Four programs gave 100% job placement rates, and two others provided rates of 95% and 80%. A health program indicated a 100% licensure passage rate. These outcomes are positive, but they do not present the whole story. Graduation rates were substantially lower, ranging from 4% to 67%. In fact, most programs reported graduation rates below 15%. The matriculation rate from secondary to postsecondary education was available for one youth apprenticeship program, and it was 67% from high school to the two-year college. (Although a matriculation rate was not available for the other youth apprenticeship program, the rate was probably lower since the two-year college component of the program was optional.) Finally, only two programs reported a transfer rate to the four-year college level. The Nursing Technology Program showed a 21% transfer rate and the Restaurant Management Program reported 35% of their students transferred, often without obtaining the two-year degree.

Considering the outcomes as a whole, we have a spotty picture of the results of the work-based learning programs. With regard to job placement--transitioning students from college into regular work--results are positive. Nearly all of the programs provided very high rates of job placement, and other information obtained from the field visits support the fact that many of these placements were with employers where work-based learning was provided. With respect to another outcome--program completion or graduation--the programs did not appear as successful. In nearly all of the programs, the vast majority of students were *not* completing with a formal degree or certificate. The impact this phenomenon has on students is unknown, and a longitudinal investigation is needed to determine what ramifications occur for students who fail to complete programs with an "official" credential. Little or no data was provided regarding other educational outcomes such as academic, occupational-technical, or workplace skill attainment.

Table 4
Selected Features of Work-Based Learning Programs

	Selected Features of Work-Based Learning Programs		
College--Brief Program	School-Based Learning	Work-Based Learning	Connecting Activities

Description and Selected Outcomes	Component	Component	
Rowan-Cabarrus Community College, NC (RCCC) **Early Childhood Education Program** *Program Description:* Career ladder of early childhood education programs culminating in three credentials: (1) 33-quarter hour certificate; (2) 68-quarter hour one-year diploma; and (3) two-year AAS degree, qualifying students for CDA and NC child care credentials *Students and Outcomes:* 339 students (95% female, 16% minority, average age 35, 11% Pell grant recipients 33% graduation rate 100% job placement rate	Coursework focusing on the preschool environment, school-age environment, and special needs Student-initiated research projects to facilitate vocational and academic integration Formal career awareness, orientation, and guidance Developmental education, testing, follow-up, and Student Success program	Three practicums: (1) with preschool age in variety of settings, (2) with school-aged children in public school setting, and (3) advanced work experience in area chosen by students Internship--10 hours per week in chosen area On-site Early Childhood Center (school-based enterprise) Workplace mentors who provide periodic evaluation of student progress	Formal governing/advisory board Curriculum advisory committee which meets twice per year Written articulation agreements with (1) public schools, (2) other two-year colleges, (3) four-year universities Practicum notebook kept by students to link school-based and work-based learning
Wenatchee Valley College, WA (WVC) **Tree Fruit Production Program (TFP)** *Program Description:* Two-year AAS-degree program combining horticulture science and related agriculture/plant science with hands-on production experience *Students and Outcomes:* 55 students (majority male, 4% minority, average age 28, 55% Pell grant recipients)	Of the 120-quarter hours required, 40-quarter hours are in general studies with remainder of program in agriculture/horticulture Emphasis on team decision-making and real-world TFP practices	First-year students work (unpaid) in a commercial-grade, college-owned orchard (school-based enterprise); first-year students supervised by second-year students Second-year students arrange for on-site internships (co-op)--8 credits; 400-clock hours	Advisory committee comprised of representatives of local TFP businesses Articulation agreements with (1) local Tech Prep program(s) and (2) four-year university (concurrent enrollment for part of program)

50% graduation rate 100% job placement rate			
Phoenix College, AZ **Management/Marketing Internship Program** *Program Description:* Cluster of seven applied business department AAS-degree and certificate programs requiring internship and seminar. *Students and Outcomes:* 144 students (mostly female, 30% minority) 80% job placement rate	1-credit hour classroom seminar is a requirement for students participating in internship. The seminar covers topics such as management styles, motivation, goal-setting, marketing, and stress management. Counselor provides information about program requirements and arranges diagnostic testing for all students. Applied English course is part of remedial sequence.	3-credit hour internship (co-op) administered by the Management/Marketing Program. Most students come to the college already holding jobs, so they customize the work-based learning experience around their own career needs. The model focused more on work-to-school transition than school-to-work.	Supervisor and student create a written and signed internship agreement with clear, measurable objectives--the agreement is endorsed by a college faculty member. Advisory committee meetings are held on a quarterly basis. Articulation agreement is in place with local private four-year college.
Northwestern Michigan College (NMC) **Resort and Restaurant Management Program** *Program Description:* 66-hour AAS-degree program in Resort and Restaurant Management, utilizing the local Rotary Club's Park Place Hotel *Students and Outcomes:* 92 students (about 50% female, 9% minority, average age 28, 22% Pell grant recipients 14% graduation rate 100% job placement rate 35% transfer rate	First-year students take classes on campus in primarily the liberal arts with one related course taught at the work site. Second-year students take classes at the Park Place Hotel primarily in business and hospitality areas. Integration of vocational and academic education is linked to restaurant management.	Second-year students are required to have 30 hours per week work experience in the Park Place Hotel and Oleson Conference Center (co-op-type WBL model) Job rotation through different jobs (pay contingent upon jobs) Off-site internship required (e.g., Disney, Opryland)	Faculty work across college and work sites. Worksite mentors provide coaching of students regarding career choices. Adjunct faculty (hotel staff) compensation is made according to student-contact hours.
Delgado Community College,	Large waiting list for about	2,400 hours of clinical	13-affiliated hospitals

LA (DCC) **Radiologic Technology Program** *Program Description:* Two-year (AAS), 60-65 credit hour program preparing certified radiologic technicians. *Students and Outcomes:* Of 1,000 applicants, 55 students admitted per year (36% minority, 29% Pell grant recipients; average age 25) 100% licensure passage rate 4% graduation rate	55 slots per year. Admission requirement of 2.0 of 4.0 cumulative grade point average. Most students are admitted to DCC and taking course requirements prior to admission to program. This program is a typical health-care clinical model: five semesters plus two summer sessions, including general education and occupational course Counselors and other support staff monitor students in the program.	experience in one hospital (approx. 40 hours per week, unpaid for two years) Log required to document mastery of competencies. Hospital staff and college faculty certify accomplishment of competencies.	contribute approx. $200,000 of services and supplies annually to program Formal written agreements between college and hospitals Frequent communication between college faculty and hospital personnel Informal network of graduates supports the program
Delgado Community College, LA (DCC) **Culinary Arts Program** *Program Description:* Formally accredited, three-year (AAS) Culinary Arts Program approved by the American Culinary Federation and the Bureau of Apprenticeship Training/U.S. Department of Labor *Students and Outcomes:* 187 students (28% minority, average age 28, 19% Pell grant recipients) 100% job placement rate(p> None eligible to graduates from the new program yet	Students take 8-10 hours of class one day per week. On-site classes to address the general core of general education are lecture and laboratory oriented. Formal program of career awareness and orientation, relies heavily on first 500 hours of instruction on campus.	Requirement of 6,000 hours of on-the-job training (2,000 per year) in approved site under the supervision of executive chef (plus 900 hours of classroom instruction) Paid work experience in site formally contracted with college Job rotation	Daily log kept to document activities; the log is required for ACFEI certification. Formal contracts between restaurants and college ACFEI guidelines encourage lifelong learning through recertification and job promotion.
Columbus State Community	22 credit (quarter) hours in	Requirement of 6,000 hours	Strong, formal partnership

College (CSCC) **Chef Apprenticeship Program** *Program Description:* Formally accredited, three-year (AAS) Culinary Arts Program approved by the American Culinary Federation and the Bureau of Apprenticeship Training/U.S. Department of Labor *Students and Outcomes:* 30 students admitted per year of approximately 100 applicants 87 students (7% minority, average age of 26) 10 graduates for '92-'93 academic year Retention rate for the Restaurant Management Department where the Chef Apprenticeship Program is housed is 32%	general education; 22 credit hours of basic related coursework; and 66 credit hours of coursework in the major, including work-based instruction Five-step applicant screening process	of on-the-job training (2,000 per year) in approved site under the supervision of executive chef (plus 900 hours of classroom instruction) Paid work experience in site formally contracted with college Training log documenting skills performed in each work station; needs to be reviewed periodically; job rotation necessary	between the American Culinary Federation and CSCC through the local apprenticeship committee ACFEI guidelines encourage lifelong learning through recertification and job promotion
Columbus State Community College (CSCC) **Nursing Technology Program** *Program Description:* Associate degree registered nursing program approved by the National League of Nursing and the Ohio Board of Nursing *Students and Outcomes:* 344 students (20% minority, average age of 31)	Seven quarter program with courses equally divided among technical and academic subjects Three-phase pedagogical approach, combining lecture, laboratory/ simulation, and clinical experience Computer laboratory with simulated problems	5-18 hours of clinical experiences per week Rotation through a variety of health-care facilities and cross-training	Strategic selection of clinical placements to enhance the match between students and employers Advisory committee actively involved in curriculum decisions Focus groups with employers of graduates to identify needed program changes

67% graduation rate 95% placement rate 21% transfer rate(p)			
Rock Valley College, IL (RVC) **Tech Prep/Youth Apprenticeship Program** *Program Description:* Tech Prep/Youth Apprenticeship models combined to provide manufacturing technology training for students in grades 11-12. Students continue to RVC and may elect to continue with formal apprenticeship under employer sponsorship. *Students and Outcomes:* Of the 30 applicants, 15 admitted in first year of the program. By the third year, 31 students admitted for 31 industry-sponsored slots 10 of 15 first-year students matriculated directly to RVC (average age of 18-19)	Integration of vocational and academic education across the curriculum, not an applied academics approach. Infusion integration model utilized Use of an employer facility and a consortium-sponsored "Academy" 9-week summer session to introduce manufacturing occupations	2,000 hours of on-the-job training toward the machinist journeyman card Job rotation ensures students see all aspects of the industry Nurturing relationship between youth apprentices and workplace meisters	Formal governing structure involving many local manufacturing firms (primarily small shops) Formal contracts and letters of agreement Individualized counseling and support services Temporary agency recognized as a partner to pay student wages
Tulsa Junior College, OK(TJC) **Craftmanship 2000** *Program Description:* Youth apprenticeship in manufacturing technology field extending from grades 11-14, involving local high schools, area vocational center, TJC, the Chamber of Commerce, and	Integration of vocational and academic education utilizing applied academics Extensive use of area vocational center for occupational/technical training and simulated work experience during grades 11-12	Intensive summer work experience utilizing the youth apprenticeship model with local manufacturing firms and workplaces mentors called meisters (after the German apprenticeship model)	Formal governing board to oversee major program decisions Private corporation/foundation used to provide youth apprentices with compensation Formal articulation agreements--secondary to

local manufacturers *Students and Outcomes:* 16 students matriculating to TJC (average age of 18-19 years old)			2-year to 4-year postsecondary education Mentor training and regular consultation between work-place meisters and college faculty

Selected Features of the Programs Compared to the STWO Act

Selected features of each of the work-based learning programs was examined in relation to the STWO Act components of school-based learning, work-based learning, and connecting activities.

The School-Based Learning Component

The school-based learning component requires the integration of vocational and academic education, career exploration and counseling, instruction in a particular career area, selection of a career major by grade 11, and periodic evaluations. An extension of the secondary program to the postsecondary level is encouraged, similarly to Tech Prep. Besides the Youth Apprenticeship Programs, only one of the work-based learning programs studied established a formal secondary component that approximated the secondary-to-postsecondary curriculum structure advocated by the STWO Act. Three other program leaders were enthusiastic about adding Tech Prep, but none had formal plans at the time of our visits in the fall of 1994.

Several of the programs indicated the availability of career awareness, orientation, and guidance services, as well as individualized assessments to ensure proper placement in the academic subjects of math and English. These support services were valued highly by students. In regards to vocational and academic curriculum integration, many of the programs used a traditional approach of offering occupational-technical coursework along with selected general education courses. A few of the programs identified applied academics courses to meet the general education requirements. This approach was used by one of the Youth Apprenticeship Programs. The other Youth Apprenticeship Program was using a combination of an academy and an infusion model of curriculum integration at the secondary level. At the college level, vocational and academic integration was just beginning with the support of a demonstration grant to develop Tech Prep curriculum at the postsecondary level.

These findings indicate that some elements of the school-based learning component presented by STWO legislation are addressed by the work-based learning programs. For example, career awareness and guidance, assessments, and other support services were implemented in the majority of programs. In contrast, a secondary curriculum component was not evident in most programs. Also, few programs implemented vocational and academic integration consistent with the advanced

models described by Grubb (1995a). These deficiencies need to be remedied if the programs intend to be consistent with the STWO Act. However, given that the majority of the students of these programs are adults and not likely to transition directly from the secondary level, modifications for the legislation may not be desirable to local programs. Rather, changes to enhance the quality of the programs for older students might be more appealing, including formalizing articulation agreements with four-year colleges and universities to ensure students have greater upward educational and career mobility.

The Work-Based Learning Component

The work-based learning component involves paid or unpaid work experiences, workplace mentoring, and instruction in workplace skills in all aspects of an industry. Students should be able to progress to higher-level skills, and they should be prepared to advance in a particular career field. Except for the health occupations which traditionally do not pay student interns, all of the programs offered work-based learning experiences to students that were paid. Several of the programs offered graduated pay scales so that student wages increased as they acquired more work experience and more advanced occupational and academic performance. When this feature was present, it was described positively by program staff, employers, and students.

In addition to compensation, the programs were providing students with a broad array of work experiences, sometimes across numerous firms and other times within one firm. These experiences were progressive in nature, often beginning with exposure to a broad career field (within a school-based enterprise operated by a college, for instance) and continuing to an in-depth and focused experience in a particular occupational-technical area. Particularly in the beginning, students' work experiences did not tend to be confined to one job. As students advanced, their work experiences did become more focused, sometimes requiring the selection of a particular specialization such as day care within the early childhood profession. When this occurred, students did not complain of their work being too narrow or confining; they understood the logic in preparing for a particular job within a broader career field. Some students did attribute their work-based learning experience to helping them decide against entering a particular occupation. Even then, students indicated the decision was based on a better understanding of the career field, not on a particularly negative circumstance. In fact, no issues of exploitation or discrimination were identified in any of our interviews with students. Although the need for mentor training was identified as a way to improve several of the work-based learning programs, this recommendation came from various sources, including students, the faculty, and workplace mentors themselves.

With regard to the activities associated with the work-based learning component, the programs showed numerous strengths. They provided extensive work-based learning activities for students that moved from being very comprehensive to highly focused. The experiences gave students the opportunity to learn and experience a broad career field as well as a particular occupation within that field. All of the non-health work experiences were paid, including the youth apprentices; health experiences were not. Finally, most of the programs designated a formal mentor or supervisor in

addition to the college personnel who provided on-site oversight. However, concerns about adequate mentor training were raised in several of the sites. Apparently, the programs could be improved, and student worksite learning enhanced, if mentor training was offered in a more relevant, focused, and consistent manner.

The Connecting Activities Component

School-to-work connecting activities are supposed to facilitate the student's transition from learning in school (college) to learning at work. These activities are carried out by various stakeholders, including employers, college administrators, workplace mentors, faculty, counselors, and even students. Examples of connecting activities are career counseling, professional development, technical assistance, job placement, and program evaluation and follow-up.

Many connecting activities were implemented in support of student work-based learning experiences. Often, the activities were provided as a part of the regular support services available to the entire student population of the college. Career counseling, job placement, and program evaluation were offered in this manner. However, in some cases, support services were customized for students participating in a work-based learning program. This was evident when a counselor or job placement officer was assigned to a work-based learning program to provide special services to students (i.e., providing counseling after regular hours or in accessible places). When this was accomplished, students and others viewed the services as more central to program operations and outcomes.

Finally, although a few of the sites did provide exceptional connecting activities, especially in student support services, we observed deficiencies in this area relative to the expectations established by the STWO Act. In some colleges, few faculty (particularly academic) seemed aware that work-based learning existed at their institution, except possibly in the health fields. Many had little or no detailed knowledge of specific programs. In addition, none of the colleges provided institution-wide professional development regarding work-based learning opportunities for students. Sometimes, professional development in how to supervise students in work sites or to assist workplace mentors was extended to faculty in the programs. Usually they were expected to rely on their past work experiences and to develop an approach that would work best for them. Because many of the faculty associated with these programs were highly experienced, concerns did not surface regarding the adequacy of college supervision. However, in another situation where personnel are less experienced, issues could arise. This finding suggests that a program of professional development should be offered to prepare all college personnel about work-based learning, especially those supervising students. To ascertain the benefits of these programs to potential stakeholders, a formal program evaluation and follow-up process needs to be developed to ensure outcomes are assessed.

Factors Contributing to the Success of Work-Based Learning

Recognizing the variation in approaches taken by two-year colleges to offering work-based learning,

exemplary policies and practices were identified among the work-based learning programs. Of the several objectives specified for this study, perhaps the most important was the effort to identify factors, elements, phenomena, and/or activities (hereafter referred to simply as "factors") associated with successful programs. Because this study was one of the first to focus on exemplary work-based learning in the two-year college environment, it was not possible to compare and contrast the findings with existing research findings. Rather, this study identified phenomena within the context of the selected colleges and programs. What is offered here is a set of hunches about factors that contribute to the success of a few work-based learning programs widely thought to be exemplary.

As each factor is introduced, we describe the level of importance attributed to it by the research. In part, the level of importance is a reflection of the incidence with which the factor was identified in the selected programs. Rather than listing the colleges where the factor was found to be crucial, we identify each factor in one of three categories, using examples from the programs to support our findings and conclusions. "Critical" signifies that the factor was apparent in most (seven or eight) of the programs; "very important" denotes that the factor was present in four to six of the programs; and "important" indicates that the factor was operating in two or three programs, but, for those specific models, the factor was prominent or essential.

Strong Program Leadership

The first critical factor found in most models was the presence of an individual or a small group serving as the leader(s)/director(s) of the program. This individual or small group was considered a critical factor because it was evident in all of the programs studied and essential to their reputation and success. The leaders were most frequently program directors or program coordinators, and they were low- or middle-level administrators within the two-year college administrative ranks. The Program Director at Wenatchee Valley College's Tree Fruit Production program, the Career Dean at Northwestern Michigan College, the Program Director at Delgado's Culinary Arts Program, and the Applied Business Department Chair at Phoenix College are all examples of individuals filling this critical leader role.

The program leaders shared several characteristics and behaviors. All of them had extensive and sometimes recent real-world job experience, often in the local area. Working in the occupation gave these individuals work experiences and dispositions similar to their workplace counterparts. All possessed a deep knowledge of the field accompanied by an equally strong commitment to the program. This dedication was demonstrated by having formal education and credentialing in the field. The leaders were thought to be politically savvy at working within their colleges, and they were attributed with achieving successes in spite of organizational barriers. Evidence of this phenomenon was provided by stories about the leaders showing how they had avoided upper administration or "worked around the system" to provide some important element of the program. Salary and benefits did not seem to contribute to the success of the leaders because some were well-compensated and others were under-compensated. However, where salaries were unusually low,

concerns about fair and equitable compensation in return for the sometimes excessive workloads were mentioned by the program leaders. We wondered whether they would be willing to contribute over the long term. If turnover begins to occur, the "leadership" factor may play a much less important or even detrimental role in the future success of these programs.

In all cases, the leader was highly involved in daily program operations and was seemingly concerned in ensuring that all details were accounted for. All the program leaders seemed to excel at being project managers. In most cases, it was this leader that ensured the high quality of the program, often by setting and observing the same high standards set for students and all others associated with the program. This individual was also the most prominent program salesperson. He or she could describe the program in detail, citing examples and naming successes.

The hard work, visible commitment, and generous donations of time and energy placed the leader in the position of embodying or creating what we came to refer to as the "myths" of excellence through personification (see a later discussion of "widely held beliefs about program excellence"). He or she represented many of the factors that made the program exemplary. During discussions with other stakeholders about the programs, remarks about the leaders and their impact on their programs emerged. Their reputations within the industry were well-known and solid. In almost all cases, it was believed that the single reason for program successes were the efforts of these individuals.

Finally, effective program leadership was perceived by various stakeholders as very important at all times, but especially critical during the first few years of implementation of a new work-based learning program. Programs that were relatively new such as the two Youth Apprenticeship Programs at Rock Valley College and Tulsa Junior College or those undergoing modifications such as the programs at Northwestern Michigan College or Delgado Community College appeared to be more dependent upon program leaders than programs with a longer history. Programs that were institutionalized into the college by becoming a permanent part of the curriculum seemed less reliant upon a critical leader. In a case such as Columbus State's Chef Apprenticeship Program where a critical leader built the program over a number of years, several college personnel and local employers now provide day-to-day leadership for the program. However, even there, careful consideration is being given to continued program leadership as the present critical leader is nearing retirement.

Exclusive Connections Between the Program and its Environment

The second factor was the location of the program relative to the industry it served and relative to other potentially competitive programs. This factor should be considered very important, and it can be characterized as "having a corner on the market." It operates in three ways. First, the program is likely to be the only one in a given geographic area and, if other programs are present, they are reportedly small, poorly operated, lacking in stature, or not well-connected to the industry they serve. Second, the program is very directly linked to the industry group for which it prepares employees and that industry group itself is of importance to the local economy. Further, it is

recognized by both college staff and industry personnel that the local and immediate economy is dependent upon the success of the industry (e.g., the Delgado Culinary Arts Program provides the chefs for the dominating restaurant industry in New Orleans and the Resort Management Program at Northwestern Michigan College prepares managers for local resorts and restaurants). Program graduates are critical to the operation of some part of the vital services in the region (e.g., at Delgado, Radiological Technologists fill employer needs in the imaging departments of most hospitals in New Orleans; at Salisbury, North Carolina, early childhood education workers meet the needs of the public schools and other community employers). The recognition of the vital nature of the program is largely an economic impact factor. It was not possible for the research teams to gather data to prove there was a direct economic impact on the local economy, but we were led to believe that, at least in some cases, it did exist. It was evident in the direct need for highly trained employees to ensure the vitality of the industry, and it was apparent in the moderate- to high-wages earned by some students and graduates.

This direct and vital link between college and employer builds in an exclusivity to the programs, and the program completers appeared to benefit from this phenomenon. In most of the programs, students were assured of employment at a salary wage considered desirable in the local economy. In fact, in several of the programs, graduation was not a necessary step for students to obtain employment. Rather, they were offered employment prior to program completion, contributing to dramatically lowered graduation rates for nearly all of the programs. The graduation rates rarely exceeded 50%. However, a 100% job placement rate was documented in the majority of the programs.

For employers, other benefits were evident. Employers were assured ready access to qualified employees. They also acquired more control over the curriculum and instructional methodology than they might otherwise. In large part, the heightened influence of employers helped to ensure that students had the precise skills required for immediate productivity in their own firms. Related to this finding, some of the researchers observed that a small group of employers had virtual control over the curriculum in some programs. We had concerns about colleges maintaining a desirable measure of freedom when employers were controlling many of the decisions about the programs. We concluded that every work-based learning program requires some level of autonomy. Further, we suggested that finding the proper mix of support versus control from business and industry may require extensive experience with delivering these kinds of programs. It was true that some of the more established programs seemed to have fewer problems with employers exerting control than some of the younger programs. It was apparent that over time some of the programs were able to work out partnerships that showed respect for the perspectives and contributions of all of the groups having a stake in offering exemplary work-based learning for students.

Frequent and Effective Communication with Local Employers

The third factor considered critical follows factor two as it concerns the relationship between the program and the local employers. It is treated separately from factor two because the concept of

"program exclusivity" does not extend to all models studied. This factor does. Nine of the ten programs studied (Phoenix College's Management Internship Program is the exception) demonstrated extremely close ties to local employers. The essence of these "close" relationships was frequent and routine communication between program staff and industry personnel. This occurred formally through regular meetings and informally as the program staff (primarily the program director) circulated among the businesses or institutions, often on a daily basis. This informal communication was described as an essential component of successful programs. Seemingly, the more that college staff were in the work sites, the stronger the relationships grew.

In strong work-based learning programs, the employers and their related industry groups performed both expected, traditional roles and some nontraditional functions. The expected functions included the provision of work-based learning sites; the provision of information and advice; and assistance in procuring equipment, materials, and supplies. Where work-based learning programs were operational, there appeared to be more resources, often unsolicited by the colleges. Employers and industry representatives who were actively involved in the program saw a need and contributed to the resources to help the program or college meet it. In all cases, employers designated personnel to help supervise and mentor students engaged in work-based learning. In some cases, they identified worksite staff to play a primary role in overseeing the work-based learning component, representing a major commitment of human resources in cases involving smaller firms.

Some of the nontraditional functions performed by employers were perceived by our research team to give impetus to elevating a program to exemplary status. For example, "political intervention," the active participation of industry personnel using influence for purposes of supporting and/or protecting the program, was evident. There seemed to be a network of professionals within the community who monitored and advocated for the program. Often a core group of supporters within the network consisted of the program's own former students and graduates who continued to rally enthusiasm and generate resources. This influence may be used to affect internal college decisions affecting the program or externally in commercial, educational, or governmental settings. The willingness to use this influence is related to the "ownership" that local employers exhibited toward the programs. This factor was evident in nearly every site we visited. For example, at Rowan-Cabarrus Community College (RCCC), the Early Childhood Education Program emerged and has continued to be sustained because of the advocacy of the local public school systems that came to RCCC with a need for teaching assistants. At Tulsa Junior College, the Craftsmanship 2000 program was initiated by a Human Resource Development Director from one of the local manufacturing firms, and the program has continued under the auspices of its own private corporation, with financial support from local firms and the Chamber of Commerce. Additionally, at Columbus State Community College, the Culinary Arts Program emerged and continues to operate under the supportive direction of the local chapter of the American Culinary Federation, a group made up of the largest and most prestigious eateries in Ohio's capital city.

A second nontraditional function is the role of industry as "change-agent" for the program if and

when change seemed necessary. The Tree Fruit Production Program at Wenatchee Valley College in Washington was completely renovated--change in director, faculty, and curriculum--as a result of industry intervention. Following this intervention the program grew to exemplary status. Several other programs had undergone this same sort of transformation, including the Resort Management Program at Northwestern Michigan College, the Early Childhood Education Program at Rowan-Cabarrus Community College, and the Nursing Technology Program at Columbus State Community College.

Widely Held Beliefs About Program Excellence

Surrounding many of the programs were beliefs held by the stakeholders (i.e., staff, students, employers, community members, others) concerning the strengths, uniqueness, or specialness of the programs. Initially, we labeled this phenomenon the "myths" of excellence because the ideas, stories, and anecdotes we heard seemed to have a strong relationship to people's convictions toward and enthusiasm for the programs; however, these beliefs could not be substantiated empirically. Later, as we learned more about the phenomenon, we associated it more closely with organizational culture. The sharing of myths and widely held beliefs is particularly evident in complex organizations where a high level of ambiguity exists about purpose, procedures, and results. Bolman and Deal (1991) confirm that this phenomenon is likely to be "visible in organizations with unclear goals and uncertain technologies" (p. 244). They state,

Many organizational events and processes are important more for what they express than for what they produce: they are secular myths, rituals, ceremonies, and sagas that help people find meaning and order in their experience. (p. 244)

Work-based learning programs tend to have an extremely complex yet fluid organizational structure where different stakeholder groups play crucial roles at different times. Often these stakeholders' roles in and beliefs about the programs change over time, lending credence to the idea of people needing to share common experiences and accomplishments. Being able to quantify these experiences or perceptions in the form of research findings was of little or no interest to local constituents.

Also, some of the common beliefs about the excellent nature of the programs seemed to be directed toward sustaining commitment. Clearly, it is not easy to develop and implement a good work-based learning program. Maintaining high-quality school-based learning in conjunction with meaningful work-based learning is an enormous challenge. This is true, in part, because work-based learning threatens what is perceived to be the mainstay of community college education: teaching and learning in the classroom. So, possibly, to encourage an ongoing commitment, "myths" have emerged naturally and rather innocently as a means of sustaining the programs with which they are associated.

Beliefs of excellence provide a common understanding of the importance of the programs and the

significance of reaching desired goals. While almost impossible to prove, we postulate that these beliefs have a profound impact on program operations and ultimately program success. Examples of the kinds of beliefs recorded by the research teams were that the programs were "the best" programs; that the programs achieved a high-level of excellence; that program completers were of especially high quality and thereby most desired by employers; that only their programs could meet the special needs of the supporting industry; and that competing programs were inferior. In conversations with students, faculty, administrators, employers, and other people in the community, similar beliefs were expressed. They seemed to be passed from student to student, from students to potential students, from students who had become employees (or eventually employers) to employers, and from employers to the general community. We observed that these beliefs continued on their own power and few questioned them, giving them the appearance of "groupthink." Sometimes the beliefs were reinforced by rituals or symbols, another indication of the presence of a strong organizational culture (Bolman & Deal, 1991). Often, the rituals were passed along by student organizations where the symbolism was perpetuated by logo hats, jackets, and mugs which clearly identified the student with the program.

When asked to produce evidence to substantiate the beliefs of excellence, the response was generally "it's obvious." Rarely did local program leaders or any other stakeholders, including employers, produce data to document the claims. This point is not made to suggest that the myths or beliefs were wrong or even untrue. It is to say, however, that "hard evidence" of the sort produced by formal evaluations or research studies was not available. Bolman and Deal (1991) point out that "what is most important about any event is *not* what happened, but *what it means*" and that "the same events can have very different meanings for different people because of differences in the schema that they use to interpret their experiences" (p. 244). As long as what was happening seemed to make sense, the stakeholders did not see the need for hard data.

Our point to this discussion is not to suggest that the beliefs were invalid, but, rather, to recognize their existence and speculate about their significance to program operations. For example, in programs where the beliefs were alive and in general circulation, student recruitment was not a concern. Recruitment was by word-of-mouth, often producing an ample supply of incoming students. Students competed aggressively for whatever number of openings were available. In one program where this phenomenon was at work, there were more than 20 students available for every opening (1,250 students were vying for 55 openings annually in Delgado's Radiologic Technology Program). In this example, students took all the general education and qualifying courses before applying, frequently retaking courses to improve their grade point averages in order to be more competitive. College staff reported that, rather than engaging in program recruitment, they focused on providing information to the "waiting" students, apprising them of their status. Sometimes students were counseled into alternative programs when it was clear they would not meet minimum qualifications. When the myths spread to local employers and were commonly held by them, additional benefits were evident. Large and enthusiastic advisory committees, substantial resource support, and strong cooperation for the work-based learning component were evident.

An Effective School-Based Learning Component

A fifth factor, considered to be very important, is the nature of the relationship between the program and program-level staff and the rest of the college. Exemplary programs maintained strong relationships within the college and were, in turn, well-supported by the college and by upper administrators. The character of the relationship is neither unique nor surprising. Programs that operate within the structure of the college as occupational or technical programs and use the student and business support services of the college appear to be healthy and stable. They are usually located on or very near the main campus and have dedicated space for classrooms and labs. Class scheduling within the college's larger schedule is arranged to be supportive of student time requirements. In several programs, the college provided a school-based enterprise where learning occurred in a realistic yet closely supervised setting on campus.

At Wenatchee Valley, the college-owned and operated orchards enabled students to get applied first-hand experience in a formally structured environment. The college-owned child-care center at Rowan-Cabarrus College provided another example of a successful school-based enterprise. Although not owned by the college itself, the Park Place Hotel in Traverse, Michigan, acted as a quasi-school-based enterprise through the generosity of the local Rotary Club which donated this multimillion dollar facility to Northwestern Michigan College. Consistently, we found such facilities to be incomparable in their ability to provide a realistic yet protected work-based learning environment. For new students, an entry-level work experience was provided; for more experienced ones, often a supervisory role was played.

The advantage of locating the program more toward the "center" of college operations is to receive a fair share of resources and greater attention from other internal personnel. College staff and in particular the counseling staff can be helpful in assisting in student recruitment and career guidance. This was observed in the availability of support personnel to assist students with career development concerns as well as in providing remediation for students with weak academic skills. Additionally, it appears that programs located central to college operations may avoid the criticism or jealousy that sometimes is associated with exemplary programs. This may be because the program staff move among their colleagues and are well-known to them, helping all personnel to become aware of the program and knowledgeable about how it benefits the college.

Adequate Financial Support

Factor six is considered critical as it addresses the financial support provided for the program. The provision of required resources may come from local, state, or federal sources, and most of the programs had support from more than a single governmental source. An alternative funding source was the local industry and employers the program served. The nature of this support was usually in the provision of equipment and supplies, in providing personnel to monitor or supervise students working on-site, in allocating space within their own facilities, and in the awarding of funds to support student stipends and scholarships. Additional and significant financial support was

particularly evident in the two Youth Apprenticeship Programs at Rock Valley College and Tulsa Junior College. In both settings, local manufacturers contributed several thousands of dollars toward the sponsorship of each youth apprentice, often through the apprentice's entire program of study for two or four years.

One benefit of having adequate and steady streams of financial support is the ability to create an environment where planning can occur and program growth can be predicted. Oddly, the factor of steady financial support for program operation did not always extend to the salaries of the program staff. In several programs, the faculty and program director reported they were underpaid, especially in light of the "extra" duties performed and additional time spent working with the program. The "extra" was not recognized by the colleges in terms of additional financial reimbursement. As with any program, reliable and adequate financial support provides an environment where staff can focus on program quality and not be diverted by worries about expenses, either for their programs or for themselves.

It is also important to note that the disparity in faculty/student ratio between health and non-health programs first identified in the Phase One findings reported in Bragg et al. (1995) were further reinforced by these results. Although only two health programs were investigated, we were able to discern a similar pattern among the programs studied. (The NCOE practitioners on our research team provided additional confirmation of the faculty/student ratios for health versus non-health programs in their own institutions.) In both the health-care work-based learning programs, the ratio of students to full-time faculty approached 10 to 1, whereas the student to full-time faculty ratio in other non-health programs went as high as 100 to 1. Part-time or adjunct faculty were used heavily by both types of programs. Given these findings, it is not surprising that the pedagogical strategies used in support of students' work-based learning experiences varied greatly between health and non-health programs. And, although data regarding the quality of instruction remains weak, there are clear differences in the degree to which faculty are actively engaged in the work-based learning aspects of students' educational experiences.

Innovative Program and Pedagogical Features

Several strategies are clustered under this factor and they are almost entirely under the control of program staff. They are each considered very important.

Create structured individualized plans for student success.

This factor is a matter of creating and delivering clear information for students within the program, giving students a realistic understanding of the steps and requirements for completing the program and for obtaining employment, and creating an individualized plan documenting the steps that students need to take to achieve their goals. Further, students are made aware of the post-program actions needed to advance in a career or in further education thereby linking the current educational experience to a lifelong learning plan. Each individualized plan relates to a student's

educational and career experiences based on the program requirements and performance expectations that are clearly documented in the program literature, brochures, and the college catalog. Students are made aware of the outcomes they should expect to obtain by participating in the program immediately, in the shorter-term, and over the longer-term. Additionally, there is a widely held belief that the steps students plan to take, while perhaps difficult, are achievable.

Establish an effective mentoring system.

This factor relates to the individual attention provided through student mentoring systems. This individualized support may be provided by college faculty and staff, by worksite personnel, by other more experienced students, by a college-based system of activities, or by a combination of the above. The activities of mentors include such actions as to address the concerns of the student, motivate and encourage them, provide ongoing feedback, share responsibility with college faculty and possibly others to conduct formal assessment of occupational and academic mastery, and help students feel part of the program. Mentoring is both a guiding and a caring phenomenon. Mentors at the work site are usually formally identified and may carry the title of "instructional supervisor," "site coordinator," "clinical student manager," or "meister." We observed that being a mentor at some work sites was considered an honor, making being a mentor a very desirable job. In some cases, it was an exclusive role because a selection process was implemented. In no cases did we encounter workplace mentors who spoke negatively about their involvement with the programs. In fact, although little formal training of workplace mentors could be detected, most of the mentors interviewed spoke about the job as a rewarding way to assist others to learn. Their comments about the feeling of satisfaction gained from mentoring was similar to what one would expect an enthusiastic new teacher to convey. Such findings led us to reinforce the STWO Act directive to provide strong mentoring as an essential component of work-based learning programs. And, although formal training was not apparent in the sites visited, it seems a reasonable means of ensuring high-quality experiences for students.

Implement articulation agreements from the secondary to the two-year college and to the four-year college levels.

Providing a smooth and logical path by which students can move through the education system from the secondary level to the two-year college level and even on to the four-year college level is important. For the program to have a positive image with students and others, it needs to be more than traditional vocational preparation for entry-level work. It should provide the opportunity for students to move upward either in the workplace or in higher education. Programs without articulation agreements to senior institutions are often labeled "terminal" where students are locked out of further opportunities in higher education. A second very important concern is that partnerships be established with supporting secondary schools. Though only two programs had a Tech Prep component, they appeared to be having some successes with the concept. Highly prepared secondary students were flowing into the programs, creating a smooth pathway from secondary to postsecondary education.

Provide program flexibility and adaptability.

The majority of these programs became exemplary over a period of time--generally no less than five to seven years. Reports from program staff indicated that the programs experienced a period of adjustment during the initial years. These adjustments were in areas of delivery evidenced by offering the right courses at the right times (i.e., culinary arts programs offering college classes one day per week) and curriculum adjusting to the needs of the supporting industry (i.e., early childhood programs modifying courses to incorporate the latest knowledge and skill requirements). Also, time was needed to establish the laboratories and worksite learning environments and to procure equipment. None of these tasks happen quickly or even within a single academic year, but, rather, through a long-term building process.

Mix work-based learning models and pedagogical approaches.

In at least one-half of the programs, we observed that several work-based learning models such as co-op, school-based enterprise, or formal apprenticeship were used in combination with one another rather than left to stand alone. Several of the programs utilized a school-based enterprise in combination with an intensive "capstone" internship, formally defined as a co-op experience. These programs were useful in revealing the particular strengths of the various work-based learning models. For example, we observed the protected nature of school-based enterprise compared to the high-risk features of youth apprenticeship. In addition to the blending of approaches on the work side, we learned about the importance of mixing pedagogical strategies on the college side. Of note was the three-phase instructional process utilized by the health programs where students were readied for the work setting by the reinforcement of theory and practice in lecture/discussion sessions, laboratories/simulations, and college laboratory/clinical experiences.

Encourage personalized documentation combined with standardized performance-based competency profiles.

In nearly every program, some form of student-maintained documentation was used to verify what was learned in school in relation to what was learned in the workplace. In many cases, this was a log, diary, notebook, or note cards kept by the students on a routine basis, but also periodically reviewed by college faculty and workplace mentors. Students reported this personalized documentation to be valuable to their growing knowledge and skill base. For example, Culinary Arts students used it to document recipes they tried in the college kitchen and later prepared in a restaurant; Early Childhood Education students recorded lesson plans they prepared for class and later taught in an actual teaching setting. The documents often contained reflections that students made about these experiences, detailing how changes could be made to improve performance in the future. In addition to these records, more formal assessments were conducted on a regular basis, often using some form of standardized competency profile specifically designed for the occupation. Some of these profiles were provided by a state- or national-recognized professional board; other times, when such organizations were nonexistent, locally developed profiles were used.

Issues Associated with Work-Based Learning

During the debriefing of our research team in October 1994, a number of observations, issues, and concerns emerged that were considered separate from success factors. Many of them had more to do with public policy than with local practice. Therefore, to document these ideas, the team members recommended that these suggestions and conclusions be included to help advance the public policy debate on work-based learning in the two-year college.

Applied and Experiential Learning

There appeared to be universal agreement among all program staff from the colleges studied that work-based, experiential, and applied learning were a powerful method to educate students for entry-level technical work. Students appeared to learn more quickly and their learning was of greater relevance than when in only one venue, whether it be at the college or work. Comments from two independent program directors recommended that students should enter work-based learning as early in the program as possible. It should *not* be limited to a capstone-type experience. Early work experience helped students to focus more quickly on the need for the technical knowledge and the awareness of where it is used and why. Work-based learning experiences had real and immediate utility to students. Second, early work experience helped students decide if the career choice was a good one. Early entrance into the work site does not need to be as long or intensive as it might be later in the program, but it should be more than a visit and real work should be part of the experience. As students proceed through their college program, a natural shift should occur from predominantly school-based learning to predominantly work-based learning. However, especially with the large adult population served by two-year colleges, real, responsive work-based learning appears to be beneficial throughout the entire program.

Issues Surrounding Learning in the Workplace

As noted by Bragg et al. (1995) and others, problems can occur in the delivery of work-based learning in two-year colleges. Too few sites may be available or fully prepared to make the investment required to accept students. Also, local employers may refuse to accept students due to fears of increased liability risks or productivity losses. To encourage greater involvement in work-based learning, employers need to be made aware of how they are contributing to the local educational system while also engaging students in real and meaningful work. Incentives need to be created to encourage more employers to be involved in these programs. In addition, the personnel of employers actively engaged in work-based learning programs need to be given adequate training to prepare them to mentor students. On the college side, personnel also need training to understand more fully how they can contribute to the programs. Presently, some colleges and employers alike view training as an additional chore, coming when time, energy, and resources are stretched thin already. For work-based learning to work effectively, an organizational structure and supporting policies must be adopted and enforced to ensure the active participation of all the key stakeholder groups.

Employer Preferences for Adult Workers

Another issue surfaced that was not apparent in Phase One (Bragg et al., 1995), but was a recurrent theme in this phase of the study. Numerous employers spoke about their preference for providing work-based learning for older students, especially those beyond traditional college age. They suggested that older students are more committed, more likely to stay and invest themselves in the company, and more likely to have a strong work ethic. Younger students such as the Tech Prep student or youth apprentice, for example, are perceived by some employers to lack a commitment to work. Some employers spoke about poor attitudes and work ethic among these students. Of course, it is important to point out that except for the two Youth Apprenticeship Programs, the average age of students was about 30 years. Consequently, some employers had little experience with younger students, having only engaged adults in work-based learning opportunities. Still, given the scope and depth of work-based learning already occurring in the two-year college environment, policymakers at all levels of government should consider the potential benefits of offering more of such programs to adult students. Furthermore, additional research needs to be done to determine how additional programs might fit with existing ones or with new secondary-oriented programs, especially those establishing secondary to postsecondary partnerships and articulation agreements.

Student Selection and Concerns about "Creaming"

Successful work-based learning programs often had limited openings and a large pool of students waiting to be admitted. This waiting pool could sometimes be so large as to virtually guarantee that some would never be admitted. In some cases, the process of applying standards and criteria for entrance appeared to create an old and disconcerting phenomenon called creaming: taking the best and leaving the rest. Being realistic, many exemplary programs will continue to need to set enrollment limits, creating the necessity to make judgments about which students to include and which to exclude. Selection criteria need to be published widely to encourage their use by all parties responsible for recruiting and choosing students for the programs. (In several sites, employers had shared or sole responsibility for student selection into the programs.) In regard to several of the programs under investigation, apparently little or no empirical evidence was used in the development of selection procedures or criteria. In fact, it appeared that both gender and race were somehow related to student selection since a few of the programs had a disproportionate representation of whites and either women or men in gender-stereotyped occupational programs. Whether this occurred deliberately or inadvertently needs to be addressed. Clearly, if the programs are to be associated with the STWO Act, all persons should have equal opportunity to participate. Even if discrimination was not a factor, program leaders need to establish clear and fair entrance criteria. Policymakers should continue to mandate equal access and opportunity for all students to participate in these programs. Only in extreme circumstances should alternatives be utilized such as some form of a lottery system. However, in comparison to nonexistent selection criteria or sloppily applied admissions processes, a lottery or related approach might be advisable.

Excessive Demands on Students

When asked about the rigor of the programs, often our interviews elicited the following comment from students: The program is too long and requires too much time on a daily or weekly basis. Our observations confirm the excessive demands on time for these students, possibly justifying this complaint. A review of several program requirements found them to demand far more than the normal 60-65 credit hours a typical two-year program requires. It would be inappropriate to criticize the length of the programs without further evidence of outcomes except to note two phenomenon: (1) programs that had a sizable waiting list seemed to require more hours in the program and (2) very few students who enter actually complete the programs even though they do find program-related employment. Given these results, it is important to ask what is driving the need to extend program length? Who benefits from extending the programs and why? These are important questions that deserve further study; however, we urge program leaders to avoid policies and practices that might exploit students. We further suggest that program leaders maintain reasonable expectations of their students and avoid unusually demanding requirements that are not clearly backed by supporting evidence. Taking such measures may contribute to higher graduation rates, a positive outcome for students and programs. Possibly, requirements beyond the scope of the two-year college may also be met with lifelong learning activities. Conceiving of work-based learning as the basis for lifelong learning could be beneficial to all the stakeholders and help to sustain the partnerships over the long term.

RECOMMENDATIONS FOR FUTURE POLICY AND PRACTICE

First and foremost, many work-based learning programs are a relatively expensive form of college education, especially in comparison to a purely classroom (school-based learning) program. Frequently, two-year college administrators look to nursing and other health programs to point out that work-based learning is costly. Knowing this, if work-based learning is to be increased in the two-year college, more funding will be needed to create more programs. Furthermore, this funding will be needed over an extended period of time to sustain the new initiatives. We further recommend that any new funding come from multiple sources at all levels of government and from the private sector. Without that support, little growth will occur in work-based learning at any level within the nation's educational system--secondary or postsecondary. The present federal Carl D. Perkins Vocational and Applied Technology legislation, Tech Prep, the STWO Act, and other government initiatives are too inadequate and tentative to promote large-scale growth of the approach. Newer legislation proposed by the U.S. Congress leaves these programs to the discretion of local and state officials, making it important to clearly articulate the benefits and needs of work-based learning at that level. It will also be important to point out the benefits of work-based learning for older adults since prior government-sponsored initiatives have focused on youth and young adults such as the Youth Apprenticeship Programs (Smith, 1994).

Second, with additional funding, we believe the nation would benefit from having more work-based learning programs located in and operated by two-year colleges. We also conclude that secondary work-based learning programs could benefit from utilizing Tech Prep and similar articulation

agreements to connect to postsecondary work-based learning. Programs serving a solely postsecondary population should be designed to recruit and educate older rather than younger students. These programs will need to work with businesses, some of which have already engaged older students in work-based learning opportunities. We believe that programs that require intensive occupational-technical training are most appropriate for the postsecondary level, especially those that provide career ladders upward to further postsecondary education. Programs in the health occupations, engineering technologies, business, and agriculture often provide these career ladders for students. In contrast, secondary work-based learning should concentrate on career exploration, pre-employment skills, understanding the nature of business and the world of work, basic workplace skill building (e.g., being on time, teamwork, communication), and developing a work ethic. Secondary programs should be designed to engage high school students more fully in understanding the workplace and preparing them for more extensive training at the time they enroll in the higher education or other employer-sponsored training experiences. Programs at either the secondary or postsecondary levels need to be conceptualized in a manner consistent with lifelong learning where individuals move back and forth between education and the workplace.

Third, many options are available to provide work experience and some have a long history. Cooperative education (co-op), job shadowing, and capstone internships are used to assist students to attain workplace experiences. These options continue to have value primarily because they are much more affordable than more intensive forms of work-based learning such as clinical-professional experiences or formal apprenticeships. However, a possible concern is that they place students in the work environment too late in the cycle of training and for too short a period of time. Furthermore, sometimes co-op is managed outside of the mainstream occupational-technical or transfer (academic) curriculum, possibly isolating it from the context of the occupation or industries where students will someday seek workplace learning or employment. All of this leads us to question whether some reconfiguration of co-op is needed so that the person or program that manages the curriculum is one and the same as the person or program that manages the co-op. Better coordination of the curriculum and co-op would have enormous benefits in terms of connecting the school-based learning and work-based learning components of the curriculum, and these connections will be particularly important if the number and scope of work-based learning programs is to grow in the future.

Fourth, even though the two-year work-based learning programs studied were operated very successfully, the struggle to create meaningful work-based learning and coordinate college-related and employer-related learning experiences for students was apparent. Consequently, we recommend that all colleges engaged in work-based learning should accept as their role the activities required to prepare businesses to accept students, including the design and preparation of the on-site learning environment, the training of the on-site monitoring staff, and the solving of the numerous political and legal problems that could influence the programs. To address the high cost of these programs and recognize the need to provide high-quality experiences for students, two-year

colleges should investigate work-based learning arrangements that do not require intensive college staff supervision on-site.

In essence, colleges should explore work-based learning strategies that give more responsibility to the students--usually older students who have already acquired work experience--to manage their own workplace learning with the support of college personnel, workplace mentors, and sometimes other peer workers. Most older students have the maturity to handle themselves in the workplace, and they do not require the ongoing supervision often demanded of younger students. With older students, the focus of workplace learning should be on technical mastery, which requires highly concentrated interaction with an expert, along with supervised practice until the competency is demonstrated. Because of the nature of this type of experience, co-op is an attractive model for expanding work-based learning in the two-year college, if enhancements are made. For co-op to work more effectively, students should be taught how learning occurs, how to create and manage a learning project, and how to interact and interface with fellow employees at the work site. In addition, systems for reporting and accountability should be implemented and carefully monitored. An important role of college staff should be to monitor all work-based learning sites, ensuring that expected goals and outcomes are being accomplished.

Fifth, the success of the work-based learning programs was attributable to the program leader, along with the faculty and staff within the program. However, the role of two-year college administrators was much less clear, beyond providing institutional support expected for any academic program. For example, with the exception of a few programs, senior college administrators did not routinely interact with employers. They were familiar with local employers and expressed visible supportive for their contributions to the programs; however, there was no ongoing or strong personal connection with them. The reasons for this may have to do with the senior administrator's workload and this is an understandable limitation to the amount of personal contact that can be made with local employers. However, establishing closer relations between senior administrators and local employers may have benefits for the colleges that go beyond one particular program. First, the relationship between the college and the industry is less dependent upon one individual, the critical leader. In the event that the leader leaves the program, he or she may not endanger the college-employer partnership to as great a degree. Second, sensing a greater college commitment to employer needs, employers may respond with increased support and attention, possibly helping to address some of the financial concerns that plague these programs.

Finally, the research teams identified several other concerns that, while not directly related to work-based learning, could have an effect on it and on other occupational-technical programs as well. First, the establishment of a system of standards, certifications, and credentials would appear to be useful in bringing some order to a rather disordered workforce preparation system in the country. This concern has received a great deal of attention over the past few years and some initiatives are already in development under the auspices of the U.S. Department of Labor. Second, increased cooperation among two-year colleges within states and regions of the country, and among secondary and postsecondary systems would be beneficial. The high cost of work-based learning coupled with

the dearth of available workplace learning sites makes cooperation an absolute necessity if further growth is to occur in the future. Regional planning that includes the dispersal and strategic location of vital programs and combined funding could help to ensure program availability to the widest number of students. If recruitment could be extended across boundaries to cover an entire locality, state, or region, then greater viability might result for some work-based learning programs.

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APPENDIX A:
Profiles of Selected Work-Based Learning Programs

Early Childhood Education Programs, Rowan-Cabarrus Community College

Kay Trinkle and Robert Day

Rowan-Cabarrus Community College (RCCC) began as a technical institute in the early 1960s and was designated a comprehensive community college in 1988. Also in that year, the college received its second "Keeping America Working" award from the American Association of Community Colleges (AACC) for exemplary business/industry partnerships. The college serves the residents of Rowan and Cabarrus Counties along the I-85 corridor in the rapidly growing Piedmont region of south-central North Carolina. Located halfway between Charlotte and Greensboro, the main (North) campus is located in Salisbury. Twenty minutes away is the new South Campus in Kannapolis (opened in 1990) which serves the residents of a rapidly growing part of the service area in close proximity to Charlotte. The entire region is known for its pro-business, non-union work environment and has received national recognition for its economic development achievements. An unemployment rate of 3% is an indicator of the strong economy.

Evident at the college is a strong commitment in both philosophy and practice to the precepts of accessible and low-cost occupational-technical education to support economic development. This is consistent with the philosophy and goals of the North Carolina State Board of Community Colleges. Whereas community colleges in most states evolved as liberal arts/transfer-oriented institutions and subsequently added vocational-technical programs, the North Carolina community colleges evolved in the reverse order. The system places a high premium on well-developed occupational-technical programs serving business and industry through 58 community colleges in the North Carolina system.

An open door college, RCCC offers over thirty occupational programs that lead to a one-year diploma or a two-year Associate in Applied Science (AAS) degree. The college also offers a liberal arts program for transfer with an Associate in Arts (AA) degree. During 1992-1993, 10% of the

population of RCCC's service area was enrolled in some form of instructional program. Consistent with the mission to provide education for entry into the workplace as well as increase lifelong learning practices, RCCC has a large adult population with the median age of students approaching thirty years. From survey data collected prior to the visit and RCCC's *Fact Book* (1994), the unduplicated head count for FY93 was 16,873. Fifty-five percent of students were enrolled in occupational-technical programs (by FTE), which is consistent with RCCC's tradition. More recently, enrollments have shifted toward transfer students. Curriculum enrollments of FTEs between FY89 and FY93 showed decreases in most program areas while college transfers increased from 3% to 17%. The female student population is the largest identified group (66% cited in FY93), and the minority population represented 13% for that same year. Other identified student populations of a significant number were single parents; students requiring some remediation; and working students seeking job skills for entry, promotion, or re-employment.

The college reflects a progressive and stable administration and faculty, with the current President having held that position for the past 18 years. Several senior administrators reflect long-standing experience with the college, while others are new, but experienced within the North Carolina system. One of the newest administrators, the Vice President for Academic Programs, has been in her position for 19 months. A strong believer in work-based learning, she had a major role in obtaining a new federal cooperative education grant that is expanding work-based learning into more curriculum areas. Both the Vice President for Academic Programs and the Vice President for the South Campus and External Programs talked of the college's goals to increase work-based learning. They stated that current Tech Prep initiatives with area public school districts and a recent cooperative education grant will stimulate more work-based learning in other programs.

Program Overview and Goals

In the early 1970s, area superintendents of schools, members of the local board of trustees, and other leaders approached RCCC about beginning a program to prepare paraprofessionals to work with young children in area schools. They observed an increasing number of women entering or returning to the workforce and a related growth in child-care needs. These trends were affirmed by the college's counselors who were working with an increasingly nontraditional female student body. Area superintendents at that time were also interested in specialized training for paraprofessional teacher assistants in the public schools and worked closely with the college to set up formal affiliations for potential students. Area Head Start programs demonstrated an interest in such a program to support the training requirements of the federal government for Head Start day-care centers.

To address these needs, the Early Childhood Education Program began at RCCC in 1972 as a one-year diploma program. Subsequently, an evening program was added and later a two-year AAS major in Early Childhood Associate (ECA) was begun. Even later, the college offered the Child Development Associate (CDA) and the North Carolina Child Care credential, both of which have been integrated into the curriculum, creating a career ladder for students. Currently, there are

three programs: (1) a 33-quarter hour certificate for the promotion of a Child Care Worker, (2) a 68-quarter hour or one-year diploma for Child Care Worker, and (3) an ECA two-year AAS degree, most commonly resulting in a Teaching Assistant position and qualifying degree holders for the CDA credential and the NC Child Care credential. The program is approved by the National Association of Educators of Young Children (NAEYC), and follows guidelines prepared by that group for two-year colleges.

In recent years, there has been state-level impetus through the Office of the Governor of North Carolina to ensure greater access to and support for child care throughout the State of North Carolina. North Carolina currently has one of the highest percentages of females in the workplace of any state in the nation, particularly females with pre-kindergarten children. The North Carolina Department of Human Resources, Child Development Division, has established broad new standards and minimum requirements to ensure that education and training will hold a prominent place in the preparation of child-care workers. For example, a new birth-to-kindergarten certification has been established that is now part of educational programs throughout the state. The faculty in Early Childhood at RCCC, through the statewide association, has helped influence state policymakers on such matters.

In FY93, the ECA Programs had an unduplicated student head count of 339, showing 83 FTEs (see Table A-1). Ninety-five percent of the students were female. Sixteen percent were minority, predominantly African-American. A significant number were single parents. The average age of students in the ECA Program was 35 years which was considerably higher than the average age for the college as a whole. Only 11% of the students in the program received Pell grants. The graduation rate recorded was 33%. (Faculty and members of the employment community acknowledged the issue of low graduate rates by explaining that many students already have jobs in the field or were hired before they were able to complete their degree program.)

Table A-1
Enrollment and Student Demographics
for the Early Childhood Program
at Rowan-Cabarrus Community College
(Academic Year 1993-1994)

Enrollment and Student Demographics	Incidence
Total number of students enrolled in the program	339
Ethnic composition of students:	
African-American	16%
Native-American	<1%
Asian	0%
Hispanic	<1%

White	84%
Other	--
Average age of students	35
Percent of students receiving Pell grants	11%
Graduation rate for students	33%
Job placement rate for students	100%
Transfer rate for students	UK

Note: UK indicates unknown or unavailable information.

Although the graduation rate of students in the ECA Programs is low, the faculty take pride in a 100% placement rate which is attributed to students' practicum experiences where potential employers witness on-the-job performance. Other student outcomes attributed to the program are increased self-esteem, increased aspirations, and better goal-setting abilities. A 1993 survey of graduates indicated that 55% to 60% of employers rated students' employability skills (e.g., work attitudes, reliability, initiative, getting along with others) in the "excellent" range. Preferential hiring by area employers and somewhat higher earnings were evident for ECA completers who entered the local workforce.

RCCC receives more than 80% of its budget allocation from the state of North Carolina; approximately 10% each comes from the local and federal levels. In FY93, the tuition rate for North Carolina residents was $13.25 per credit hour. The ECA Programs received $233,682 in state funding and $7,805 in federal funding through the Head Start program. Besides Pell grant aid to ECA students, scholarship funds are available through the College's Foundation and other sources. Future opportunities for expanded funding include plans to obtain "Smart Start" grant programs through the State of North Carolina.

The ECA programs, according to the RCCC President, are designed as high-quality programs to prepare a trained and skilled workforce to serve business and industry within the college's service area. One administrator described the ECA Programs as "totally institutionalized" within the college's spectrum of programs. Again, according to RCCC's President, the ECA Programs are consistent with the mission of the college and typical of other programs offered there. To some extent, the President views the program no differently than any other program at the institution, but he did acknowledge that the leadership, motivation, and hard work of the faculty and especially the Program Head have contributed significantly to the success of the program over the years.

Key Stakeholders

Faculty

Faculty at RCCC are highly qualified, motivated professionals holding degrees and additional

certifications appropriate to their disciplines. The Vice President for the South Campus and External Programs explained that the majority of all RCCC faculty have industry experience. The three full-time ECA faculty are no exception. Demographically, the faculty are all female and they all hold the master's degree with advanced graduate study beyond that level along with other specialized certifications. Collectively, they have many years of experience in the early childhood/child-care development field as practitioners, consultants, and local and statewide leaders in professional associations.

The Program Head for the ECA and Child Care Worker Programs holds a master's degree; a CAS advanced certificate (6-year program); and is certified as a North Carolina Graduate Level Teacher, Counselor, and Curriculum Specialist/Supervisor. She has 21 years experience and is a founding faculty member of the program. She is also an acclaimed teacher having received RCCC's Teacher of the Year award in 1992-1993. Besides teaching, she directs the certificate, diploma, and degree ECA Programs as well as RCCC's Early Childhood Center which serves as a day care for preschool-aged children and an on-campus laboratory for ECA students. Beyond her on-campus responsibilities, she has worked as a consultant to businesses interested in developing day-care facilities. Her knowledge of early childhood education policy is important to the program's success; her ability to facilitate partnerships is impressive.

One other full-time instructor in the program also has 21 years experience at the college, and holds a master's degree and additional study. She is certified as a North Carolina Graduate Level Teacher and an American Red Cross First Aid and CPR Instructor. She is also a founding faculty member of this program. The other full-time instructor in the program and head of the Early Childhood Center has a master's degree and advanced study. This is her sixth year with the program. Both of these faculty members are highly experienced and dedicated professionals who are keenly aware of the needs of the workplace, having worked over many years to cultivate strong partnerships with area public schools, private child-care centers, and Head Start day-care centers. They are enthusiastic about teaching students to enter careers in child care and enjoy working with young children themselves. They appear to have high expectations for students and establish a close working relationship with them.

Together, these three full-time faculty members can best be described as highly energized, extremely motivated, and very well-organized. They work together as a team to design and implement curriculum. Each works to cultivate partnerships with day-care and other educational institutions. All three were mentioned by students as helpful advisors. The ECA faculty demonstrate pride in their program and its students and graduates. Their networks in the community and within the state are far-reaching and influential. They have helped influence state-level legislation and policymaking through their professional affiliations, participation in local initiatives to support child-care and early childhood education and training within both the private and public sectors, acquisition of grant resources to support the programs, and consultation with local businesses on private child-care programs. They have been highly engaged in professional development activity, having held elected offices in the statewide community college professional association for early

childhood instructors. For these accomplishments, the ECA faculty have been appropriately recognized for their expertise by other community college early childhood faculty members across North Carolina.

Besides the full-time faculty, the ECA Programs also have 20 part-time instructors who support the courses and clinical lab experiences and the Early Childhood Center. These part-time faculty are working professionals who provide essential support to the program as classroom and lab site instructors. Many have served or currently serve on the curriculum advisory committee which has helped guide the program for many years. These part-time faculty are unusually dedicated advocates of the program in the community; they also assume a major role in the employment of program graduates.

Students

A typical student in this program is female and in her early 30s, who is a first-generation college student. Many are single parents or nontraditional students, and many already hold part-time jobs in the child-development field. Most have a desire to work with children prior to entering the program. Some learned of the ECA Programs through their work, some through word-of-mouth from a friend or family member, and others through counselors at RCCC or their high school. In addition, referrals are made through both the Head Start program and the JOBS and JTPA (Job Training Partnership Act) programs in the community.

Students enrolled in the program are highly interested in child-care providing services and in working with young children, including infants, pre-kindergarten, and special needs children. Several students interviewed began their program at a four-year college but transferred to this program because of its reputation for providing practical and relevant work experience. Many students interviewed have plans to teach and wish to transfer to baccalaureate programs. Often, however, students are uncertain about the age groups they prefer to work with. As students rotate through practicum experiences with children of different ages, they often change their career plans for working with specific age groups, providing an important lesson about the need for job rotation during work-based learning internships. Interestingly, the students recognized they were entering a career characterized by low wages and high turnover. However, they indicated they enjoy working with children and have the support from their families to enter this field. Based on our interviews, students were highly satisfied with the program, the faculty, the opportunities for work-based learning, and the ability to obtain formal training that area employers require for entry into the field.

Employers

Employers are strongly supportive of the ECA Programs. Those interviewed spoke highly of the program; many had a direct hand in the program's initiation and development in the early 1970s. As a group, many types of child-care oriented businesses were represented, ranging from public

elementary schools to a hospital child-care center to a Head Start day-care center on a nearby four-year college campus. The jobs provided by these employers include Child Care Assistant, Teaching Assistant, and Lead Teacher/ Director.

Among the mix of employers, the area public schools in Rowan County/Salisbury and Cabarrus Counties have been particularly staunch supporters, having established a formal career track for Teaching Assistants at the preschool and elementary levels. Area schools rely extensively on the ECA Programs for providing them with a trained workforce. In addition, the Head Start program, begun in the 1960s, has upgraded its training requirements for skilled child-care workers and teachers. Effective in the fall, the CDA credential or the AAS degree are mandated by all Head Start centers, providing another valuable employment outlet for graduates. In addition, private child-care centers such as the Rowan Medical Center Child Care Center and other regional corporations seek trained child-care workers and teachers.

All area employers who hire graduates of the ECA Programs pay a higher beginning wage than they would pay to employees who were hired without such training. The starting hourly wages range from approximately $5 to $9 per hour. All employers provide benefits to employees, although the range of benefits varies. Some employers prefer to hire students part-time so their performance can be evaluated before they are offered full-time employment. In turn, the ECA Programs were supported through employers' service as part-time instructors; participation on the curriculum advisory committee; and involvement in community, state, and national professional organizations.

Other Stakeholders

Other stakeholders include the multitude of day-care providers and administrators, public school administrators, and teachers. One elementary teacher who also supervises ECA students described the increased role Teaching Assistants play as more special needs students enter the classroom. Through the interviews, each group of stakeholders believed the programs at RCCC provided the best match of employee and professional preparation. Advisory Committee members believed the most important element was the open channel of communication between the college, the schools, each faculty member, and the direct input the Committee had in addressing important local issues affecting early childhood education.

Program Components

School-Based Learning Component

In the ECA AAS degree program, each student must participate in three practicums, consisting of three semesters of a one-hour seminar and ten practicum hours each week. These three practicums reflect the developmental stages of the child and include the areas of (l) the preschool environment, (2) the school-age environment, and (3) special needs. The practicums focus on child development of specific age groups and are structured to follow theory-related lectures. The first-year classroom

starts with theory-related coursework on infancy and toddlers, and the practicum follows the same developmental period in a variety of settings. In the "Education Foundations" course, lectures and discussions involving first-year students focus on such topics as Piaget's stages of development, Rosseau's study of Emile, and Locke's environmentalist theory.

Throughout the program, students are required to conduct outside library research using the extensive resources of a special collection of early childhood volumes, periodicals, media, and other resources in the college's modern, functional library. Students use index cards maintained in files to document their assignments. Brief abstracts of each assignment are entered on the index card, and students make oral and written reports from these cards in class. In one class, the topic discussed was recurring themes in early childhood education. Many of the library citations were drawn from the works of John Dewey, Jean Piaget, and others. Recitation by students of the research findings were followed by brief discussions among the faculty member and other students to reinforce the applications of the theory discussed in the literature to real-life child development situations. This approach to integration of vocational and academic skills seemed highly effective, and student interest and active participation was evident.

Strong support was expressed for the integration of vocational and academic education by several college personnel. As a technical institute, RCCC has historically developed curriculum in occupational-technical areas. Now, as a comprehensive college, RCCC has increased liberal arts and articulated programs. The early childhood curriculum was one of the earliest program areas to offer these developments in combination with career options. Content is formally integrated with such courses as "Creative Activities in Early Childhood," a course spanning art, movement, music, and dramatics with educational methods. Although English, math, and science coursework required by the AAS degree is not fully integrated with the occupational subject matter, students and faculty agree that some teachers encourage such integrated activities as using journals in an English Composition course. Future developments with Tech Prep are expected to stimulate integration of vocational and academic education pertaining to the ECA Programs.

The curriculum is structured to introduce the textbooks and classroom lecture backed by a practical experience in each area of specialty. As the coursework moves into school-aged development and the second practicum, students work in a public school setting, working on age-appropriate activities for school-aged children. Classroom lecture classes are delivered through both traditional teaching methods and informal seminar formats in which students are seated at tables in small numbers and participate in extensive interchange with each other and the instructor. Lecture classes involve a blend of theory and practice as well as audiovisual aids.

The third practicum is chosen by the student and becomes an advanced work experience in whichever age group they choose. Upon completion of the three unpaid practicums, students have gained significant experience in the classroom, are experienced in age-appropriate instruction, and can plan their own career paths. Finally, an internship consisting of three courses is undertaken, with two hours a week of lecture/seminar and ten hours per week of practicum experience.

Reflecting upon the full spectrum of work-based learning in the program, one supervising teacher compared the ECA practicum very favorably to the single internship of a four-year program. She stated that the difference between ECA and other programs is the students' readiness for the classroom as well as the opportunity to work with children of the age group they plan to teach.

A formal program of career awareness, orientation, and guidance is a recognized part of the ECA Programs. A beginning course required of students is "Early Childhood Overview" which is designed so that students can investigate educational careers. Students are assigned research projects that utilize the early childhood education area of the Learning Resource Center, approximately one-fifth of the center. Students become familiar with professional publications; build a file of reading references; and learn about positions, salaries, and requirements related to their specific degree goals and future career paths. A concerted effort is made by the Student Services personnel to work with the ECA faculty. RCCC's Director of Student Services cited the ECA Programs as offering high-quality advising of new students. Most career guidance for students in the AAS program is done by ECA faculty. Students are assigned to one of the three full-time faculty early in the program, but also have the option to seek out any of the full-time or part-time faculty when additional guidance is needed.

Like many students entering community colleges, a sizable proportion of students in the ECA Programs take developmental education. Specifically, 75% of the students take a developmental math course, 45% take developmental reading, and 50% take developmental English. Two strong support services within the college can aid Early Childhood students. Student Services is a team-organized department that houses recruiting, admissions, financial aid, counseling, and job placement. The department does pre-advising that explains registration, placement testing results, and an orientation on student habits. The ASSET test determines students' academic needs and, after assessing student skills and needs, the Student Services team provides follow-up.

A second area still in the pilot stage but believed to have a positive effect on retention is the Student Success Program that bridges academic advising and Student Services. Although testing and counseling are in place, no mandatory course placement exists at RCCC. The Student Success Program is a centralized advising service that supports and follows activities begun with ASSET. Early in the first quarter, advisors are assigned to at-risk students to set up individual educational plans, explain college policies (e.g., drop, add, and withdraw), assist with career goals, and provide counseling. They also respond to transportation, child care, and other personal difficulties. Another important aspect of the program is the Early Alert System that involves all faculty. At the first signs of academic or personal problems, faculty have a place to call to get students the assistance they need.

RCCC and the ECA Programs create individual student training plans in two parts. First, the Student Success Program develops individual career plans exploring all the resources of the college. Second, the ECA Program Head, through orientation, assigns advisors, develops a file, and initiates an individual plan. When students were asked if they were comfortable going to their advisor for

both career or personal counseling, they gave an affirmative response.

Work-Based Learning Component

The Work-Based Learning Component occurs in several ways. First, integrated with school-based learning is the hands-on application of skills through RCCC's on-site Early Childhood Center. Employing nine persons, the center supports the academic work of the school-based curriculum. The center is a state-licensed facility, which is able to accommodate 60 children. The census count at the time of our visit was 59 with a short waiting list. The children served are representative of all socioeconomic groups, providing a diverse learning experience for RCCC students. The center offers child care on a first-come, first-serve basis. It is open to the community, including the employees and students of the college, and is a full-service, modern facility. An observation room with media support allows students to conduct observations. Microcomputer hardware and software are used extensively. Students work with mentors in the center and are allowed considerable latitude in planning activities.

In addition to the students' work experience at the Early Childhood Center, the ECA curriculum provides the three practicums and an internship, all mentioned previously. Often students are placed in the college's own laboratory, the Early Childhood Center, for preschool age children as well as with small and large day-care centers and a hospital development center. For the second practicum, students are usually placed with a number of area elementary schools. The third practicum setting is chosen by the student and is designed to promote advanced learning with either preschool or school-age children. In this practicum, more time is devoted to planning and implementing age-appropriate activities. Together, the three practicums and internship give students a variety of experiences to help them make career decisions. Experience in the work site also gives students essential job skills necessary for employment. In turn, employers support the ECA faculty in preparation, review, and revision of learning materials that are an integral part of students' practicum experiences.

All activity is documented by the student according to the *Early Childhood Manual*. The manual includes the related practicum packet as well as information on the objectives of the curriculum; student competencies; a code of ethical conduct; suggested sequence of required courses; and the responsibilities and roles of practicum students, college supervisors, and cooperating school/center teachers. The ECA faculty and work-based supervisors collaborate closely in the development, implementation, and evaluation of the manual. The practicum packet contained in the manual is a highly detailed instructional management system which includes the following:

- **Scheduled practicum dates/time sheets absentee request**
- **Contracts, including practicum contracts and agency contracts**
- **Logs, including fact sheets, seminar-practicum summary sheets, and daily practicum logs**
- **Activity plan guides, including activities listings and activity plan guide**
- **Evaluations**

Workplace mentors and/or coaches are available to students in the ECA Program. One elementary school teacher, who herself had come up through the program, worked as a Teaching Assistant while completing her bachelor's program. She now serves as a supervising teacher for students in the ECA Program. Typical of other mentors, she provides weekly evaluations, plans, and gives feedback with practicum students. Due to her first-hand experience with the program, she appears to serve as an exemplary role model and mentor for career planning. The school district offers mentoring training in the summer to its teachers.

Periodic evaluation of student progress is provided by supervising teachers at the workplace through weekly evaluations and written feedback. Program advisors met with workplace supervisors on a quarterly basis, and with students at the workplace throughout the quarter. Regular consultation between workplace mentors and the college happens in two ways. First, the program advisor makes regular quarterly visits to the workplace where students and particular situations are discussed. Second, a number of larger employers that provide placements are affiliates of the Advisory Committee which meets twice a year and discusses larger-scale issues.

Connecting Activities

Connecting activities for the ECA Programs include (1) the curriculum advisory committee, (2) written articulation agreements, (3) use of practicum notebooks, and (4) state and national trends in the setting of standards for early child-care education. First, the curriculum advisory committee is closely linked to the professional life of the ECA Programs. Advisory committee membership includes key child-development providers, including private-sector centers, Head Start centers, elementary schools, and other groups. The committee meets at least twice a year, and offers leadership and direction to the programs in an advisory capacity. Many of the curriculum advisory committee members serve as part-time faculty for the programs. Several of the employers represented on the advisory committee also represent practicum sites that support the programs. Advisory committee members are networked through a wide range of local, state, and national professional associations and affiliations. For example, a regional Head Start official and child-care owner who serves on the committee is the former President of the North Carolina Head Start Association.

A formal governing/advisory board composed of institutional partners is handled in an exemplary manner by the Program Head. The Early Childhood Advisory Committee is made up of professionals from the field. Each individual member carries a significant position and influence in the community. There is a spectrum of knowledge, support, and dedication to the Early Childhood Education and ECA Programs at RCCC. The committee also assists faculty with forecasting economic trends, professional issues, and promoting programs. In so doing, the Advisory Committee provides an invaluable service of "connecting" the college's educational programs to the business community.

Three forms of written articulation agreements at RCCC act as connecting components among

educational institutions. First are the articulation agreements with the public school systems. Although not officially Tech Prep, the ECA Programs afford high school graduates an advanced placement articulation model whereby Levels I and II of high school home economics satisfies three-quarter credit hours in the major at the college. These agreements also provide practicum placements in elementary schools for ECA students. Such articulation agreements are expected to increase with the college's acquisition of new grants for Tech Prep and cooperative education. A second level of articulation is available with other two-year colleges that provide one-year ECA diploma programs but lack the two-year degree option. For these colleges, articulation agreements allow students to transfer to RCCC for their second-year to obtain the AAS degree. A third level of articulation is with four-year colleges, primarily private colleges in the area, providing ECA students the option to transfer as juniors to pursue the baccalaureate degree.

Another connecting activity is the practicum notebook kept by students. It is a key link between college-based instruction and practical work-based learning. It is used in class as well as by supervising teachers in the workplace. Evaluation forms and student feedback are recorded in the notebook. It includes time sheets, checklists, student-developed resource files, activity planning guides, and the daily practicum log.

A final connecting function of the ECA Programs at RCCC and throughout the state is the state/national credentialing standards and requirements established by one or more of the following organizations: the National Association of Educators of Young Children, the North Carolina Association of Educators of Young Children, the North Carolina Day Care Association, the North Carolina Head Start Association, the Governor's Office--State of North Carolina, the North Carolina General Assembly, the North Carolina Department of Human Resources, Child Development Division, the North Carolina Department of Social Services, and others. These credentialing standards or requirements have the effect of defining the relationships between the school-based and work-based locations, and influencing the curriculum in numerous beneficial ways.

Lessons Learned

The ECA Programs promote strong, formal partnerships between the college, the faculty, the work-based learning sites, the employers and their employees, the advisory committee, the external credentialing and standard-setting entities, and professional associations. Leadership for the program took hold over 20 years ago, allowing for strong relationships to form and solidify between the college's ECA Programs and the workplace. As workforce requirements for formal training became more pervasive, an attitude of professionalism entered the early childhood education field and concerns were translated into public policy. RCCC has taken full advantage of becoming the focal point for initiating and sustaining partnerships in support of early childhood education within the region, and its faculty are widely recognized in the community and at the state level for taking a leadership role.

Well-managed, diverse facilities in strategic locations throughout the service area offer students highly meaningful work-based learning experiences. High-quality, diverse training is available through the on-campus Early Childhood Center in addition to the work-based learning sites. The practicum rotation among sites ensures that students are exposed to learning opportunities with children of different ages and backgrounds, including pre-kindergarten, school age, and special needs. Replicating this type of breadth and depth in work-based learning is time-consuming, yet essential to the success of the ECA Programs, possibly to all occupational-technical programs.

Another strength of the ECA Programs is the highly structured and articulated curriculum that creates a career ladder of credentialing. RCCC has effectively linked student outcomes in the program and in each course whereby a career continuum has been established to satisfy the needs for the Head Start-mandated CDA credential; the NC Child Care credential; and the ECA certificate, diploma, and AAS programs. In addition, an increasing number of AAS degree graduates are planning to continue their education at a four-year university. Articulation with four-year baccalaureate degree programs has been pursued for several years, and more will be accomplished in the near future as a result of the new birth-to-kindergarten certification that will be delivered through universities and four-year colleges in North Carolina beginning this year. Future reforms in early childhood education at the state level should have the beneficial effect of fostering articulation efforts while ensuring the preeminence of early childhood paraprofessional programs offered through community colleges.

The enthusiasm, dedication, creativity, and just plain hard work of the entire ECA faculty cannot be underestimated. Collectively, the faculty has been instrumental in organizing and continuing to nurture a highly successful work-based learning program. Yet, even with an exceptional staff and as many strengths as this program has, concerns remain. One is the lack of mandatory placement of students in developmental courses based on ASSET test scores. Since this program enrolls an unusually high percentage of nontraditional, first-generation students--many in need of academic skills development--it is important that all students begin their academic studies at a level likely to make them successful. In many cases, developmental courses are needed to ensure success in the program. As more advanced academic competencies are integrated into courses in the major, students will be required to master high-level reading, English, and mathematics. As a result, the college should review its current policy of student assessment and remediation to make developmental studies mandatory when warranted.

A second, potentially more thorny issue surrounds the profession of early childhood education. The profession is recognized as a human services area designed to prepare child-care providers in both private- and public-sector child care. The importance of this field is recognized but, according to the faculty, not nearly enough. The faculty felt that the value of early childhood education, specifically in support of economic development, is not universally appreciated in spite of the fact that over 50% of women in America are in the workforce. Even though some local employers place a premium on this training and offer a pay differential for graduates with the AAS degree, the field of early

childhood education suffers from the image of being low-pay, low-skill with high turnover (approximately 40% nationally, according to the faculty). In the RCCC area, day-care teaching assistants are in demand, although salaries are low, as they are nationally. Teaching assistants with AAS degrees find better salaries in company owned or operated day-care facilities and in K-3 public schools, although the average starting salary remains modest at $5-$9 hourly. Advisory Council members suggested that until local corporations add internal day-care centers, wages will remain low. Additional incentives are needed to increase WBL participation by businesses, trade organizations, unions, and community-based organizations.

More than half of the students interviewed were introduced to the program through JTPA, Job Core, or Head Start programs. They will be rewarded with pay increases at the completion of their programs. Yet, even with these incentives, retention figures for the program are low. Graduation rates are approximately 33% and no mandatory job placement policy exists. (RCCC's policy is to make all students aware of resources, but the college sees job placement as the responsibility of the student.) Early child-care workers with or without Associate degrees are needed in the community. Consequently, many students seek employment prior to graduation and many of these students do not finish. Although employers indicate that they prefer students to complete the program, it is also evident they readily employ students without the credential. When this happens, employers use the program, specifically the practicum, to make judgments about which students to hire. Both the employers at the practicum sites and college faculty believe this is an advantage of their close working relationship. In our view, this screening process--what some would call "creaming"--needs to be monitored to ensure decisions about employment are based on fair and equitable criteria. In addition, students, employers, and college faculty need to be fully aware of the short- and long-term benefits and drawbacks of how this screening practice inhibits program completion and precludes students from obtaining benefits associated with the formal credential.

Finally, a related issue is the problem that wages and/or stipends are not provided to students in the ECA Programs, further encouraging low-income students to seek employment and regular wages. Head Start employers do send employees for certification that includes partial tuition reimbursements or bonuses at program completion. However, a concern that no wages are provided is expressed by key stakeholders of the program (an issue discussed at the Advisory Council meeting held during our visit). Concerns about not providing wages are heightened given that the college's service area has a very high percentage of women in the workplace and in need of day-care services. However, as long as average family incomes remain low, local stakeholders speculate that the development of preschool professions will be slowed and these factors will continue to have a direct effect on the Early Childhood Education Programs of RCCC and other educational institutions.

Tree Fruit Production Program,
Wenatchee Valley College

Russell Hamm and Mary Burnett

Wenatchee Valley College (WVC) is a small, rural, comprehensive two-year college serving three counties (Chelan, Douglas, and Okanogan) in north central Washington state in the Wenatchee Valley. It is located in the town of Wenatchee which is situated in the foothills of the Cascade Mountains and along the Columbia River. A second smaller campus is located in Omak, Washington, approximately 100 miles north of the main campus. The North Campus serves 17% of the students of the college. It is the only two-year college of significance in an area of 10,000 square miles with a service population of approximately 110,000 people. The college offers approximately twenty technical programs for either degree or certificate and transfer degrees in Associate of Arts and Sciences (AA and AS), Associate of Applied Science (AAS), and Associate of General Studies (AGS). The college is accredited by the Northwest Association of Schools and Colleges and approved by the Washington State Board of Nursing, the Accreditation of the American Medical Association, and the Veterans Administration. The college employs about 750 people in full- and part-time positions and is one of Wenatchee's top ten employers. The college has 65 full-time faculty and 18 administrators.

WVC opened as a private institution in 1939 and two years later became part of the state's public education system. In 1967, the college became a public community college and its district was expanded to its current size. The North Campus was created in 1972 to meet the needs of the students in Okanogan County. The college serves approximately 4,000 students each quarter (2,000 FTE) (see Table A-2). In the spring of 1993, the college awarded 458 degrees and certificates. Fifty-five percent of the students are considered full-time and the same percentage are female. The college reports a minority population of 23.5%, with 16.7% Hispanic, 5.2% Native American, 1.2% Asian, and less than 1% African American. Forty-eight percent of the students are enrolled in college transfer programs, 36% in technical programs, and 16% in basic skills/developmental programs. Sixty-five percent of the students are employed.

Table A-2
Enrollment and Student Demographics for
Wenatchee Community College
(Academic Year 1993-1994)

Enrollment and Student Demographics	Incidence
Institution's total head count enrollment	4,000
Institution's FTE enrollment	2,000
Ethnic composition of students (total population):	
African-American	
Native-American	5%
Asian	1%
Hispanic	17%
White	76%

Other	--
Percent of total student population receiving Pell grants	UK
Average age of the institution's entire student population	UK

Note: UK indicates unknown or unavailable information.

The budget for WVC exceeds $10 million annually and 75% of this is state-supplied operational funds. Of the remaining, 9% is capital funds from the state for facility investment, 7% is obtained through contracts and grants, and the rest is tuition and local contributions. Eighty-five percent of all funds are expended on salaries and benefits. The college has a foundation and it has been helpful in providing financial resources for the Tree Fruit Production (TFP) Program, supplying scholarships and donations such as the two orchard plots operated by the college as a school-based enterprise.

The Wenatchee Valley and surrounding areas are the heart of Washington's tree fruit industry where 65% of America's apples are produced (on 172,000 acres of orchards) along with other tree fruit such as pears and cherries. The major employers within the district are largely related to the tree fruit industry, including more than 2,500 orchards in the immediate area, along with fruit packing and shipping houses, fruit storage facilities, and large numbers of supporting businesses and agencies. Large numbers of trained/ educated individuals work in the industry under the job titles of orchardist/grower, quality controller, warehouse manager, field consultant, field sales representative, and orchardman, and it is estimated that the industry requires 3,500 trained individuals at any given time. Common labor is often performed by the large Hispanic population that has settled in the region over the last 10-15 years. The economic base of the entire region is focused almost exclusively on the tree fruit industry; it is the "only game in town." Since tree fruit are a staple of life in the Wenatchee Valley, there is a strong inclination for public support for anything connected to it. Persons interviewed reported that the tree fruit business has changed drastically in the last few years, becoming increasingly complex and requiring precision and technical knowledge.

Program Overview and Goals

The TFP Program has been operating at Wenatchee for many years. At the outset, it was a typical horticulture program, specifically designed to support the tree fruit industry. In 1984, as a result of the collaborative efforts of several orchard owners and industry leaders, the program was drastically modified, making it particularly specialized for local service needs. Within a short period of time, the full-time faculty member left the college and the current Program Director was hired. Since that time, the program has established a reputation for excellence with growers and managers in the area.

In response to significant industry need, the college now offers two related programs: the Tree Fruit Production (TFP) and Tree Fruit Management (TFM) Programs. (Only the TFP Program was the

focus of this investigation.) The TFP Program is a two-year program that combines horticultural science and related agricultural plant science studies with a full range of hands-on production experience. It is basically a specialized horticulture program focusing on tree fruit with direct connections to the local industry it was designed to serve. Students receive classroom and practical experience operating the college-owned "demonstration" orchards where they take full responsibility for all phases of orchard management. The program is unique in the nation and has received two prestigious awards: The National Association of State Departments of Agriculture/RJR Nabisco Award for Excellence in Agriculture Technology Instruction and the Secretary's Award for Outstanding Vocational Program, a national award from the U.S. Department of Education.

From the very start, employers played an important role as the program was created under the leadership of an advisory committee comprised of representatives of several local TFP businesses. Graduates are prepared for employment as technicians and managers for the production, processing, and marketing of tree fruit crops--all jobs in demand in the region. On the college side, a commitment to providing the type of education embodied by the TFP Program is apparent in the college's mission statement. Among other goals, the mission statement appearing in the college catalog states that the college seeks to "provide high-quality, lifelong learning and cultural opportunities . . . through providing occupational courses and programs designed to prepare students for immediate employment or updating skills necessary for advancement in the workforce." The TFP Program is conducted in such a manner as to ensure that this mission is attained for the tree fruit industry. It is designed to satisfy the training needs of orchard owners, managers, fieldmen, warehouse foremen, and managers of related businesses. It provides strong horticultural science studies with hands-on training, producing graduates who are immediately productive on the job.

The program has very high visibility in the local community. It is known for its excellence and has wide support from all parts of the industry. It is the only large and successful program in the area, although smaller programs exist in two other community colleges. All individuals interviewed (including the President, the Dean, faculty, counselors, students, and employers) were very familiar with the program and could describe its purpose and basic operations. Employers considered the program "professional" rather than "vocational"; but, in fact, the program is one of the technical/ vocational programs of the college and is fully integrated into the college's management and funding systems.

In the TFP Program, there are 55 first- and second-year students (Table A-3). Of the total, about one-third are young college-aged students, another one-third are older students in the midst of career change, and the last one-third are individuals already employed in the orchards. The ages range from 17 to 60 years and about half the students who enter the program complete it. Students enrolled in the program are overwhelmingly male and white; however, an English as a Second Language (ESL) Program is being added to attract Hispanic students currently employed in the orchards. The program also attracts students from around the United States and a few foreign

nations. Often these students have a strong educational background and several have entered the program having already earned a baccalaureate degree.

Table A-3
Enrollment and Student Demographics for
WVC Tree Fruit Production Program
(Academic Year 1993-1994)

Enrollment and Student Demographics	Incidence
Total number of students enrolled in the program	55
Ethnic composition of students:	
African-American	0%
Native-American	0%
Asian	0%
Hispanic	4%
White	96%
Other	--
Average age of the institution's entire student population	28
Percent of students receiving Pell grants	55%
Graduation rate for students	50%
Job placement rate for students	100%
Transfer rate for students	50%

The TFP Program is funded through the general funds of the college. The budget for the TFP Program for the current fiscal year is very modest. It consists of approximately $75,000 in state funds for salaries, benefits, materials/supplies, equipment, travel, and so on, and an additional $4,500 comes from federal funds. In addition, the orchards, which are used for on-campus lab courses and work experience, generated $30,000 in revenue in 1993-1994; this is projected to reach $75,000 to $100,000 by 1996. Of course, these orchards also account for a major expense in the TFP budget. The program is highly visible and well-supported by the community. It is the recipient of professional and political support, especially evident in the donations of equipment, cash, and time. Also, the two orchards operated by the program were donations to the college by local families.

Key Stakeholders

Students

Interviews with students revealed a great deal about why the program is strong. Students reported the following three reasons for enrolling in the program, with the first being predominant:

1. **Students joined (or were recruited into) the program primarily because it was a very visible, high-quality program with an almost certain guarantee of a well-paying and respected job.**
2. **Students already work or own an orchard and need the training to operate it more successfully.**
3. **Students already enrolled in college courses were enchanted with the program based upon its reputation and positive word-of-mouth communication from other students.**

Annually, the TFP Program graduates 12 to 15 students and all find jobs in the local economy. All of the students interviewed were familiar with the rewards of completing the program. Graduates obtain jobs at salary levels of $25,000 to $30,000 annually, plus a company-owned vehicle. Some students who are unable to complete the program also find employment in the fruit business. When asked if students understood the expectations held of them, a sampling of their responses were . . .

- **"technical classes are as tough or tougher than the academic classes."**
- **"poor attitudes are not accepted in the program."**
- **"standards are set for students and tracked by a point system."**
- **"[students] have to work hard to get good grades."**
- **"[students are] giving up a normal life for two years."**
- **"instructors are known to be really good."**
- **"[students] see the investment of dollars and don't want to lose their investment."**
- **"[students] are tied directly to the running of an orchard and are not `book farmers.'"**
- **"students supervise students."**
- **"[this is] a good program that keeps up with industry changes."**
- **"the program provides the safest bet for good employment."**

Students carry out a number of professional responsibilities such as attending local professional meetings, learning and working directly in the industry, and learning its unique problems and needs. Performance expectations are presented to students in both discussions and in course syllabi. In addition, there is strong preprogram promotion--students enter the program already knowing that the program is strong and that it will be a difficult program--and that instructors from industry reinforce the need for excellence and thoroughness. Several students commented but did not complain that the program was very rigorous and demanding of both time and resources. They were well aware that for some students it is simply too intense. They also noted that the field is dominated by men.

Faculty

Administrators (President and Dean) were knowledgeable about the program and the trends in the tree fruit industry. They possessed good information concerning the job market for their students. Administrators were proud of the program because of its award-winning reputation and its ability to win resources from the local industry. They demonstrated a commitment to the program succeeding and developing further as a model.

The TFP Program has a lean staffing pattern similar to many other community college programs with heavy reliance on part-time instructors, and the faculty are unionized. Full-time staff for the program consist of one and one-third full-time faculty members. One individual teaches nearly all first- and second-year courses in the technical program and functions as student advisor and coordinator. He teaches 15-20 hours per week and then has all the duties of advising and coordinating, a staggering load for which he receives no reassigned time or monetary stipend. He is very well-qualified; he holds a doctorate and has many years of real-work experience in the tree fruit and horticulture fields. He has also worked as a horticulture research scientist in several universities.

A second faculty member at the college provides one-third load toward teaching introductory theory courses in the technical area. In addition, there are at least six part-time instructors, all recruited from the immediate area. They work in the TFP business in areas such as the irrigation industry, the U.S. Department of Agriculture, the university horticulture program (entomology), and in local packing and processing plants. All part-time faculty are knowledgeable about all facets of the business. A close association of all of the faculty to the commercial production business is a definite strength of the program.

Clearly, the Program Director is the "champion" of the program and much of the program's success seems directly attributable to his efforts. In a meeting with the two faculty and three adjunct instructors, we learned that all were very committed to the program and also very proud of it, but each made a point (or two) about the need for continued growth of the program, and for more remuneration for instructors. Presently faculty are not compensated differently for "lab" versus "lecture" courses, resulting in technical/vocational faculty having heavier teaching loads than academic/transfer faculty. The Coordinator receives no compensation for developing or supervising internship students, an activity that typically is compensated with an extra $50 to $75 per student, plus mileage, by other Washington community colleges. Given these concerns, we observed that none of the faculty showed an interest in leaving the program because of low wages. The opposite seemed to be the case: Pride and dedication to the program kept them committed. They agreed generally that there is a philosophical commitment to continue a high level of excellence, integrate the program (applied and academically), and continue to develop the program to serve the needs of the local industry.

Employers

The college reported very strong employer/industry support for the program and this was evident by the large number of individuals who attended a luncheon held for us. Approximately a dozen or more industry professionals representing orchardists, suppliers, packer/shippers, Washington State University faculty researchers, bankers, and community-based organizations came to support and explain the program. Some of their comments were as follows:

- **"This is a tough and complex industry; we need highly educated people to run it."**

- **"There is good upward mobility, good articulation, good jobs."**
- **"[This is a] good `applied' hands-on program. [A] good program for the area where it is needed and where it naturally belongs."**
- **"Industry is changing so fast, becoming increasingly commercial; more big companies are buying into the valley, also many more government regulations [are in effect]."**
- **"[The] program is good for the growers. [The] grads are ready to go to work and are prepared."**
- **"[The] program is very well-organized and the grads hit the pavement ready to run."**

The Program Director repeatedly underscored the strong industry support by noting specific activities, contributions, and political assistance routinely provided by people in the industry.

There appears to be a combination of self-interest on the part of the industry and the college for the development, organization, and operation of the program. From the orchard owner/operators and processing business perspective, this program has provided them with experienced (more than typical entry-level) workers for their workforce. From the college's perspective, the program has become a symbol of successful college service to the community, bringing recognition and resources. Employers sought to hire program completers, creating a placement rate of 100%.

Program Components

School-Based Learning Component

Students are expected to enter the college through routine admission processes, and are assessed for basic skills. They are expected to meet all collegewide performance and graduation requirements and pay equivalent tuition and fee amounts. The program occupies one special classroom on the main campus and also operates a greenhouse. Most uniquely, the college, through foundation donations, operates two orchards totaling about 100 acres. Students in the TFP Program spend much of the two years they are in the program working in these orchards. Thirty acres are planted, cultivated, and fully operated by the program's students and faculty. A technician employed by one of the local employers contributes 20 hours per week to the program.

The program is a full two-year program, including two summer quarters. It is 120-quarter hours, requiring the successful completion of more than 20 courses. Students must complete about 40 hours (one-third of the total program) in general studies, with the rest being agricultural/horticultural courses. First-year students are assigned to work in the college orchards, along with normal classroom instruction. Second-year students spend less time on campus and work both in the college orchards, where they supervise first-year students, and in the local industry, where they complete a formal, structured internship. Both faculty and students agree that the program must be considered full-time for students and, while some students work, most do not. Students readily admitted that this program is their number one priority for two years.

Work-Based Learning Component

The work-based learning model for this program is really a combination of two types. During the first year, the students work (unpaid) in a commercial-grade, college-owned orchard which fits most closely with the school-based enterprise (SBE) model. In the second year, student work experiences occur via an internship that occurs with a local employer. This aspect of the program is defined as cooperative education (co-op). Throughout, students follow carefully prescribed plans of study and progress sequentially throughout jobs in many different aspects of the industry.

During the first year, work expectations are very clear, and tasks and duties are made explicit. In a unique managerial arrangement, first-year students are supervised by second-year students, enabling the second-year students to learn management skills required in industry. During the first year of their college-orchard experience, students work in teams of four to five under programs of collaborative learning and team decision making much like the other orchards in the area. Each team has complete responsibility for a five-acre orchard plot. The students complete a series of competencies as well as participate in the management decisions of orchard care. The purpose of the college-orchard experience is to "teach them to be profitable farmers."

During the second year, students arrange for on-site experiences that have been labeled "internships." Each student is responsible for arranging his or her own internship in some part of the industry. This internship requires 8 credit hours, which equates to 400-clock hours, and in some cases even more. The college exercises maximum control over the first-year experience, but much less control over the second year. During the internship, students take responsibility for much of their learning and there may be very little contact with college personnel. The internship can be either paid or unpaid depending upon the arrangement negotiated between the student and employer. It is organized so that students and companies come into direct contact with one another. Companies call and announce job openings for which students apply. Students are then interviewed and selected by the companies. Once selected, the student is assisted by the Program Director in learning more about the company. The student establishes a task list, and sets objectives approved by the Program Director. The new intern reports to and is supervised by one person in the company, and becomes part of the team at the company. He or she is expected to operate at a professional level. The student may or may not actually encounter the objectives since the experiences may be altered on site, the interest of the student as he or she gets into the business may change, or the needs of the employer for assistance may be modified. However, the perception of the Program Director is that most students get out of the experience a great deal of what they plan.

Connecting Activities

In a unique partnership, Wenatchee's TFP Program has created an articulation agreement with the Department of Horticulture and Landscape Architecture at Washington State University. The program requires students to originate their studies and complete the AAS degree at WVC and then complete one and one-half years at Washington State University. Students completing this program

must have 13 credit hours of internship (650 clock hours). During a portion of the program, students are concurrently enrolled at both institutions, with all field experiences accomplished at the community college. This particular program was developed at the urging of local orchardists who needed well-educated graduates with a great deal of applied in-orchard experience. University students did not have adequate applied knowledge or experience and the two-year program was able to provide it. Currently, there are more than 40 students enrolled in the program.

A second articulation project has been created between the TFP Program and Wenatchee High School as a part of the local Tech Prep effort. The champion of this Tech Prep partnership is a member of the college staff who was a former counselor. This program, soon to be operating in two additional high schools, provides a career path for students beginning in their freshman year of high school when they take the first agriculture course. Agriculture and horticulture courses are continued each year through the senior year and then the student moves to WVC. It is possible for the student to move on to Washington State University via the agreement described above.

Leadership for the partnership is provided by the high school and the college. At Wenatchee High School, approximately 330 students are involved in "advanced agriculture programs" and of these, about 40-45 are involved in some phase of the TFP Program. Another high school in the region, Eastman, has approximately four to six students in the program and still other high schools are beginning the program. Future Farmers of America is active in the high schools. The Wenatchee Area Workforce Council is also assisting to bring the high schools together with the college. Of the high school students in the program, 40% are female, 20-25% are Hispanic--a much more highly diverse group than is enrolled in the community college TFP Program. While progress has been made with Tech Prep, building such a partnership has been slow. In particular, we were told that counselors need to be trained so they can provide accurate information about the TFP Program.

Lessons Learned

This program occupies a clear occupational niche within the tree fruit industry. It is a very special hybrid, created to serve the needs of a highly specialized local industry. It is not a general horticulture program but one that teaches the special skills for growing and harvesting tree fruit in the Wenatchee Valley in Washington state. In many ways, it is a one-of-a-kind phenomena that is likely to exist only in this particular environment. If there is a lesson that can be learned, it is the importance of understanding unique local industries and being able to create programs that meet those needs extremely well.

Over the years, the program has developed two very important components: (1) a school-based work experience that is overseen by advanced students, reducing program costs and simultaneously providing management experience for students; and (2) an internship work-based learning system that is student self-managed, assuring students get the training they seek. There is extremely strong employer and community support for the program. Employers provide work-based learning experience at no cost to the college or the student during the second year, they provide all materials

and supplies, mentor students, and then hire nearly all of them. One of the internship sites has a permanent, paid position for an intern and would like the program to require students to stay a year rather than a quarter. This level of commitment by an employer shows the importance of having a close relationship with the college. Our interviewers revealed that local employers and their employees knew the current content and methodology of the program, the credentials of faculty, the support of the program by senior college officials, as well as the future needs of the program.

Articulation with junior (Wenatchee High School Tech Prep Program) and senior institutions (Washington State University) provides for upward educational mobility from secondary through to higher education. Although time-consuming and difficult to establish, partnerships among educational institutions can be instrumental in providing students with educational opportunities that support a career ladder in the agricultural/ horticultural industry. Through Tech Prep, similar articulation arrangements can potentially be made in other occupational areas.

The program has clarity, relevance to community need, strong leadership, visibility, and the ability to attract good students. However, the program relies heavily on the Program Director and his loss could be extremely damaging to the program. The Program Director was identified by college administrators, faculty, students, and employers as the person who made the program excellent. He was the individual hired to re-create the program and that seems to have been accomplished masterfully. He was well-known by every industry contact we made, and he was universally credited as the reason the program was highly valued in the community. When college administrators were asked what effect the loss of the Program Director might have on the program, they replied that the program would most certainly continue, but that it may have to recover from the loss of the Program Director's personal connections and reputation. Obviously, as the program now operates, the Program Director's presence is vital to its success, even though the college's President stated that the program would continue at a high level of excellence even if the Program Director departed. At the same time, the President noted that the Program Director would be difficult to replace.

Given these perceptions of the importance of the Program Director, we have a very serious concern that too little support is shown by the college itself for the faculty of this program, particularly the Program Director. Presently, the one full-time faculty member functions as administrator, advisor, and instructor with no release time or extra stipend for these duties. The workload is not adjusted for the heavy emphasis on lab courses and credits. WVC provides no clerical or support staff for the program which is particularly problematic due to the high level of paperwork, correspondence, and other requirements involved in operating a 30-acre fruit orchard and engaging all students in second-year internships. The only assistance that is provided with the orchard comes through an in-kind contribution of a one-half time technician provided by one of the local employers. Without greater support from WVC, faculty are unduly burdened with administrative responsibilities in addition to heavy teaching expectations. Concerns were voiced (including from the Program Director himself) that the Program Director is committing far too much time to the program and that "burn out" is a distinct possibility.

In addition to demanding much of faculty, the program is extremely demanding of students. Clear and distinct expectations are made of students in both the classroom and workplace. The college faculty, full- and part-time, set high expectations of the students and the students themselves know they are to perform specific competencies in the field following classroom tutoring. Everyone associated with the program knows what to do, when to do it, where to be, and how evaluation will occur. By requiring more than the normal hours of credit for a two-year program, by expecting students to work two years for no or minimal pay, and by running the program during the summer, the demands on students are very heavy, possibly overly burdensome. This rigorous process acts as a funneling device for the local industry, sifting out those who lack a strong commitment to holding related occupations. Of concern to us, however, is the possibility that this funneling process might also be eliminating students who might be successful in the program but unable to commit an extremely large amount of time to the educational program (e.g., single parents, low-income students). Possibly linked to this problem is lack of women and minority students (especially Hispanics who are highly active in the local orchard industry), pointing to the need to examine student recruitment and selection processes. It is crucial that such processes not discriminate against qualified students and preclude them from entering the program.

Many graduates work in the local tree fruit industry, creating an informal network in the community that works to ensure the program will be supported and that students will get the employer-based experience they require. Many of the workplace managers came from the program and all of the instructors were employed in the local industry. The students are continually informed that if they work hard they will graduate and get good jobs, and this seems to be exactly what happens. Over the past 10-12 years, the program has become a self-reliant and "closed" system with its own support staff, community recruiters, and contacts within the employer community. It has developed a clear sense of mission, a distinct culture among the students and graduates, and a support system from the orchards. In short, it is a system that represents coherence and clarity. To what extent this closed system has also contributed to other characteristics of the program (e.g., the exclusion of female and minority students) cannot be determined. However, we caution that while having a self-reinforcing, closed system has its advantages, there can be serious drawbacks as well, including the exclusion of qualified female and minority applicants. Given that caution, it is also essential that the local program maintain its active ties to the local community, state-level associations, and national groups to ensure that it continues to grow and improve.

Management/Marketing Internship Program, Phoenix College

Sandra Filion Foster and James Jacobs

Phoenix College is celebrating its 75th anniversary as a junior college. It was the first college in the Maricopa Community College District which formed in 1962, then enrolling 8,000 students. Today, the multicampus district of Maricopa Community Colleges serves over 1.9 million residents of the

9,200 square-mile Maricopa County. The district's current enrollment is 83,000 students representing nine colleges, one community college center, and the Maricopa Skill Center, making it one of the nation's largest higher education entities. By the year 2000, the district is projected to expand to 180,000 students. An 18-member Board of Directors for the Community Colleges of Arizona provides statewide oversight. The Maricopa Community Colleges are governed locally by a five-member elected board. District administration is comprised of a chancellor, four vice chancellors, and nine college presidents. Phoenix College is led by a President, and three Deans for Instruction, Student Development Services, and Administrative Services (*Phoenix College Catalog*, 1994). Phoenix College employed 154 full-time faculty during fiscal year 1993 and 450 part-time faculty in Fall 1992.

Phoenix College's total enrollment for Fall 1993 was 19,800 students (6,500 FTE students) (see Table A-4). White students represented the largest group by race (69%); however, a relatively large minority student enrollment was apparent, and evidence presented by the college suggested it was growing rapidly (from 31% to 40% between Fall 1993 and Fall 1994). The largest minority group was Hispanic, representing 19% of all students. Although an average age for the student body was not available, other data showed Phoenix College students are fairly young: 17% are under age 19; 31% are between ages 20-25; and another 26% are between ages 26 and 35, leaving the remaining 26% over age 35. Like many community colleges, most students enroll part-time (over one-half of the students enroll for fewer than 7 credits). The majority of students enroll in transfer or college parallel education (61%). Another 39% enroll in occupational programs and only 15% are reported to be enrolled in adult, continuing, or basic education.

Table A-4
Enrollment and Student Demographics for
Phoenix College
(Fall 1993)

Enrollment and Student Demographics	**Incidence**
Institution's total head count enrollment	19,800
Institution's FTE enrollment	6,500
Ethnic composition of students (total population):	
African-American	6%
Native-American	4%
Asian	3%
Hispanic	18%
White	69%
Other	0%
Percent of total student population receiving Pell grants	UK

Average age of the institution's entire student population	UK

Note: UK indicates unknown or unavailable information.

Phoenix College serves both a downtown office market and a large urban school system, the Phoenix Union District. According to college figures, over 3,000 young people drop out of the Phoenix public school system per year and do not graduate from high school. Thirteen percent of all 17-year-olds enrolled in the district are functionally illiterate; 44% are only marginally literate. About 55% of the students are minority youth, and 40% of students qualify for free lunch programs. To address these very real and serious issues, the Phoenix College catalogue specifies the following goals:

- **To create a learning environment that reflects the changing needs of students and the community.**
- **To recruit and retain qualified faculty and staff who reflect and embrace the community's diversity.**
- **To strengthen the College's role as an intellectual and cultural resource for the community.**
- **To manage enrollment and strengthen retention to promote the success of a diverse student population.**
- **To develop and maintain relationships with the community such as schools and universities, businesses, and public and private agencies.**
- **To support economic development by providing educational programs/services that meet its needs.**
- **To encourage and support faculty/staff development.**

In 1993, Phoenix College chose a new President who confronts significant challenges: (1) declining enrollment, (2) a growing minority student body, and (3) changing student preferences for day and evening courses. Phoenix has experienced an economic downturn with the failure of savings and loan and related financial institutions. The region is coming back economically, but retrenchment in urban employment has had a negative impact on enrollments of evening students. This trend and changing demographics within the urban center combine to create an increasingly minority, younger, and day-time student body. Less than 10% of the students enrolled in degree programs have employer-sponsored tuition. Most students do not receive financial aid either from government-sponsored programs or parents; the majority are independent and many are financially needy. Due, in part, to these factors, day enrollment has increased an average of 4% per year between 1985 and 1989, while evening enrollment has declined an average of 1.4% per year.

Therefore, confronted with a projected 15% enrollment decline in Fall 1993, the President instituted several important changes designed to build awareness that student needs are changing and arranged to accommodate those changes by (1) providing more tailored and supportive programs for underprepared students and (2) delivering more focused and flexible programs to business. The President motivated college faculty and staff to respond to these challenges with new modularized and intensive programming. In addition, she participates in city- and state-level groups forming new

policy agendas. Based on these efforts, within one year the anticipated enrollment decline was cut in half according to figures provided by the Phoenix College Research Office.

Program Overview and Goals

The Phoenix College Management/Marketing Internship Program is really a cluster of seven Applied Business Department AAS degree and certificate programs. The following graphic shows how these programs are related to the two courses required for graduation: a three-credit internship in a company and a concurrent one-credit seminar of classroom instruction with other students participating in an internship.

Figure A-1
Phoenix College Management Internship System Components

The entire Management Internship System, of which the Management/Marketing Internship Program is a part, enrolled 144 students in Fall 1993 in a cluster of five different AAS degree/certificate patterns:

1. **management (50 students)**
2. **marketing (18 students)**
3. **fashion merchandising/marketing (27 students)**
4. **travel industry technology (36 students)**
5. **credit union management (13 students)**

In Fall 1994, two new degree/certificate patterns were added: (1) quality process leadership and (2) quality customer service. Enrollments were not available for students in these programs.

Of the total of 144 students enrolled in the Management Internship System in the Fall of 1993, 70% were white, 15% were Hispanic, 8% were African-American, 6% were Native American, and 1% was Asian (see Table A-5). These figures indicate student demographics are similar to the college as a whole. An estimated 33 students were enrolled in the Management/Marketing Internship Program in the Fall of 1994. Of those, 18 were evening and 15 were day students.

Table A-5
Enrollment and Student Demographics for
Phoenix College Management Internship System [1]
(Fall 1993)

Enrollment and Student Demographics	Incidence
Total number of students enrolled in the program	144
Ethnic composition of students:	

African-American	8%
Native-American	6%
Asian	<1%
Hispanic	15%
White	70%
Other	--
Average age of students	UK
Percent of students receiving Pell grants	UK
Graduation rate for students	UK
Job placement rate for students	80%
Transfer rate for students	UK

Note: UK indicates unknown or unavailable information.

The Management/Marketing Internship Program was launched by Phoenix College in 1968 as part of a districtwide cooperative education program. The program has had an interesting and somewhat tumultuous history. The decision to require a work-based learning component as a graduation requirement for management and marketing was made by a former administrator for occupational education. Other colleges within the district adopted the Management/Marketing Internship Program curriculum, but during the past five years all other colleges have deleted the internship component as a requirement. Negotiations with the faculty (non-unionized in this district) have led to agreements that impose high costs on assignments to cooperative education courses. Consequently, cooperative education enrollments are on the decline across the district as instructional departments seek efficiency.

Phoenix College is the only remaining college in the district that requires the management/marketing seminar and internship within related degree/certificate patterns and is under pressure to delete these requirements to be consistent with a districtwide curriculum. Phoenix College is holding out primarily because the Department Chair and one full-time faculty member believe that work-based learning is an important component of the educational experience. They believe it achieves an important goal when it matches working students and their employers in a joint enterprise to make the job a learning experience. This happens most naturally with evening students who generally come to college already holding a job. For day students who represent a mix of employed and unemployed students, it is sometimes a greater challenge to link students with employers.

In some respects, the Management/Marketing Internship Program existing today is consistent with a cooperative education model that exists in other community colleges. A definition of cooperative education appearing in the *Student Handbook: Cooperative Education* distributed to all students says, "Cooperative Education makes it possible for a student to earn college credit for planned

growth in a college major related job. Cooperative Education consists of a joint agreement between an employer, a college, and a student. Cooperative Education makes it possible for a student to put classroom learned knowledge and skills into practice on-the-job. On-the-job experience increases a student's employability." A sample syllabus for the related classroom seminar illustrates its relationship to the internship: "[The] course will involve the development of work-related objectives. The objectives will be jointly developed; agreed upon; and approved by the student, employer, and instructor. The seminar will cover varied business topics as student needs dictate." Sample topics include the following:

- **introduction to the seminar concept**
- **development of objectives**
- **discussion of management styles**
- **tools of motivation**
- **change in the workplace**
- **goal setting**
- **performance evaluation**
- **creative marketing**
- **stress in the workplace**

Interestingly, we observed that the model differs from some community college cooperative education programs where work-based learning is an elective course administered by a separate office within the college. At Phoenix, it is a graduation requirement for the seven feeder degree/certificate patterns and is administered by the Applied Business Department itself. In addition, the program is supported entirely through the college's general operating budget. It receives no special funding support from grants or other external sources.

Data regarding outcomes (i.e., transfer, degree, or certificate completion; job placement; career advancement) for students enrolled in the Management/Marketing Internship Program are not available. A part-time college research officer indicated that resources are not available for persistence studies on individual programs of the college. However, according to one faculty member, student retention in the seminar/internship courses is good, although corporate downsizing is impacting some students' retention. If students lose positions during the internship period, they can complete the seminar, but receive incompletes for the internship until other positions are obtained. According to the Applied Business Department Chair, about 80% of the students with internships are retained in employment after the internship.

One major issue the college faces regarding program completion and articulation is identifying a cohort of students coming from all related degree/certificate components who may benefit from transfer to the University of Phoenix in an articulated program. Currently, a sort of tracking system is occurring among evening and day students. Evening students are more likely to be employed and interested in learning TQM techniques. (New courses and degrees in these areas are recognized by major employers such as the Arizona Department of Transportation and are being offered on-site at

such employers as the Automobile Association of America.) Evening students are viewed as part of a work-oriented, "terminal" education and may not be given the same level of encouragement to continue at the four-year college level as day students, creating different levels of expectations and opportunities for upward mobility for the two groups.

Key Stakeholders

The Applied Business Department Chair plays a key role in the program. She has been involved with the program for many years and believes in it strongly. She is an advocate for student internship placements, permanent job placements, and counseling. She is a strong advocate for the program among her colleagues at the college.

For Fall 1994, one full-time faculty member and one part-time faculty member were assigned to the management seminar and internship courses. The full-time faculty member has experience in secondary distributive education and is responsible for the evening seminar and employer contacts. A part-time faculty member holds a master's degree in human resource development. She described her own internship experience as a university student as follows: "No goals. No structure. No pay. This program is entirely different. It offers a team relationship between the instructor and the supervisor on behalf of the student, someone who `might be a person who can move up.'" She is responsible for conducting the day seminar and a portion of the employer visits.

Counselors at Phoenix College are assigned to particular program concentrations or target populations. One counselor sees all students interested in management and related programs. This counselor does not recruit students into the management/marketing Programs or any other specific program. Instead, she focuses on student recruitment for the college as a whole. She also reviews the requirements of the management and related programs with students, and arranges for diagnostic tests to assure appropriate placement.

Academic faculty are not involved directly in the Phoenix College Management Internship System, although one English teacher is developing an applied course as part of the developmental/basic English sequence. She is surveying students to identify non-course writing assignments from the workplace or other aspects of their lives, and she is developing a new focus for her research course on students' community service activities.

Program Components

School-Based Learning Component

The school-based learning component is strong and supportive of the work-based learning component. Students enroll in one of the seven related degree certificate patterns and hear orientations from internship-assigned faculty during regular course visits. All must enroll in the school-based seminar concurrently with the internship course, generally during the second

semester. Each student writes objectives for the internship assignment, and the student and teacher meet with the employer to finalize them. Students share internship experiences in the seminar and learn about current business issues and trends across industries. Several themes are chosen each semester such as ethics, growth and self-awareness, and performance evaluation.

Work-Based Learning Component

The work-based learning component is best described by the students and teachers who participate in it. For one employed student, the program is a shared experience leading to visibility and possible promotion within her company. Here is an excerpt from our field notes:

When one student in her early forties made the decision to return to school a year and one-half ago, she chose Phoenix College because it is convenient to her workplace, and Phoenix College has "a better reputation than the other schools--better curriculum, faculty, and students." She went to the Applied Business Department Chair for advice in selecting a program of study. She enrolled in the management program and selected the internship component this term after hearing it explained by a faculty member who spoke to the students in one of her courses. Her long-term goal is to open a retail shop as an entrepreneur.

Employed by a major telecommunications company, the student described her supervisor's reaction to the internship: "Boy! Is my boss impressed. He didn't know about the program before, and he's working on a degree too. He's really pleased about having input in setting objectives and timelines and meeting to talk about the project." The student presented her *Cooperative Education Learning Objectives Agreement* with pride. The learning objectives focused on statistical analyses of unit productivity. This project is one that her supervisor needed, but its scope went beyond the normal demands of her job description. Excited about the expected importance of her results, he arranged for her to present her project to the company's vice presidents. In preparation, he met with her every two weeks to discuss progress.

The student takes this assignment very seriously and suggests that the program could be strengthened by focusing more strictly on measuring progress toward objectives. General discussions about developing management skills and self-awareness are important for students to share experiences, but she would like to see a stronger connection to specific student objectives. This student is an employed student who atypically attends the day seminar. According to the Department Chair and faculty member, the day seminar generally contains more students who are marginally attached to the labor market.

The Management/Marketing Internship Program has had a beneficial effect on another employed student. Here again is an excerpt from our field notes:

One young male student is employed at an automobile association. His female supervisor in senior management spoke of the internship process with high regard, recalling that she participated in it

some years ago through another college in the Maricopa District. When informed that only Phoenix College continues to require the internship, she was at first incredulous and then incensed. She commented, "Community colleges will have to do more programs like this, not less, if they're going to survive." She believes that many employers have stopped working with the College because few programs relate to the working world. The University of Phoenix, a private four-year institution, offers more practical and relevant courses and has articulated the management, marketing, and fashion merchandising degree programs offered by the Phoenix College Applied Business Department. This student chose Phoenix College because of its strong Applied Business programs, and he will transfer to the University of Phoenix when he completes the associate degree. The manager would choose the University of Phoenix herself if she were returning to school.

The supervisor underscored how mutually beneficial a partnership between Phoenix College and companies can be by describing the company's tuition reimbursement policy. It pays for the student's education, and provides opportunities for customized training for the company's employees. Phoenix College is conducting total quality management (TQM) training on-site at the company. The supervisor attends a TQM course on the Phoenix College campus to obtain a broader perspective. She also works with the local technical high school and offers three-week internships for high school students focusing on industry and career exploration.

She speaks at schools all over the state about the changes occurring in the nature of work, the new skills required, and why the company invests in human resource development. The company cannot find enough qualified people to hire, and investment in education makes sense. For this company, a qualified employee understands geography, business writing, and problem-solving. These academic skills should be integrated into applied learning courses. TQM courses do this in a rare example. The linkage with the work setting provides a context, and shared experiences among working students extend this knowledge. Day students who are less likely to be working are at a disadvantage. One participant commented, "Day students don't have a reality context. Coursework becomes an extension of high school."

The supervisor and student provided a written and signed copy of his internship agreement, specifying clear, measurable objectives, and recorded results. He expressed satisfaction with the evening seminar where he shared experiences and business issues such as motivating employees and TQM techniques with his peers who work in several different industries. Both the manager and the student complimented the collaborative/peer-based learning in the Applied Business courses at Phoenix College. The manager indicated that this student/employee is a problem-solver and the internship/seminar components enhanced his capabilities. Such skills are very important to this company which is incorporating management and technological advances to improve its productivity. The peer-based and multiple industry nature of the seminar means that the company benefits from the knowledge of a student who advanced in other industries. According to a supervisor, the employee learns that "change is happening everywhere, not just in one company."

A brief visit to the day seminar highlighted differences between day seminar students who are less

likely to be firmly attached to the labor market and evening students who are more likely to be employed. The class comprised about 12 students, all female, but in ethnic composition roughly comparable to reported enrollment data. The students spoke at first shyly and then more eagerly about the program. Their comments centered on their positive view about this practical course relating learning to work. Several students talked about the difficulty of juggling work, family, and school. One student mentioned that she is self-employed, representing what we perceived to be a weak form of internship where she is both supervisor and student.

Connecting Activities

Strong connecting activities exist between the school-based seminar and the work-based learning component. All students receive a copy of the District's *Cooperative Education Handbook* and use a standard written and signed agreement documenting learning objectives and evaluation criteria among the teacher, supervisor, and student. The faculty member meets with the employer and the student twice to finalize objectives for the internship and to assess progress; students arrange the meetings. Although they receive letter grades for the seminar, the internship is pass/fail. Students and supervisors are encouraged to set learning objectives that are an integral part of the work day. Both the teacher and supervisor are responsible for reviewing progress and guiding the student. College staff intervene if the student needs more assistance from the supervisor. And finally, students prepare a written report describing their experiences.

The Applied Business Department Chair conducts advisory committee meetings that focus on accomplishments and future plans. The Associate Dean of Instruction generally attends the meetings. The advisory committee meets quarterly and has eight members. One of the members of the program's advisory committee is a manager of the new home-based business division of a major telecommunications company. He is a member of the adjunct faculty of the college teaching TQM. He saw the target population for the Management Internship System as employed urban people. He believes that Phoenix College has a strong advantage over its suburban sister colleges. He stated, "People like what Phoenix College does, and they'd rather go there than to the suburban colleges."

A current issue being discussed by the advisory committee is how to infuse more curricula with TQM techniques. One advisory committee member predicts that college teachers will become consultants/advisors to the workplace rather than simply classroom teachers. This member's company is introducing a self-managed work environment, TQM techniques, and an intensive training program for employees. Unfortunately, neither this manager nor anyone from his unit has ever had a Phoenix College management intern. He became interested in education about 14 years ago as changes began to be introduced in management techniques. He has been associated with the college for seven years. He joins students and others in business who comment on Phoenix College's strong reputation. He stated, "Phoenix College has a good reputation. It's not just a junior college; its like a four-year college." He does note that the district's "college without walls" does have a reputation in the business community for more flexibility than Phoenix College which is "rooted in tradition." He echoes the automobile association manager who said, "Students need more than

theory. They need to apply what they learn."

Lessons Learned

The Phoenix College Management/Marketing Internship Program is an example of a long tradition of community college linkages between the classroom and workplace. Administrators who lead the program believe strongly that internships not only provide opportunities for applied learning, but also teach the supervisor "how to work *and* train." In this sense, the model is a "work-to-school" model rather than the reverse. Clearly, the program borrows from cooperative education; yet, it is not classic co-op. Rather, students use their regular work site for the learning experience. This is feasible because most community college students are adults who work, presumably remaining in the workplace and progressing in careers. To facilitate this perspective, a crucial part of the Management/ Marketing Internship Program is a structured "experiment" undertaken by students on the job. This experiment is a tripartite arrangement among the college instructor, student, and employer, which also provides the backbone of the seminar. Through this and other activities, this program provides a real example of how work-based learning can reshape students' careers (including those employed in marginal, low-paying jobs) as well as reorient companies toward greater human resource investments.

As was stated previously, this program turns the idea of school-to-work around and emphasizes a work-to-school arrangement in which both the supervisor and student learn about how the workplace can be used as an applied-learning setting. In so doing, both the student and employer can benefit. The connecting activities between the seminar and the internship are important for any similar program. Expectations, written agreements, final reports, and meetings among the teacher, student, and supervisor provide a structure for the entire learning process. Staff encouragement for setting workplace-related learning objectives also strengthens the role and investment of the employer and profiles the student's advancement potential. Also, as a required component for graduation, the internship offers an economy of scale by drawing on several related degree/certificate patterns. The seminar provides working students with an opportunity to understand that business issues are not limited to one employer or one industry, preparing them for career decisions and problem-solving in the labor market.

The college does not set a wage for the internship since most students already are employed. Yet, the Applied Business Department Chair does assist students without jobs to find employment. Of course, the challenge of accommodating more day-time students who are marginally attached to the labor market is formidable. The burden is eased by the Department Chair's credibility in the business community. Her referral provides a strong recommendation for students seeking employment and employers recognized this advantage. One business person commented, "The Chair's card becomes a portable credential."

The program is kept alive through the student recruiting strategies of the Department Chair, and we question whether or not it could continue if she were to depart. One source of strength may be

the alumni; however, they do not appear to be organized into a constituency that could mobilize support quickly. Consequently, the Management/ Marketing Internship Program works most effectively with students who are already employed. It is not suited for students who are not already in or are only marginally attached to the labor force. Yet, as student demographics shift, the program is being asked to accommodate those who are underprepared and lacking in financial support. Without additional resources, these expectations will be difficult for the program to meet.

The Management/Marketing Internship Program has existed for years without much recognition from the college administration. Most college administrators and faculty do not consider it to be innovative. Instead, the faculty think of themselves as under siege. They are continually challenged to demonstrate the worth of the program, especially in an era of fiscal austerity. The program's unique character as a work-to-school model, its resonance with the federal STWO legislation, and its potential impact on companies beginning to invest in employees are largely unrecognized within the college. We consider it unfortunate that Phoenix College does not recognize that the Management Internship System--a cluster of related degree and certificate patterns around required work-based learning requirements--is a strong and feasible model that could be used by many community colleges to expand co-op. The idea of clustering could be transferred to any occupational area, and work-based learning or internships could be added to create similar programs. Although not yet fully developed at Phoenix College, clustering could be an integral part of the academic portion of the program as well, especially where applied academics or integrated vocational and academic experiences are offered. Altogether, clustering might provide useful options for community colleges to launch work-based learning on a larger scale.

Besides concerns about sustaining the program, still another major challenge was reported. During the 1980s, the faculty in the Business Department became divided between those who advocated more applied learning strategies and those who promoted a more theoretical approach, creating an organizational split resulting in two departments: the Business Department offering an associate of arts (AA) degree in business administration and the Applied Business Department offering AAS degrees. Business administration students receive more theoretical instruction in anticipation of transfer to a university while the applied business students in the Management/Marketing Internship Program receive a terminal degree in preparation for immediate employment. Math plays an important gatekeeping role, evidenced by the following comment: "If students can't do calculus, they go to the Applied Business Department." Depending upon students' abilities to master calculus, their higher education options are either capped or extended. Consequently, students in the Management/Marketing Internship Program who do choose to transfer to a university must repeat courses considered nontransferable. Further, public universities have shown limited flexibility in establishing articulation agreements with the Applied Business Department degree programs. The one exception is the University of Phoenix, a private institution that is accepting AAS credits in transfer as part of an articulated program. According to an Associate Dean, 90 credit hours will be accepted within a 120-credit bachelor's degree program.

Due to the location of the college and focus of the program, a major constituency served by the

college is downtown financial and other white-collar firms. Many major employers are literally within a mile of the campus, and the existence of a program in which students can gain college credit for activities on the job site is an attractive stimulus for the college and this program. Phoenix College is positioned, by virtue of its location but also by its long tradition and reputation for excellence, to act as a major partner in economic and educational restructuring. Given these advantages, it is unfortunate that the program is under siege. Instead of being seen as in step with the new federal STWO legislation, the faculty are embattled, protecting an expensive but apparently effective program. Because the program is thought to be excessively costly (low class size and work-based learning are nearly always more expensive than classroom instruction), the Applied Business Department Chair is being encouraged to seek alternative resources through customized training and other partnerships with business and industry. Moreover, she is challenged to illustrate how work-based learning can be more than a peripheral educational program by contributing to the city's economic recovery, an overwhelmingly complex expectation. Rather than eliminate this program, we encourage Phoenix College administrators to recognize its strengths: its long and proud history; its relevant work-based learning experiences, and its strong connecting activities with one of its recognized constituents--urban employers. To save the program, college administrators and faculty need incentives, financial and otherwise, to accommodate work-based learning. Hopefully, the nation's new STWO legislation can be used to help Phoenix College and other community colleges with similar programs to achieve that goal.

Resort and Restaurant Management Program,
Northwestern Michigan College

Paula Puckett and George Johnston

Northwestern Michigan College (NMC) was founded in 1951 by a group of citizens who wanted to provide an affordable college education for area residents. In 1955, NMC became Michigan's first community college under the Michigan Community College Act. Serving 65 students with a staff of six, NMC has grown to serving an unduplicated head count of 5,500 students by the 1993-1994 academic year. During that same year, 100 full-time faculty and another 150 part-time faculty served 2,483 full-time equivalent students. Academic year 1993-1994 credit student enrollment was 5,747, an increase from 5,300 credit students in Fall 1993. White enrollments make up 92% of the total enrollments at the college and 30% of NMC's students are between 18 and 21 years old, with the average age of 28.

The focus of the college's curriculum appears to be split fairly evenly between transfer (33%), adult and continuing education (40%), and occupational (27%). The college has a higher than usual interest in continuing education programs due partly to the fact that 25% of the population in the area is over the age of 50. The college currently offers nearly 200 continuing education courses. Table A-6 provides a breakdown of student ethnic background and shows that 24.5% of students receive Pell grants.

Though the ethnic culture on campus is not diverse, the campus encourages personnel to try out new ideas and rewards a willingness to learn from these experiences. This was evident in NMC's investment in distance learning technology and offering hands-on teaching at the Park Place Hotel and off-campus electronics labs. A willingness on the part of the institution to take risks appears to be instrumental to the development of the Hotel and Restaurant Management Program which brought us here. In addition to other programs on campus, this program seems to reflect the college leadership's vision of more balance between school- and work-based education. NMC's President feels that the program fits with the college's mission as follows:

Northwestern Michigan College is a comprehensive community college committed to open access, excellence in teaching and learning and support for student success through career, enrichment, and transfer programs--in partnership with the communities it serves. (*Northwestern Michigan College Catalogue*, 1993, p.1)

To keep the college informed about the program, the Resort Management Department Chair reports on program activities at biweekly cabinet meetings held by the President.

Table A-6
Enrollment and Student Demographics for
Northwestern Michigan College
(Academic Year 1993-1994)

Enrollment and Student Demographics	Incidence
Institution's total head count enrollment	5,747
Institution's FTE enrollment/TD>	2,483
Ethnic composition of students (total population):	
African-American	<1%
Native-American	<1%
Asian	2%
Hispanic	<1%
White	92%
Other	4%
Percent of students receiving Pell grants	23%
Average age of the institution's entire student population	28

Note: UK indicates unknown or unavailable information.

Program Overview and Goals

At NMC, college faculty and administrators, students, and community leaders all benefit from a

unique situation in Traverse City, a pleasant resort community nestled along a bay area off of northern Lake Michigan.[2] In addition, the local Rotary Club plays an integral role. In the mid-1980s, the Rotary Club recognized that the combination of the closing of the large downtown hotel, known as the Park Place, and the expansion of the city (malls and a resort) on the outskirts of town, could be detrimental to the downtown community. The Rotary Club purchased and funded a $14 million renovation of the Park Place as part of the organization's commitment to education. Opening in 1991, the hotel offers 140 guest rooms. Nearly 15,000 square feet of meeting and convention space are available for groups of 10 to 700 persons. Upgraded audiovisual equipment plus teleconferencing capabilities allow the hotel to support many types of meetings.

The Traverse City area Rotary Club has earned the distinction of the "richest Rotary Club in the world." Most of its wealth is due to the purchase of oil-rich land for a boy scout camp. The club enjoys an active membership of over 300. The Traverse City Club saw the Park Place Hotel as a unique opportunity to create a training center while enhancing the downtown community. The Rotary Club's goals for the program were tri-fold:

1. **To form an educational partnership/hospitality management Program.**
2. **To restore a landmark hotel which serves as an anchor for downtown Traverse City.**
3. **To profit, eventually, in order to support additional community philanthropic endeavors.**

The program was started to support the growing need for people trained in one of the top service industries in the United States, especially in the Traverse City area. Over 30 two- and four-year colleges in Michigan alone offer hospitality programs. According to the Dean of Occupational Studies at NMC, who used state grant money to assess other programs throughout the nation, "the thing that makes ours unique is the Park Place Hotel. Ours is the only program that offers such extensive on-the-job training in a live environment." Students enrolled in NMC's program have an opportunity to gain actual work experience in the Park Place Hotel and the Oleson Center (a conference facility located on the main campus). In addition to their normal duties, the Hotel General Manager, Executive Chef, Pastry Chef, Banquet Manager, Rooms Director, Food and Beverage Director, Human Resources Director, and Controller are all involved in the instruction of students.

The number of students enrolled in the program rose from 80 in Fall 1993 to 92 in Fall 1994 (see Table A-7). Similar to the institutional characteristics, 91% of students in the Resort Management Program are white with what appeared to be a fairly even balance between males and females. Of the minority students, 3% were Asian and another 6% were unknown. The average age of students was the same as the institutional average of 28. Pell grants were received by 22% of the students in the program. While student graduation rates are low at 14%, the program's job placement rate is 100%, providing some indication of employers' need for people with experience in the resort management industry regardless of whether students have actually acquired the credential.

Table A-7

Enrollment and Student Demographics for the NMC Resort Management Program (Academic Year 1993-1994)

Enrollment and Student Demographics	Incidence
Total number of students enrolled in the program	92
Ethnic composition of students:	
African-American	0%
Native-American	0%
Asian	3%
Hispanic	0%
White	91%
Other	6%
Average age of students	28
Percent of students receiving Pell grants	22%
Graduation rate for students	14%
Job placement rate for students	100%
Transfer rate for students	35%

Since the program is relatively young and evaluative information is unavailable, the college is currently working on follow-up with previous students. The criterion for determining whether to follow up a particular student is the number of credits completed toward a degree. Two students plan to move to Las Vegas to gain additional work experience and attend the University of Nevada at Las Vegas (UNLV). They then plan to return to the Traverse City area to obtain management positions. They understand that employers in the community tend to either hire "just anybody" to clean rooms or very experienced managers. Even though these students appear willing to move away from the community to enhance their education and careers, most students expressed an interest in staying in the area and expected to have difficulty finding a management position there. Few anticipated leaving the area to find employment directly related to their degree, even though that might be the best way to facilitate a career in the hotel management field. The local community appears to have a very strong hold on its people.

Since joining the college in 1992, the Department Chair of the Resort Management Department constantly reviews the program to improve it. He and the hotel's newly hired General Manager believe that NMC's program is one of the "best kept secrets in the area." According to them, the goal of the program and its staff is to graduate students who are competent, work-ready, and prepared for the rigors of a challenging career in the hospitality industry by emphasizing training and education in a real-life environment. Though he is optimistic about the program's future, the Department Chair is the first to admit there is room for improvement. Based on a recommendation

of an outside consultant, the Rotary Club hired a management company to take care of the business when it first opened. It quickly became apparent that the company was not committed to offering educational opportunities for students, leaving the program in disarray. It took some time to take care of the contractual agreements and hire a new manager. It then took time for the organization to recover.

Key Stakeholders

All of the people involved in the program demonstrate their commitment to its success through their actions. The key stakeholder groups are college leaders, policymakers, the Resort Management Department Chair, faculty, Rotary Club members, and students.

College Personnel

The program has two full-time and five adjunct faculty who also work full-time at the Park Place Hotel. Each brings a unique combination of experience to the program and knows what it takes to be successful in the industry. Even though most of the faculty have been at NMC since the beginning of the program, they remain in touch with the industry through their work at the Park Place Hotel. There, they keep their knowledge and skills honed. In addition to the management of the Park Place, the faculty's backgrounds include teaching at Paul Smith's, a private culinary school, and participation in the development of professional standards in the Council of Hotel and Restaurant and Institutional Education (CHRIE) association. Many faculty also participate in the American Culinary Federation (ACF). These faculty have a special program to honor those who make exceptional efforts toward accomplishing the mission of the college. This award is administered by an ad hoc committee that evaluates faculty nominations. Such faculty incentives are unique to the college and indicative of its commitment to faculty development.

Faculty compensation is handled in an innovative fashion. Faculty are paid according to the number of student-contact hours. Hotel staff (as adjunct faculty) receive instructor pay for their teaching load according to the number of students enrolled in the course. On campus, a course must have at least 15 students to be offered. Courses taught at the hotel may only have 5 students enrolled and, in these situations, instructors are paid 5/14 or approximately 1/3 of the regular salary. This enables the college to offer courses every semester, while avoiding unjustified expenses. The guaranteed scheduling allows students to take a particular course in any given semester and instructors enjoy giving more individualized attention to students. The college can afford to administer the Resort Management Program through additional fees charged to students based on the actual instructor-contact hours (i.e., the number of hours a student spends in class that exceeds the number of credit hours). Rates are 100% of credit-hour rates, or $49.25 per contact hour for in-district students and $81.50 per hour for other in-state students. For a course such as "Quantity Food Preparation," which is a required 4-credit hour course, students pay for four additional contact hours, thus bringing the cost of one course to $394 for in-district students and $652 for other in-state students.

To help offset the higher cost of this program, scholarships are available to students. Two $150 F.E. Fivenson Food Service Scholarships are awarded annually to full-time students enrolled in the Resort Management Program with a minimum of a 2.5 grade point average. There is also the Hospitality Industry Scholarship Fund-Katie Shield Memorial. Katie Shield was a well-known restaurateur in the Grand Traverse area and very active as a leader in the Michigan Restaurant Association. In her memory, a scholarship of varying amounts is awarded annually to a student in good standing and in need of financial assistance. The Chef Pierre Scholarship consists of one $1,500 annual award to a qualified student enrolled in the Resort Management Program who demonstrates financial need and exceptional academic promise. In addition, there is a National Cherry Festival Scholarship with a $2,000 award.

Dedication to the program is evident from all of the people associated with it, especially the Career Dean. In addition to coordinating community and work-based learning programs, she reads extensively to keep up with business trends and philosophies. She serves on all pertinent committees to stay involved with the community. She also excels in finding creative ways to use federal money such as offering conference funds to academic staff interested in learning more about initiatives such as Tech Prep. She has also spearheaded a follow-up evaluation of programs using federal money to find out what students are doing five years after they leave the college. In addition to her numerous contributions, many faculty consider the Resort Management Department Chair as a champion of the program. He is responsible for coordinating the teaching of students at the hotel; participating in the CHRIE association; consulting with and, as a mentor, advising students; chairing the Rotary Center Education Committee; and teaching.

The Park Place Hotel

A strength of the program is the Park Place Hotel itself. Its updated facilities are a major asset to the program. The hotel provides a place for students to feel the real-life pressures of the fast-paced industry but in a somewhat more sheltered, nurturing environment. The hotel is currently operated by a board of the Rotary Club; NMC has a seat on the board. The Oleson Conference Center, located on the college campus, is a profitable business, run by a certified culinary educator. He and his students provide food and facilities to groups with educational-based purposes. The profitability of the Oleson Conference Center is essential to providing realistic training for students, especially since relatively small numbers of students are enrolled in the program itself.

Rotary Club Members

Not only did Rotary Club members make a major investment in the renovation of the training facility, the Park Place Hotel, they have served as customers of many of the luncheons hosted by students. In addition, they hire all the hotel management-level personnel and currently pay the Resort Management Department Chair's salary on a five-year basis. They also serve on the Park Place Board and its Education Committee, dedicating many hours to the project each week.

Students

Although nearly all of the students enrolled in the program are white, the Department Chair is hoping to recruit more minority students. The program is working to develop stronger relationships with area high school counselors to enhance student recruitment. Just like faculty, students bring previous work experience to the program from places such as Las Vegas casinos. Students are required to pay lab fees and contact-hour fees for courses where the actual instructor time exceeds the credit hours. This strategy helps the college pay instructors for their actual time and ensures they will be available to provide extra help. As is common with most programs having a culinary arts component, students must also purchase uniforms and knives.

Program Components

Although prior to our visit we thought the program was a school-based enterprise, the site visit revealed that it is not quite that--yet. A traditional school-based enterprise is defined by Stern et al. (1994b) as a "class-related activity that engages students in producing goods or services for sale or use to people other than the participating students themselves." At NMC, students are not completely responsible for providing the hotel's services. To date, a Board of the Rotary Center manages the hotel. However, the program might be considered a budding school-based enterprise since students are taking responsibility for more and more aspects of the business. For example, the college recently worked out an agreement with the Rotary Club so that students can manage the hotel's family-style restaurant. The college calls this aspect of the program "work-based education," which is thought to represent several models including internships and apprenticeship training. In our view, as the program exists today, it is more representative of cooperative education or internship models than school-based enterprise, but the intention of becoming a true school-based enterprise is readily apparent. To accomplish this, the college will need to take more responsibility for the actual day-to-day management of the hotel. And when this occurs, the college can turn more responsibility over to the students to manage the hotel.

In a related venture, the college is in the process of working with the Rotary Club to open a bakery. Based on research conducted by the students regarding baked-good providers, the college determined the community could support a student-run venture of this type. At the time of our visit, negotiations were under way to establish the bakery. "The Patisserie" is scheduled to open in February of 1995.

School-Based Learning Component

The school-based learning component of work-based learning programs generally include integrated vocational and academic courses, providing the theory behind what actually happens at work while also keeping students informed of career opportunities. At NMC, this is also the case. Students attend classes their first year on the college campus in primarily liberal arts courses with one work-related course taught at the Oleson Conference Center (i.e., Quantity Food Preparation).

In their second year, students attend classes at the hotel with the opportunity for short field trips to view actual operations. In addition, they actually work in the hotel.

Most recruitment efforts for the program are informal, consisting of cooking demonstrations at job fairs or high school career days. The Department Chair is looking to change this by using strategies similar to those used in the industry, including using professional recruiters, offering incentives for referrals, and asking past graduates to give testimonials. The relative newness of the program has not allowed time for resources to materialize to accomplish these activities; however, at the time of our visit, the Career Dean was working on hiring a part-time recruiter.

The college got involved in local community events such as the National Cherry Festival by sponsoring a recipe contest which helped to advertise the program for both potential students and the community at large. While the program is looking for quality students, they are committed to open access by only requiring a high school diploma or equivalent, and the demonstration of beginning algebra abilities, in addition to college-level writing skills. The President stated, "I think that our open access program will serve as a model for our other programs in that we need to integrate the work experience into the curriculum, as the `Park Place' Program does. We also hope to get other areas such as accounting and business involved at the hotel." The program does screen all students interested in the program because they must be interviewed and admitted by the Department Chair. He explained, "all students are welcome to our program, though I want to talk to them first to make sure they like working with people. That's what this industry is all about."

NMC recently revised the Resort Management Program requirements listed on the following page into some of the most intense for this particular program area in the state:

Communications:	English Composition I and II	8 credit hours
Humanities:	Any basic course	3 credit hours
Mathematics:	ASSET score of 42 or Elem. Algebra	4 credit hours
Science:	Any basic course with lab	4 credit hours
Social Sciences:	Government	3 credit hours
Additional:	Any basic core course	3 credit hours

Students complete 16-credit hours of business courses, including accounting, business math, an introduction to computers, and management. The hospitality courses include quantity food preparation, sanitation, menu planning and purchasing, front office procedures, hospitality human resources, accounting, and food and beverage management.

Added to the standard liberal arts and business course requirements (i.e., accounting, introductory business course, business math, computers in business, and principles of management) of the 66-hour AAS degree are requirements that students demonstrate specific competencies in the following six key areas of hotel management while working at the Park Place Hotel:

1. **banquet management**
2. **front desk operations**
3. **buffet planning**
4. **housekeeping**
5. **fine dining service**
6. **main kitchen operations**

Students participate in six-hour labs that simulate the actual work setting, which include activities such as general kitchen and cooking duties. Many of the products created are served to faculty or other groups meeting for educational purposes as the lab is located in the Oleson Conference Center.

The curriculum integrates occupational and academic curriculum, specifically in the menu planning and purchasing course. Students are required to plan a meal with a theme and price items appropriately. The meal is then advertised and prepared for the local community. This course provides students with the opportunity to gain the entire experience of running a restaurant. In addition, the restaurant located within the Park Place Hotel, The Parlor (formerly called Dally's), is operated daily by the students.

Students can receive an AAS degree if they complete all requirements of the program. NMC is also considering establishing other awards or means of recognition to give students additional incentive to complete the program. Since students are able to get jobs without the actual degree (and are frequently hired prior to completion of the program), establishing other forms of recognition for completion is necessary. Unfortunately, at the time of our visit, the college was not ready to reveal what these awards or recognitions might be.

Work-Based Learning Component

The work-based learning Component requires students enrolled in the program to work 30 hours per week in the hotel itself. Some students are paid; some are not. Pay is determined by where students are stationed. After assessing each occupational area and developing competencies for each area, the program has been designed to pay students who are directly contributing to earning money for the hotel such as those working at the family restaurant on the main floor. Other students who are receiving training or doing indirect service functions such as front desk and cleaning services are not paid. The hours students actually work varies to accommodate those who work other jobs. The responsibility for coordinating schedules with actual work areas is that of the college's, although a college representative is also at the work site.

Students rotate through different jobs, serving an average of three weeks in each position. This can vary depending on the student. Since the hotel is otherwise fully staffed, students are not rotated based on the hotel's needs, but, rather, according to their individual plan established with the Department Chair. Students rotate from the bar service area to the front desk, to the kitchen, to

housekeeping, to the pastries area, but not necessarily in that order. Because the average age of students in this program is 28, there are no restrictions on where they can work as there might be if youth would need to be prohibited from serving liquor. Program staff believe it is crucial to require students to have a working knowledge of the entire enterprise, especially what goes on in the "back of the house," meaning the kitchen. Through these rotations, students are required to demonstrate the specific competencies established for the program by the Department Chair.

Connecting Activities

The fact that selected courses are taught at the hotel itself facilitates a strong coordination between workplace and classroom learning. Informal training plans are designed for each student based on his or her previous experience. These plans are made up of a review of the student's previous experience compared with the six core areas of banquets, buffets, housekeeping, main kitchen, fine dining, and front desk operations. Students are expected to complete an off-site internship experience to gain a broader understanding of the industry at an approved site. Examples of previous internship sites include Walt Disney World in Orlando, Florida, and Glacier National Park in Montana. There are many intern sites located in Michigan as well.

Worksite mentors work at everything from pastry chefs to being the Department Chair. When asked how he distinguishes between advising and counseling students, the Department Chair responded that he's "careful not to get into personal issues with students. That's not an area that I am trained in," meaning that he respects the expertise of counselors to help students deal with personal issues. He is a very hands-on person, often wearing his "whites" to help out in the kitchen and assisting instructors with teaching and student evaluations. He tailors his coaching skills to students and to his already very competent staff by taking time to consider individual needs. He is proactive in helping other faculty develop support materials and course content. Of course, since worksite and college mentors are the same individuals, good communication between the work site and the college is ensured.

Finally, students are often placed before they graduate, so their placement is rarely a concern. The three counselors at NMC are currently operating with a ratio of 1,500 students to 1--an overwhelming ratio. The college offers additional pay and training for faculty who serve as advisors and the Department Chair serves as an advisor for all students interested in the Resort Management Program. A counselor we interviewed was vaguely familiar with the program and did not communicate an awareness that students need to be "people-oriented" to do well in the industry. Clearly, without knowledgeable counselors, the program is at a disadvantage in recruiting or enrolling new students, and this is an area that college administrators openly discussed as needing to be strengthened.

Lessons Learned

The people we interviewed demonstrated an eagerness to learn and share new ideas with others. The

efforts of the Rotary Club and the college to collaborate were not without rough spots, but again, the individuals involved were able to learn from each other's experiences. In addition, many people who did not have time to serve on committees provided valuable insights into program development on an ad hoc basis. Recognizing how other outside experts can provide additional resources is important. The NMC personnel benefited from seeing that outsiders could provide fresh ideas that insiders had missed. To facilitate this perspective, the college established the program using benchmarking--an evaluative process designed to compare a program with similar programs that are widely recognized as the very best. In benchmarking, other similar programs are assessed to find out what makes them unique and of high quality. Then, once started on the journey of developing the program, the college adopted ideas learned from benchmarking. The ideas were not overly ambitious and changes were not made overnight, rather they were made incrementally. When the hotel partnership was first established, efforts to develop a community training center had to be stopped due to a lack of resources to coordinate similar initiatives sponsored by the community and college. Planning within the constraints of available resources was an important lesson learned by the college early on.

The process of establishing the program also required that the college and the Rotary Club learn more about each other. The Rotary Club needed time to deal with educational bureaucracies. Even though the college moved quickly by its standards, it was still considered slow by the business-oriented club members. By the same token, college faculty had to learn to be sensitive to the language of business. Speaking the same language was key to building a successful partnership. Finally, although the Rotary Club's involvement provided the basis for a strong partnership with the college, it appears that change is inevitable and the partnership is in transition. Some Rotary Club members felt that the Rotary Club's primary objectives had been accomplished and it was time to move on. (The Rotary Club's initial investment was tremendous and will take years to recover; bonds are due within a year.) Since running a hotel requires constant change such as weekly menu changes and high staff and management turnover, it is difficult to maintain consistency in training students. Although the college faculty has stayed the same, the hotel staff (who could also be potential role models for students) has not.

In thinking about the work-based learning component of this program, it is important to note that the program has a unique fit in this local community. Although there are an abundance of hotel jobs in Traverse City, most are low-skill, low-pay, and seasonal. Most of these jobs do not lead to management positions. Consequently, local employers (who do not appear particularly attentive to training employees for these low-skill jobs) are not very responsive to hiring people who NMC has trained for the resort industry. In fact, the demand for graduates of the program in the immediate area is low. This does not appear to jeopardize the program. Students are encouraged and trained to work in *any* full-service hotel. Often those who wish to work in the Traverse City area as managers gain enough experience elsewhere to return as resort/hotel managers.

Unfortunately, these circumstances raise concern about the value of the program and the AAS credential itself, since it would appear the degree is not appreciated fully by local hotel/resort

businesses. Frequently, students take positions before program completion and they do not finish. (At the time of our visit, NMC was pursuing data on graduate or former student salaries to determine the extent of this problem.) Nevertheless, since the actual number of program graduates is low, NMC is considering changing the program to a certificate and dropping the AAS degree requirement altogether. This would have the advantage of enabling students to focus on building specific skills and entering the labor market more quickly, but at the lower salary levels offered by local employers. Even though this idea was supported by the President of the college, we had concerns about its potential to limit students' long-term career opportunities in favor of the short-term requirements of local businesses.

A final obstacle we noted was a lack of resources to support the program on the college side. A frequently stated concern was given about the program needing student recruiters. More communication about the program within the college (to counselors) and the hotel (to staff) was needed. The fact that few students were enrolled in the program demonstrates that it might be appropriate for the college to invest in more recruitment efforts. With such investments, the program may be able to have a more direct and positive impact on local economic development.

The "Park Place" Program, as it was called by NMC's President, offers a unique and valuable model of a community and community college partnership. Features of the program appear to be replicable by other colleges (e.g., flexible scheduling, worksite job rotations), although some parts really are one of a kind (the Rotary Club's investment in a multimillion dollar hotel/training facility). When asked to consider the program as a whole, the Department Chair was modest yet congratulatory of community colleges generally. He summed up his impressions of the Park Place Program by saying, "The industry experience we offer is similar to what is done in other exemplary programs in the United States--but at a bargain community college rate."

Radiologic Technology & Culinary Arts Apprenticeship Programs, Delgado Community College

George Johnston, Russell Hamm, James Jacobs, and Kay Trinkle

Delgado Community College (DCC) was the first, and for a number of years the only, community college in the state of Louisiana. The college began operating in 1921 as a vocational education school specializing in the manual arts. It became a technical college in the late 1950s, granting its first college degree in 1960. The name was changed to Delgado Junior College in 1966, and in 1970 control was transferred from the city of New Orleans to the Louisiana State Board of Education. It now services five parishes or counties with a population of approximately 1.5 million people. In addition to the college's primary service area, it accepts students statewide. Out-of-district students pay only the local tuition rates. The college is accredited by the Commission of Colleges of the Southern Association of Colleges and Schools, the American Culinary Federation Education Institute (ACFEI), the Council on Medical Education, and the American Medical Association. The college offers approximately sixty programs with either a certificate or degree or both.

With the exception of tuition (which is controlled by a state-level board), all funding for the college is controlled by direct appropriation from the state legislature which amounts to 57% of the college's budget. The college is under a joint higher education board, upon which the former President of DCC serves. All appropriations come from this state board. The major employers within the district are largely military offices and installations, governmental offices, and a variety of higher education institutions. New Orleans, as a general metropolitan region, has a struggling economy and is not experiencing economic growth. The college is committed to assisting with economic development.

Student enrollment at the institution continues to grow and is projected to exceed 30,000 students soon. The current full-time enrollment is reported to be 23,640 students which indicates a very large number of individuals attending as full-time students. The majority of these students are in the college transfer section of the institution. While the college is located in New Orleans (and directly adjacent to the Vocational Technical Center for the school system), it draws less than 5% of the graduating class from the New Orleans Public Schools. Far more students come from private schools and suburban public schools. In addition, the average age of the students continues to rise as more adults enter the market in search of a college education. Louisiana has a very low number of residents who have attended college (16%); therefore, there is a lot of interest in attending the college among adults. Within New Orleans Parish, about 60% of the population is African-American. Forty-two percent of the student body has been identified as minority (32% African-American, 6% Hispanic, 3% Asian, 2% Native-American). Twenty-eight percent of the students receive Pell grants (see Table A-8).

Table A-8
Enrollment and Student Demographics for
Delgado Community College
(Academic Year 1993-1994)

Enrollment and Student Demographics	Incidence
Institution's total head count enrollment	29,546
Institution's FTE enrollment	23,640
Ethnic composition of students (total population):	
African-American	32%
Native-American	2%
Asian	3%
Hispanic	6%
White	58%
Other	<1%
Percent of total student population receiving Pell grants	28%

Average age of the institution's entire student population	28

Approximately 28% of the students at DCC are enrolled in occupational-technical curriculum areas and about 10% of these are involved in some form of work-based learning program. Nearly half (48%) of the total student body is enrolled in transfer curriculum areas and another 15% are taking developmental/basic studies. The largest occupational programs at the college are child care and development (400 students) and law enforcement and corrections (300 students). Both of these programs have a work-based learning component.

The Radiologic Technology Program

The Radiologic Technology (RAD) Program is a two-year program that prepares students to enter the health-care field as certified radiologic technicians. The program is described as a "26 month full-time Associate of Science program." Upon program completion, students will have had experience in X-ray, ultrasound, CT Scan, Magnetic Resonance Imaging, and nuclear imaging. The program is broad and comprehensive, and students appear to receive more training on more equipment than in typical two-year college programs. The unusual length of the program, which is 97 semester credit hours (of which 21 hours are general studies), allows for this comprehensiveness. A typical two-year college RAD Program is usually in the 60-65 credit hour range. Due to the limit placed on enrollment, which is currently set at 55 students annually, most students take all of their general education and non-RAD courses prior to beginning the technical courses or prior to entering the program. Students probably spend at least four years completing this program and much of that may be full-time. All students are assessed for basic skills and those who require remediation must add time to the total program which includes 2,400 hours of clinical experience in one of thirteen affiliate hospitals.

The technical portion of the program, the RAD courses, are conducted largely on-site in a clinical model. Prior to clinical assignment, students spend six weeks on campus in an orientation experience that prepares them for entry into the hospital environment. This course includes hospital culture, laboratory process/procedure, medical ethics, regulations and applied law, radiation protection, basic work ethics, hospital structure and administration, teamwork, and patient care techniques. Once in the hospital, students spend approximately 40 hours a week in the clinic. Courses are normally scheduled to permit students to pursue classroom activity in four-hour blocks and clinical experience in either 4- or 8-hour periods.

The relationship between the college and the hospital is defined by a formal affiliation agreement that defines such areas as purpose, general provisions (understandings), student management, and insurance. The relationship between the college and the clinical sites is maintained primarily throughout the routine activities of the college's clinical instructors and the Program Director.

The program is under the auspices of an advisory committee composed of professionals who are employed in local primary health-care facilities. The program appears to be well-known among

higher-level college administration because it began over 20 years ago and was one of the original flagship programs of the college. The former Program Director is now Dean of Allied Health and he was a close friend of the former President. Both he and the present Program Director claim the program continues to receive a high level of support from the current President. Over the years, the program has placed enough students into the various health-care institutions within the community to ensure its strong reputation. It is believed that some of the liberal arts faculty, especially those that teach in math and the sciences, are knowledgeable about the program.

In the past few years, all students who have completed the program have passed the state license test and have been placed in jobs. State program goals include the following:

- **To provide, in consortium with affiliated hospitals, a RAD Program which will meet all standards and qualify graduates to take the Registry Examination of the American Registry of Radiologic Technologists.**
- **To meet health-care provider needs for trained technologists.**
- **To increase the professional upward mobility of RAD technologists.**
- **To provide a program of continuing education.**
- **To provide a system of advanced standing or credit for those with experience.**

A major reason for starting the program was the belief that hospitals would begin to use this program as opposed to training their own staff. When the program was launched, at least two of the hospitals had major training programs for x-ray technicians. These programs took students, primarily from high school, and developed their technical abilities so they could operate the equipment in an x-ray department of a hospital. None of these technicians, however, had any college-related instruction. According to the Allied Health Director, the hospitals resisted the new program at the college at first, but as the costs of training their own x-ray technicians rose, the benefit of having college-trained radiologic technicians increased. It was then that area hospitals turned to the college allied health programs. All but one hospital in the city have shut down their programs; they now rely solely on DCC for RAD Program graduates.

The RAD Program not only operates within DCC's statement of values and purpose, it also fits two of the area hospitals' main objectives. First, it reduces their recruitment and training costs. A program administrator told us that the average recruiting cost for a "rad-tech" job was $24,000. By having a well-structured program, these costs are shifted from the hospital to the school system. The actual work done by the students in the hospital during their clinical experience does save the hospital labor costs because advanced students perform work on patients. Second, the hospitals are able to increase the professionalism of their staff by using the community college. The process of getting into the program, coupled with the difficult process of completing the program, ensures that only the most competent students complete.

Over 500 students apply for this program from a "declared-major" pool of about 1,250, with only about 55 admitted annually via a long and very difficult selection process (see Table A-9). The

tendency is to refuse students' first-time admission and then admit them after the second or third application. Once accepted to the clinical part of the program, few students fail. Although no data was offered, all administrative staff believe that the average age of the applicants was rising to the upper 20s from the current average of 25. A smaller percentage of the students enrolled in the program are non-white (primarily African-American) in relation to the college as a whole; 36% was reported minority for the program as compared to 42% for the college. No specific initiative was reported to select minority students for the program, although we were concerned that special needs students might not be getting sufficient support to stay in the program.

Table A-9
Enrollment and Student Demographics for the
DCC Radiologic Technician Program
(Academic Year 1993-1994)

Enrollment and Student Demographics	Incidence
Total number of students enrolled in the program	55 admitted annually
Ethnic composition of students (total population):	
African-American	28%
Native-American	2%
Asian	2%
Hispanic	5%
White	64%
Other	--
Percent of students receiving Pell grants	29%
Average age of students	25
Graduation rate for students	4%

Key Stakeholders

Five instructors teach in the program; one is a minority and all are female. They are recruited from the field. All had real work experience before teaching at DCC. They tend to divide into two groups: the classroom instructors and the clinical instructors. All are highly motivated professionally, attending sponsored conferences (often with their own resources), and reflecting a positive image of the field. They represent a very strong professional commitment and pride in their association with the program and with Delgado Community College.

Administrators are knowledgeable both about the program and the trends in radiologic technology in the area, and they participate in staff development to keep themselves knowledgeable. They possess very good information concerning the job market for their students, and they are prepared

to downsize the program as well as seek new clinical sites to meet programmatic needs. The current Dean of Allied Health was the former director of the RAD Program and is extremely supportive and proud of it.
High-level administrators take pride in the program because of its size and ability to win resources from local industry and the state.

Employers (primarily of the 13-affiliated hospitals) appear very committed to helping the program continue and succeed. However, they are concerned there will be fewer jobs available in the area and expect a downsizing of the program. They support the construction of a new Allied Health facility that will be housed closer to a large medical complex. One of the hospital centers has also underwritten the salaries of three teaching staff, and some of the hospitals outside of New Orleans are paying a specific amount of money to the college for running programs on their site.

Program Components

School-Based Learning Component

The program is based on a typical health-care clinical model. Students are admitted to the program with specific science prerequisites (two semesters of general biology) and they must have a cumulative grade point average above a 2.0 (out of 4.0). Normally, however, applicants have accumulated more community-college credit hours than required. The general education courses include two semesters of human anatomy and physiology (with lab), two semesters of English composition, two semesters of math, one semester each of physics, general psychology, and a humanities. The program, as described in the college catalog, is designed to take five semesters plus two summer sessions. The physics course is designed specifically for this program.

Work-Based Learning Component

The program is heavily supported by affiliated hospitals. It is estimated that the 13 affiliated hospitals contribute approximately $200,000 worth of services and supplies annually. Students are welcomed and well-treated, as are college faculty and administrators. The program includes 2,400 hours of clinical experience in one of these affiliated hospitals. Once in the hospital, students are expected to work approximately 40 hours a week, unpaid for two years. The students are expected to master very clear competencies which are listed in a book that is signed by qualified hospital personnel when the student has successfully completed a procedure. In so doing, the private sector is certifying that the student has the competency to conduct these practices. All students appear to know the competencies they are expected to perform. At the end of the program, the students graduate and receive a degree, but must pass a state test in order to obtain a license. All students (100%) from the program have been successful in the completion of this test, and from our observation of second-year students about to graduate and take the test, they appear confident that the education they have received will enable them to be successful.

Connecting Activities

The students interviewed are very clear about the advantage of their program versus the internal hospital training of radiologic technologists. They state that their college education is giving them tools to understand the theoretical technology of their field as opposed to simply providing machine operating skills. They possess a clear sense of the value of the program and feel informed of all of the expectations they were to meet. They believe the program to be both difficult and demanding of time but worthy of the effort. They also believe that they had influence in the operation of the program and cited an example of a change in activities that permitted them more time in an area of the hospital where they wanted more experience. They report interaction with the college instructor about once every ten days or more. They feel they received all of the information required to be successful even though much of that information comes to them from the hospital-paid employee called the clinical supervisor and not a member of the DCC staff. Students report being recruited into the program by other students and by hospital staff whom they knew, in other words, by word of mouth. They also report that they were not recruited "very much" by college promotional activities and brochures. Students express two major concerns: (1) they believe that the time spent in the clinical phase should be a paid experience given the long time spent working, and (2) that the entire program was simply too long. Furthermore, students are generally not satisfied with the counseling they received when they chose the RAD Program, although they are generally very satisfied with the program.

A related connecting component is the clarity of the admissions process. All applicants are considered by a committee, and through the extraordinary talents of one counselor, all potential applicants know their standing throughout the process. Consequently, the process has integrity and, although few are selected, students make few complaints when they do not make it into the program. To accomplish this efficient flow of information, especially concerning the standing of each individual student, a full-time counselor is assigned to the Allied Health Division. She is assisted by faculty when needed.

Since the program has provided many graduates presently within the hospitals, there is an "informal" network which helps to ensure students make it through. Many of the workplace instructors and hospital administrators came from the program. Thus, the program has a "halo" effect upon the students. They are continually told that, if they work hard, they will graduate and get good jobs and that is, in effect, exactly what happens. As a consequence, the program operates as a self-reliant, closed system with its own support staff, recruiters, and contacts within the employer community.

Lessons Learned

The partnership between area hospitals and the college is mutually beneficial. From the hospitals' perspective, the program provides them with entry-level workers for their departments. From the college's perspective, the program provides a means of recruiting a large number of students into a

highly selective, costly allied-health program. The real test of the commitment of the partners to the program will come when downsizing begins because of the lack of demand for new positions. Can the Program Director either find new work-based learning slots or begin to consciously "ramp-down" the program? Our interviews with the counselors indicate that this question is already being answered. The response is that there will be fewer slots available in the program and students presently in the program were aware of this development.

There are two features to the program from which others may learn. First, in the development of counseling and other support services, the college has instituted specific counselors for the program that continue to monitor and give feedback to students who are attempting to enter the program, ensuring that the selection process looks legitimate to the students. It also sends out positive guidelines for those who wish to continue trying to enter the program. A second important feature is the specific tasks that are given to the hospital personnel in the process of making sure that the students know their assignments. There are clear instructions to the staff and expectations that they will perform in the learning process. This leads to the on-site experience being a valuable learning experience. These two features have evolved over a long period of time which gives the program stability.

Another key aspect of the program is its existence as an entire system, from student application process to work and graduation. This system exists within the college structure, but has its own autonomy, objectives, and shared values. In large part, the staff of the program have developed over the years and perfected their operations. All of the staff are very mission-driven in the operation of the program. It is also a program that is not necessarily supported by large amounts of revenue and, thus, from a fiscal sense, is much more cost effective for the institution to operate. However, given the macro goals of the institution, there may be some conflicting issues of mission. Since an important goal of the new President is to improve educational retention and completion rates among minority students, this program should be targeted to admit more minority and special needs students. The present selection process appears biased against these students, and the staff, while admitting this is a problem, has not addressed this concern.

In a related area, the backlog of students (more than 1,200) waiting to enter the program seems excessive and it seems reasonable to assume that many students will never get into the program. The college administration is aware of this problem and is seeking ways to address it. Counselors now urge students to "cover a double track," that is, fulfill the basic requirements in more than one Allied Health plan so that if they cannot get into the RAD Program, they have other options. There is a "regrets period" when all applicants can come in for a review to see why they have not been selected, and what they can do to enhance their applications the next time. Normally, if a student applies three times and is unsuccessful, they are not encouraged to apply again. For those admitted, the program is extremely demanding. It requires more than 90 hours of credit, two years of work (40 hours per week) for no pay, and summer school. Most of the students interviewed are also working regular paying jobs as well as doing their clinical and classroom work. They complained that the program was very long, straining their abilities to hold down a job and go to school at the

same time.

Finally, taking into consideration its many strengths and weaknesses, this program occupies an important niche within the area health-care community. Over the years it has developed two very important subsystems: (1) a selection system that is regarded by students as legitimate, and (2) a work-based learning system that is developed and maintained by employers, primarily at their expense. In a sense, what has been replicated is the master-journey person structure of the floor of the hospital. The first-year students perform activities in the hospital under the supervision of full-time employees. In the second year, students are required to achieve on-the-job competencies and perform independently. Formal written agreements spell out the requirements for both the college and the employer. What surrounds the entire system is a set of beliefs held by all the stakeholders that the program is excellent and it is a privilege to be part of the system.

The Culinary Arts Apprenticeship Program

The Culinary Arts Apprenticeship Program is housed on the City Park Campus, part of the original complex, and is administered under the Department of Arts and Humanities. The Culinary Apprenticeship Program was organized by Les Chefs de Cuisine de La Louisianne, a local chapter of the American Culinary Federation (ACF), in cooperation with the Board of Trustees of the Culinary Apprenticeship Programs of Louisiana, an organization of twelve hospitality industry associations in Southern Louisiana. The program follows the tradition of European culinary apprenticeship programs by providing students practical work experience under the supervision of executive chefs in hotels and restaurants in metropolitan New Orleans. According to the *Culinary Arts Apprenticeship Program Guide*, "the purpose of the program is to provide trained professional cooks and potential chefs for the culinary industry. The Culinary Arts Apprenticeship Program at Delgado is nationally accredited by the American Culinary Federation."

On-site facilities include a large commercial kitchen area, two dedicated classrooms, and a suite of offices which the local chapter of ACF helped to furnish. The college budget in 1993 for culinary arts was $178,285 for salaries and benefits, $194,961 for supplies, and $25,000 for equipment. According to the Program Director, the cost for the program comes to approximately $3,500 per student per year. The primary sources of funds are tuition from the students and state reimbursement. Approximately one-third of the operating revenues come from tuition and two-thirds come from the state via a state formula for revenue sharing. A small portion of the budget in the past has come from external funding through other smaller grants such as the federal Perkins vocational education funds for equipment in the faculty dining area, ACF local chapters for the library, and donations of product and time by local purveyors.

Tuition is approximately $500 per semester, plus $30 lab fees and a $5 student government association fee. The students pay $30 annually to the Chef's Association and a one-time $80 registration fee to the ACFEI (which includes log book and training manuals). The cost of books varies, but it would appear the standard texts are the restaurant series published by Wiley for the

National Restaurant Association which cost approximately $50 per course per semester. Students are required to furnish their own chef's uniforms, including one chef's dress jacket, chef's black and white checkered pants, one neckerchief, and one chef's hat. Students are also expected to furnish their own knives. Sometimes uniforms are provided by the sponsoring institution where the student is working.

According to the 1993 Annual Report to ACFEI, beginning in the Fall of 1993, the latest year for which complete data is available, 55 new students were accepted, 73 were reported as returning, and 10 had dropped. Reasons listed for dropping varied, the most common being an instructor initiated withdrawal for failure to attend classes. Approximately 50 to 60 students are admitted each fall to the three-year program. As of Fall 1994, there were 187 students currently enrolled (see Table A-10). About 25% of the students are African-American which is slightly less than the college as a whole (32%). The average age of the students in the program is roughly the same as the college as a whole, that is, 28. Fewer students use Pell grants (19%) than for the college as a whole (28%). Perhaps this is because at least some of the students in the program currently hold bachelor's degrees and are not eligible for Pell grant assistance. A 0% graduation rate is misleading because the program has been recently revised and no students have completed the three-year sequence.

According to the Program Director, students are placed at virtually a 100% rate. However, a distinction must be made between a completer and a graduate as it appears that not all students complete the required general education core. Because the program was recently significantly revised, it was not possible to get meaningful data on completion rates. A related concern expressed by the faculty had to do with employers hiring students before they had completed the program. A number of the employers came from the European tradition of chef training which does not include a college component and therefore the executive chefs have not always bought into the fact that it might be in the best interest of the students to complete their degrees. Once the students have mastered the "holy trinity" (gumbo, jambalaya, and etoufee as well as red beans and rice), they can effectively be employed anywhere in the region.

Table A-10
Enrollment and Student Demographics for the
DCC Culinary Arts Apprenticeship Program
(Academic Year 1993-1994)

Enrollment and Student Demographics	Incidence
Total number of students enrolled in the program	187
Ethnic composition of students (total population):	
African-American	25%
Native-American	3%
Asian	1%

Hispanic	2%
White	66%
Other	--
Percent of students receiving Pell grants	19%
Average age of students	28
Graduation rate for students	Students not yet eligible to graduate from new program

Key Stakeholders

The program was first implemented in 1982 with the direction of the local chef's organization, the Les Chefs de Cuisine de La Louisianne, particularly with the help of chefs and restaurant owners of the famous French Quarter. There are four full-time staff members (3 certified by the ACF and 1 certifiable) and six part-time faculty. Certifiable in this context means that the instructor has completed the requirements for certification, but is not certified at this time by the ACF. The Department Coordinator is a certified culinary educator and lifelong New Orleans resident. She currently serves as secretary to the local ACF Chapter. One of the faculty members, a certified executive chef, is also President of the local ACF chapter. Two of the full-time faculty are new in their positions though they had previously taught at DCC in a part-time capacity. Other stakeholders include a number of fine-dining establishments and major hotels in the New Orleans area, including mass quantity food preparers such as hospitals.

Program Components

School-Based Learning Component

Approximately 200 students each year request applications for the program. Applicants must be 18 years of age and be eligible for college-level work as determined by the DCC placement exam. This examination is administered by a college counselor and consists of evaluations of reading, composition, and mathematics. Students who score sufficiently high on the ACT (20 in English and 20/21 in mathematics-enhanced) are exempted from the exam as are students who can demonstrate that they have completed appropriate coursework at an accredited institution of higher education. The college is moving towards the ASSET, a nationally normed entrance exam. The scores for the ASSET test are currently being established for each of the college's programs. If students' scores indicate they are college ready, they are interviewed by the Executive Director of the program and several of the chefs from the local hospitality industry. Approximately 75 students of the initial 200 applicants are invited to participate in the following fall program. About 55 of those actually enroll and appear on the first day of class. At one point, students could enter the program in either fall or winter. Under the current program, it was decided that students would only begin in the fall.

All four of the first-year students interviewed had already completed a bachelor's degree or higher.

It is presumed that these students did not have to take the general education core which consists of the following requirements:

- **a traditional English Composition course**
- **either English Composition II or Writing for Business and Industry (it was not clear how many students exercised which option or what criteria was to make that determination) and Algebra for College Students (which appears to be Intermediate Algebra)**
- **College Algebra**
- **a social science requirement**
- **a natural science requirement**

It was noted that, where possible, English sections were reserved for the entire class, but this was not always possible due, in part, to work schedules.

Students must be college-ready before they are admitted into the program. General education courses are taught in the summers, three courses per term. There is current discussion about requiring some form of computer literacy. An attempt was made in the past to develop a mathematics course focused on food preparation, and applications of mathematics and biology are demonstrated in the classroom. Students are expected to be familiar with library research. In one case, we observed students presenting impromptu speeches of three to five minutes in length on topics they had researched in the library such as microbiological hazards related to food preparation.

Students take eight to ten hours of class each week, meeting one day a week at the campus, while still being responsible for their 40-hour work schedule. Students are expected to master the following technical competencies:

- **purchasing, requisition, and storage techniques**
- **cooking and seasoning methods**
- **recipe and menu development**
- **food preparation according to standardized menus**
- **garde manger techniques (ice and tallow sculpture)**
- **supervision and management theory**
- **dining room service techniques**
- **principles of nutrition**

On-site classes involve both lecture and laboratory methodologies. Local purveyors complement the normal teaching staff by providing demonstrations for the students.

Work-Based Learning Component

Students enrolled in the Culinary Arts Apprenticeship Program are required to complete 6,000

hours of on-the-job training at an approved site under the supervision of an Executive Chef and also complete 900 hours of related classroom instruction. Upon completion of the program, the student receives an AAS degree and is certified by the ACF as a certified Cook.

The students are also expected to find their own placement in one of the approved local sites. A job board is provided to assist students who are not already placed. Sites are regularly visited by the Executive Director to ensure that students are being provided the appropriate instruction in a variety of jobs. The first 500 hours of the program are considered to be probationary.

Students are paid to work at a supervised work site of their choice for 40 or more hours a week. The college maintains a formal contract with the work site stipulating working conditions and salary. The salary ranges from $4.75 per hour for the first semester and goes up to a minimum of $6.25 per hour for the sixth semester. A number of the students in the program had work experience in the field before beginning the program, several at the sites where they are currently serving as apprentices.

Students are expected to rotate through a variety of jobs, applying the skills learned in the classroom with additional coaching and instruction from the supervising chef. The skills learned on the job and in the classroom are to be the basis for the formal assessment (performance based) required by the ACFEI and the BAT/DOL. In general, students are very complimentary of the support they received from the work site. As might be expected, however, not all students are completely satisfied. In several cases, students complained that they are not being rotated as they expected; others said they were being asked to perform tasks that conflicted with the ethical values preached in class, particularly with respect to health and sanitation.

Certification awarded includes an Associate Degree in Applied Science, a DOL certification, and ACFEI certification at the chef's level. The most common position taken after graduation is that of Sous (sauce) Chef/Lead Cook. According to graduation surveys, a realistic entry-level salary for a Sous Chef in a small restaurant is in the range of $16,000-$20,000. Data from our initial survey indicates that 35% of the employers are small companies with fewer than 100 employees, 40% are in the medium category (100-500 employees), and the remaining 25% are large companies (over 500).

Connecting Activities

Students are expected to keep a daily log of their activities, including what jobs they have been rotated through as well as pictures of creations and recipes. The log describes different kitchen activities and is used to maintain recipes, files, and photographs or drawings of culinary displays. This log book is a requirement of the ACFEI for certification. The log is reviewed on a regular basis by the supervising chef and also by the Department Coordinator and it must be signed by both. The credentials that the students receive upon completion of the program are recognized not only nationally, but internationally.

The formal program of career awareness and orientation seemed to rely heavily on the first 500 hours of training that were done on campus as part of the fully equipped kitchen available to the students. Lunches for the faculty and guests are regularly prepared on a break-even basis by the first-year students who work under the direct supervision of the Executive Chef.

The primary means of recruitment is through word of mouth. The college provides written materials and attends trade shows regularly to raise the awareness of the program's existence. The student survey response indicated that more than half of the students heard about the program by means other than formal recruitment by the college.

Lessons Learned

Part of the uniqueness of this program lies in its location. New Orleans Cajun-style cooking is world famous. Food, its preparation and consumption, is very much a part of the local culture. According to DCC's President, even the local residents eat out several nights a week. Culinary arts are an important aspect of local economic development and there is a firm commitment to the program at the senior administrative level. Strong support among local business partners is also evident.

The 6,000-hour requirement entails a significant commitment by the students. The academic faculty is concerned that students are working at the expense of their academic classes. Putting the core requirements during summer classes may be an effective compromise. However, such concerns may be moot if a significant number of students continue to start the program already possessing a bachelor's degree. On the other hand, it is obvious from a number of interviews of both the Culinary Arts faculty and the working chefs, that the nature of the job includes long hours and hot kitchens. Knowing that, the program may create realistic expectations for students regarding the demands of their chosen career.

Time becomes an issue for the Culinary Arts faculty, but from a different perspective. The salaries paid to college faculty are substantially lower than their counterparts in the industry. If this continues over the long run, it is difficult to imagine that staff morale will be maintained. Yet, when asked why the faculty chose to teach, most replied that in addition to being able to contribute something to society and to the profession, teaching gave them *more* time to be with their families.

The resumés of the in-house faculty are regularly reviewed by AFCEI. A recent self-study by that organization indicated that the faculty had the preparation necessary to perform the tasks assigned, including preparation in business and association training activities. One of the difficulties indicated during interviews was getting supervisors away from work long enough to provide them with some of the training they needed in how to become more effective mentors. In a related area, we believe the AFCEI needs to take a stronger leadership role with respect to providing training materials for the supervising chefs. It should be possible for this to be done at a national level. The local chapter of ACF is not tightly organized and so its value as a partner seems questionable. However, the President of the local chapter is on the full-time staff and the secretary is the Department

Coordinator.

A primary incentive to begin any work-based learning program is economic. Unfortunately, too little is known about the exact costs to a sponsoring organization to participate in this program. However, we do know there is a lack of incentive for students to take the work-based learning route since they can sit for the ACFEI exam after two years of on-the-job training. This can happen whether or not they have done any of the coursework associated with the program. One of the recommendations of the faculty to address this issue was for employers to provide some form of salary differential for those who have completed a work-based learning program.

Finally, we had some concerns about counseling as it applies to work-based learning programs. Because this is a concern that pervades many work-based learning programs, we raise the issue here. A sign posted just outside of a college counselor's office may be indicative of the absence of awareness of the value of work-based learning. It pictured four doors. The door on the far left was posh, ornate wood and brass. Under it was the caption, "college." Next to that picture was one of a plainer door. Still wood, but with a simple brass knob. Under this second picture were the words, "community college." The third door was a factory door, glass with a metal push bar. Under it were the words, "vocational training." The far right door was a revolving door. Below it were the words, "on-the-job training." Placing such a poster in a prominent place in the college sends a strong message that college programs are preeminent and work-related "training" programs are lower status. Yet, we understand this attitude is not limited to DCC but indicative of societal perceptions toward the value of a traditional college education in relationship to work. Understanding and changing these attitudes is at the heart of making work-based learning a viable approach to education.

Culinary Arts & Nursing Technology Programs,
Columbus State Community College

Kay Trinkle, Debra Bragg, Paula Puckett, and James Jacobs

Columbus State Community College (CSCC) began educating and preparing students for work in the early 1960s. Originally the Columbus Technical Institute (CTI), today CSCC is characterized as a comprehensive community college. The main campus is located in downtown Columbus, Ohio, on approximately 60 acres of land. CSCC also operates five off-campus locations in the central Ohio area and a Business and Industry Training Division that offers local employers training opportunities either on the downtown campus or at their sites. Governance of the colleges is overseen by a nine-member Board of Trustees appointed by the Governor.

The college has changed drastically since the 1960s, especially in enrollments (see Table A-11). However, some key objectives have remained constant under the long tenure of CSCC's President. One goal throughout has been "to be the place where the community comes first for its education and training needs." This is an ambitious goal given the large number of higher education

institutions in the region. Yet, members of both the administration and faculty said they believe it is an important goal to recognize and serve both their "internal and external customers." Supporting this philosophy, an interest in total quality management (TQM) was evident on campus.

The total head-count enrollment reported for Autumn Quarter 1993 was 17,042 (see Table A-11). The number of persons thought to be served during the previous academic year was approximately closer to 40,000 when all the services of the college were taken into account. There were 9,329 FTE enrollments during that same period, with the last two fiscal years showing increases of more than 2% annually. Minority students represented 15% of the head-count enrollment, with most of those students being African-American. The average age of students was typical of most community colleges in the U.S. at 28. A relatively high proportion of students (29%) were receiving Pell grants. Presently, 182 full-time faculty and approximately 480 part-time faculty teach at the college.

Table A-11
Enrollment and Student Demographics for
Columbus State Community College
(Autumn Quarter 1993)

Enrollment and Student Demographics	Incidence
Institution's total head count enrollment	17,042
Institution's FTE enrollment	9,851
Ethnic composition of students (total population):	
African-American	15%
Native-American	<1%
Asian	2%
Hispanic	1%
White	78%
Other	4%
Percent of total student population receiving Pell grants	29%
Average age of the institution's entire student population	28

Chef Apprenticeship Program

The Chef Apprenticeship Program at CSCC is highly regarded and is supported unequivocally by the faculty and administration. When asked what motivated the college to begin the Chef Apprenticeship Program, the President responded, "the community wanted it and local businesses justified the need." A primary goal of the Chef Apprenticeship Program is to provide students with a solid foundation of cooking skills, techniques, and technical knowledge through on-the-job training and classroom instruction. It is to prepare competent cooks who can be certified at the first

level of certification offered through the American Culinary Federation Educational Institute (ACFEI) leading to the maximum level, certified master chef. The goal is accomplished through a strong working relationship between the Columbus chapter of the ACFEI and approximately 40 restaurants, hotels, and clubs in the Columbus area.

The program requires 6,000 hours of on-the-job training in food service facilities over a three-year period. Students attend classes one full day per week and work an average of 40-50 hours per week year-round. They earn from 7 to 11 credits per quarter each of 12 quarters, and upon completion, earn an AAS degree in Hospitality Management with a major titled "Chef Apprentice." They also receive certification from the U.S. Department of Labor (USDOL), identifying the apprentice as a journeyman cook. The program's objective is to prepare students for certification through the ACF, which offers certification from the levels of cook through master chef.

Funding of the Chef Apprenticeship Program is based on an average cost of $4,775 per student for 1993-1994; it falls close to the college's average program cost. Program supporters include the local and national chapter of the ACFEI, the Ohio Restaurant Association, and the apprenticeship committee which is made up of executive chefs from the local ACFEI chapter and the chair of the Hospitality Management Department at CSCC, who serves as the Apprenticeship Committee Coordinator. The Apprenticeship Committee also meets with supervising chefs on an annual basis to review training responsibilities and concerns.

One issue facing the Apprenticeship Committee is providing training so that local chefs can improve their performance as workplace mentors. The problem is most serious for chefs who are not active in the local ACFEI chapter but still hire students to work in their restaurants. The Apprenticeship Committee is hoping to use mentor training as a way to resolve problems with a few restaurants or chefs whom students report are difficult to work for. Students hear about these situations and avoid them, if possible. The Apprenticeship Committee has little control over what happens in day-to-day operations at the work site, though they usually can place students in other restaurants if there is a problem with the employer and the student applies for transfer. Training for participating chefs/mentors is a component that the Apprenticeship Committee and the Department Chair are interested in pursuing further. The college is in the process of choosing someone to conduct the training in conjunction with the college's Business and Industry Training Department.

The Chef Apprenticeship Program is currently one of about 100 ACFEI apprenticeship programs in the United States. The CSCC Program is a relatively old program having accepted its first students in 1979. Although the program does not recruit actively, in the Fall of 1993 approximately 100 applications were made for 30 new apprenticeship slots. In that same quarter, there was a total of 87 students enrolled in the program. Chef Apprenticeship students have an average age of 26 years; 7% were African American (see Table A-12). The program graduated and certified ten students in the 1993 academic year. Statistics on retention were not available for the program alone, but the retention rate for the Hospitality Management Department between Autumn FY 1993 and FY 1994 was 32%. According to a CSCC spokesperson, the retention rate for the Chef Apprenticeship

Program would be higher than the department because of the lock-step sequence of coursework and apprenticeship training.

Table A-12
Enrollment and Student Demographics for CSCC
Chef Apprenticeship Program
(Academic Year 1993-1994)

Enrollment and Student Demographics	Incidence
Total number of students enrolled in the program	87
Ethnic composition of students:	
African-American	7%
Native-American	0%
Asian	0%
Hispanic	0%
White	93%
Other	--
Percent of students receiving Pell grants	UK
Average age of students	26
Graduation rate for students	10 graduates Autumn-June '93
Job placement rate for students	UK
Transfer rate for students	UK

Note: UK indicates unknown or unavailable information.

Key Stakeholders

The college demonstrates support for the program through strong faculty commitment. It appears well worth the investment if the regular publicity the program receives is any indication of its quality. According to the chair, the Chef Apprenticeship Program is mentioned almost weekly in the local newspaper. As evidence of his enthusiasm for the program, the President of the college spoke of adding a student-run restaurant on the CSCC campus, but the Department Chair reported that this is still in a very early stage of development. She shared her concerns about how a school-based enterprise such as this might affect the program's long-standing relationship with local chefs because it would add competition to the restaurant industry if done correctly. Nevertheless, the administration appeared to be committed to investing even more in the program. When asked if there are barriers to pursuing more work-based learning programs in the college, the President said the only barriers are attitudinal. He said that it is important for his administration to be willing to work hard and have a "do-what-it-takes attitude." His involvement in interviewing and hiring all

middle- and upper-level administrative positions is indicative of his hands-on attitude toward management of the college.

The Chef Apprenticeship Program is housed in the Hospitality Management Department and is led by the Department Chair. Four full-time and two part-time faculty teach in the program. This well-established faculty provides a stable developmental environment. Along with teaching, they develop curriculum, market programs, and recruit and counsel students. The Department Chair was part of the planning team that brought the Chef Apprenticeship major to CSCC. She directed the organizational and instructional changes in the current program. Each stakeholder group described the importance of her role in a similar way; it was as the linchpin in the system. In the early stages of developing the program, she did not ask the college for resources, but, rather, went to the community; together, they built the program. She offers the constant, day-to-day leadership that a program involving external partners must have to work effectively. Part of her day-to-day operation is making site visits, meeting with new and more experienced supervising chefs, and developing a working relationship with each participating house (restaurant). Approximately 40 fine dining restaurants in the greater Columbus area have one or more apprentices in each.

One partnership that contributes to the success of the Chef Apprenticeship Program is the one between the ACFEI and CSCC, and it is useful to understand how the ACFEI came into being. According to one of the program founders, during the mid-1900s European chefs quit coming to this country. Educational institutions in the U.S. had not developed the crafts or guild form of teaching which is still strong in Europe today. Chefs in this country realized the shortage of these in the culinary profession and formed professional associations such as the ACFEI. In so doing, the ACFEI followed the European example and developed an apprenticeship program with the help of the Bureau of Apprenticeship and Training (BAT) to satisfy the labor and educational requirements of the USDOL. Out of this cooperation, the National Apprenticeship and Training Standards developed, including the creation of definitions as well as the establishment of qualifications, a wage progression, supervision, and evaluations for apprentices. It also set specific competencies that each apprentice must demonstrate to earn journeyman status. Graduates must demonstrate proficiency in all food production departments in a commercial kitchen and work effectively as a first-line supervisor and trainer in food production.

Based on these national standards, local chapters of ACFEI developed apprenticeship programs. In the late 1970s, the Columbus chapter of ACFEI approached CSCC because the college had established a general program in Hospitality and Food Service. CSCC and the Columbus chapter wrote the *Apprenticeship Handbook* that includes the guidelines from the national standards, the recommended sequence of study, the design of work-based instruction, and the design of college-based instruction. It includes a comprehensive workbook called the *Training Log* used to monitor and connect progress between work-based and college-based instruction.

The Columbus Chapter of the ACFEI is vital to the success of the Chef Apprenticeship Program. The ACFEI chapter caters to the college and its students by providing discounted student

memberships and holding regular meetings on campus. The ACFEI chapter has joined with the college development foundation to offer a "Taste of the Future," where local chefs prepare their specialties for $75 per plate. Held at the college, this event raises scholarship money for students and gives chefs exposure in the community by offering their dishes outside their own restaurant. In addition to the "Taste of the Future" event, the ACFEI chapter enjoys national notoriety through its award-winning results in national competitions. These events represent another means of giving students valuable exposure to the profession. Another benefit of the close relationship between CSCC and the ACFEI chapter is the development of specific guidelines for apprenticeships in the local community based on the national guidelines.

Another stakeholder group is the fine-dining restaurants in the greater Columbus area. They support the students by paying them for their services. In addition, they provide a limited amount of additional training (estimated at an average of one-half hour per week) to apprentices over their other employees. One chef estimated that the cost of this training is relatively small compared to training someone off the street who is not as committed and also not involved in school-based learning. In return for their investment, local restaurants gain a more dedicated workforce.

Students invest three consecutive years of their life in this program and at the restaurants where they work. To enroll in the Chef Apprenticeship Program, students must be 17 years or older and hold a high school diploma or equivalent. The apprentice is a full-time employee, on-the-job 40 hours a week (2,000 hours per year), and in class at the college one full day a week (an average of 36 credit-hours a year). Several students in the program had already acquired a college degree (including baccalaureate degrees) and were pursuing a second degree, stating they were "looking for skills that could get them jobs."

ACFEI's training guidelines are structured to encourage lifelong learning through recertification and promotion. Students who are active junior members of ACFEI for the latter two years of apprenticeship may also receive the ACFEI qualification of Certified Cook upon graduation. This level is the first of several possible professional promotions through the ACFEI membership; students interviewed understand the structure of this apprenticeship. They were quick to point out that it is not an easy program, working a minimum of 40 hours per week and going to school full-time. One student called it a "focused sacrifice."

Program Components

School-Based Learning Component

Sponsorship by the Columbus Chapter of ACFEI in the late 1970s and early 1980s included housing classes and supplementing equipment to the college's old home economics kitchen. Chefs served as visiting instructors, bringing with them the fresh fish, meats, or more exotic foods that would be too costly for the college to provide. With the Food Service Program already implemented, only two courses were added to fulfill the requirements of an AAS degree: (1) a course in baking and (2) a

course in garde manger (e.g., cold food specialties). Since then, other classes have been added as the partners in the Chef Apprenticeship Program develop better technology, implement improved assessment tools, and arrange more time to collaborate. Currently, the program offers training in areas where some restaurants do not such as baking and pastries and breakfast cooking. In addition to theory, CSCC fills in where the work site cannot offer comprehensive training. Students plan menus, cost out meals, and write advertisements which are all important for running a restaurant. This balancing act is an important ingredient of the program itself.

Today, the Chef Apprenticeship Program curriculum is distributed over three years or 12 quarters, with 6,000 total hours in work-based instruction. The school-based curriculum involves 22 credit hours in general education, 22 credit hours in basic-related support courses, and 66 credit hours in the major, including nine credit hours of co-op work experience. Similar private programs are offered at a cost of $35,000 versus the approximate $3,000 annual cost to a student at CSCC.

An apprentice is assigned to an executive chef at the work site, but signs the Apprenticeship Agreement with the ACFEI Columbus Chapter. This means that the Columbus Chapter assumes the responsibility for on-the-job training. The ACFEI suggests a five-step applicant screening process used at CSCC:

1. **Orientation seminar**
2. **Part I - letters of reference and a written essay on why the student wishes to be a chef**
3. **Part II - personal interview by the Apprenticeship Committee**
4. **Interview with a prospective employer**
5. **Contract endorsement - to be registered with the U.S. Department of Labor and ACFEI**

In addition, students are required to take math and English placement tests and complete the application packet which includes a general application to the college.

Work-Based Learning Component

Once admitted, apprentices rotate through ten work stations in a commercial kitchen fulfilling a prescribed list of competencies laid out in the *Training Log*. The log entries must be completed for each of the ten work stations. Supervising chefs check off the mastery of skills performed in each station. They report different methods of ensuring completion of the log such as weekly meetings, but they must initial that the student has demonstrated competency in each skill. Apprentices are responsible for the log's completion and cannot graduate without it. The Apprenticeship Committee reviews the progress of each apprentice by reviewing the logs every six months. This acts as a motivator to keep student entries up-to-date, while also monitoring the supervising chef's participation.

An advertisement is placed in the chefs' trade publication announcing new apprentices; anyone interested in sponsorship can call. Hiring chefs come to the college, review files, and call to arrange

formal interviews at the workplace. They may or may not hire applicants, and students may or may not accept. The understanding among employers is to start apprentices at a minimum of $5.00 per hour with at least a .25 per hour increase for each year the student is in the program.

Connecting Activities

A supervising chef oversees the students' demonstration of skills and completes a checklist evaluation for each section of the work station. At the same time, students in college-based instruction learn about food service equipment, proper safety, and sanitation methods, and the reason for using the proper techniques. A probation period of 500 hours allows apprentices and supervising chefs to make sure the work experience will be a good fit for both. Students know that questions or concerns encountered at the work site should be addressed through supervising or executive chefs, while questions or concerns encountered at the college should be addressed by the Chef Apprenticeship faculty or Department Chair. Faculty are responsible for the college curriculum; supervising chefs are responsible for carrying out a structured learning experience at the work site. Students are responsible for participating fully in both experiences.

Connecting activities include some of the things previously mentioned such as the *Training Log*. Chefs and college faculty take a proactive approach to keeping up with student needs by pursuing them if they perceive a problem such as missing work or school. While this is typical of occupational programs, it may create a closed loop by not bringing in outsiders (e.g., counselors) to help address problems. Other resources in the college may not, however, be available to attend to such needs.

Finally, the students themselves provide support for each other; they take the classes and obviously live the same hectic lifestyle. This provides students with a peer group to reflect on what they're learning--an informal, yet vitally important aspect of adult learning.

Lessons Learned

A real strength of the program rests with the leadership provided by the Department Chair, and her departure appears imminent due to retirement. Another member of the faculty is currently being brought into a leadership role to ease this transition. The Department Chair's shoes will be difficult to fill for numerous reasons. Most importantly, she has built structures and created networks such as the Apprenticeship Committee that are crucial to the ongoing health of the program. Also, her participatory approach to management may be very difficult to replicate. Typical of her supervisory style is a situation described by one of the Chef Apprenticeship faculty. This particular faculty member started with the program ten years ago and she explained that her arrival came at an opportune time to develop assessments for the college side of the curriculum. Her idea was to measure what Chef Apprenticeship students were getting from classes and labs, and to get feedback from chefs and students about areas of improvement. The Department Chair eagerly supported the idea and further suggested the professor visit the participating restaurants to see the commercial kitchens where the apprentices work. This plan brought about a chain of events that led to a

continuous improvement process that has had numerous benefits for the program.

No matter who leads the program, challenges lie ahead. Some students interviewed were aware that their particular restaurant provides better (or worse) training or feedback than others, raising the question of whether the work experience should be uniform for all apprentices in the program. Leaders of the Chef Apprenticeship Program believe it should be. They readily acknowledge that the Apprenticeship Committee or the Hospitality Management Department needs to offer workshops or seminars to train chefs on mentoring and evaluating apprentices. In this way, chefs can become more sensitive to student needs and identify a mentoring approach that is workable in their restaurant operations. A barrier to offering such a program is the lack of clear guidelines within the college as to who should be responsible for such training. Should it be the Hospitality Management Department or the Business and Industry Training Department? Other community colleges with growing Business and Industry Training Departments may be concerned about this question. At CSCC, the question had not been answered at the time of our visit. Local program leaders were also concerned about how chefs who may feel they already offer adequate mentoring to students would react to such training. Possibly training could be an added prerequisite to any new chef interested in hiring students, thereby avoiding conflicts with the chefs currently active in the program. As several people pointed out, many graduates of the Chef Apprenticeship Program now act as mentors for chef apprentices and, where this happens, students do not have a problem with the work experience they receive. By continuing to feed the chef occupation in the Columbus area, the Chef Apprenticeship Program provides a training ground for students as well as mentors.

Short- and long-range outcomes arose from this round of assessment. First, from the visit to the work sites the professor realized that the equipment class could be modified so that equipment not as available in the work sites could be given more time in lecture and labs, and equipment readily available could be covered with less depth. With the feedback from participating chefs, it was discovered that, generally, knife skills were still a little less polished than they should be by the second year of the apprenticeship. As a result, lab periods were restructured as the kitchen facilities were built so that students would spend more time in demonstration. Labs that had been teacher demonstrations and one hour in length were made three hours in length so students had time to practice their skills in preparing food. Another outcome requires a Sanitation & Safety course be completed early in the program.

The registered apprenticeship model used for the Chef Apprenticeship Program best fits the goals of the partnering associations, the local fine dining restaurants, the federal guidelines to achieve skill standards, the mission of the college, and the students' expectations for careers. In the college-based portion, theory-related instruction provides a well-rounded education; labs provide practice in the areas not covered in all work sites such as breakfast cooking, and the college classroom provides the place for students to network, and serves as a final point of problem resolution for the student. Through the work-based instruction there is the on-the-job training with structured professional supervision, career and technical mentoring, high opportunity for placement at graduation, and opportunity to experience professionalism. In the connecting activities, the *Training Log* was the

link between teachers and chefs, and between performance and evaluation at each site. The Apprenticeship Committee/advisory council was also an important connecting activity that served to review the work-based instruction and evaluation, provide feedback for improvement, and carry a serious amount of responsibility as a partner in the Chef Apprenticeship Program. The final key component is the structure provided by the *ACFEI Guidelines* that was built upon by the local partners, and the commitment of each partner to fulfill their duties and responsibilities.

The Nursing Technology Program

The Nursing Technology Program at CSCC prepares graduates to provide direct patient care in various settings, including hospitals, clinics, extended-care facilities (nursing homes), and home settings. The program takes seven quarters to complete, and students obtain a mix of knowledge from fields such as nursing and the biological, social, and psychological sciences, along with an extensive emphasis on technical skills developed through laboratories and on-site clinical experiences. An emphasis on a team approach to health care is provided where students interact in a cooperative learning arrangement similarly to a contemporary health-care organization. In addition, the development of critical thinking and problem-solving skills is crucial with this program as the students must be prepared to handle a wide range of human health-related problems, often under stressful situations.

Graduates of the Nursing Technology Program receive an Associate Degree and are qualified to take the National Council Licensure Examination for Registered Nurses (NCLEX-RN). CSCC's Nursing Technology Program is accredited by the National League for Nursing and the North Central Association of Colleges, and approved by the Ohio Board of Nursing. Graduates of the program are prepared to assume numerous work responsibilities, including the following listed in the CSCC's 1993-1994 catalog:

- **To develop a plan of care for each patient, based on a current body of knowledge; to initiate implementation of the plan; and to evaluate the care provided.**
- **To use effective communication skills in the collection of the data, as an intervention in patient care, for the evaluation and reporting of data, and in teaching of patients and families.**
- **To use management skills as a member of a health-care team in order to provide care to groups of patients and their families.**

Like many nursing programs offered in two-year colleges, the Nursing Technology Program at CSCC has a long waiting list; students are said to have to wait as long as two years to get into the program. The ultimate decisions about admission to the program are contingent upon students meeting a number of requirements (and many students need remediation to meet these prerequisites for entry--reading skills were described as particularly problematic). Listed below are the requirements for admission to the CSCC Nursing Technology Program:

- **high school graduation or GED equivalency**

- **required high school (or equivalent) courses (Algebra, Biology, and Chemistry, all with a grade of C or above)**
- **placement into ENGL 101 - Beginning Composition**
- **placement into MATH 100 - Calculations & Dosages**
- **completed health statement**
- **grade point average of 2.0 or better through most recently completed coursework (*Columbus State Community College 1993-1994 Bulletin*)**

Students admitted to the program are predominantly female and often single parent heads of households. The average age of students in the program is 31 years. The Nursing Technology Program is quite large, enrolling a total of 344 students during the autumn quarter 1993. The demographic composition of the group is similar to the college as a whole (see Table A-13). The vast majority of students are white (80%), although slightly more minority students are served by the Nursing Technology Program. Of those, 13% are African-American, 2% are Asian, and the remaining students represent other minority groups. Students who enter the program have a fairly high rate of completion demonstrated by a graduation rate of 67%. Although job placement is not considered a formal component of the program, the placement rate is exceptionally high at 95% (and this is during a time when the job market for nurses is viewed as being in a down cycle in the local economy). About 21% of graduates transfer to four-year nursing programs for the baccalaureate degree (based on students' plans at graduation). The licensure passage rate has varied over the past decade from a high of 96% to a low of 60%, averaging about 80%.

Table A-13
Enrollment and Student Demographics
for the Nursing Technology Program
(Autumn Quarter 1993)

Enrollment and Student Demographics	**Incidence**
Total number of students enrolled in the program	344
Ethnic composition of students:	
African-American	13%
Native-American	<1%
Asian	2%
Hispanic	<1%
White	80%
Other	3%
Percent of students receiving Pell grants	UK
Average age of students	31
Graduation rate for students	67%

Job placement rate for students	95%
Transfer rate for students (based on student plans)	21%

Note: UK indicates unknown or unavailable information.

Key Stakeholders

Faculty

The faculty for the Nursing Technology Program is quite large. Sixteen full-time and thirteen part-time faculty are responsible for the program and most have been employed with the CSCC program for a long time. Most hold master's degrees in nursing; a few hold the master's degree in education. The Director of the Nursing Technology Program has a doctorate of philosophy degree in nursing education from a major land-grant research university and has a wide range of experience in the profession, including having held research and teaching positions in her alma mater's major research/teaching hospital. Of course, all of the faculty are licensed to practice registered nursing in Ohio. The faculty actively engage in professional development opportunities (e.g., graduate coursework, seminars, workshops, conferences) to maintain their technical expertise. Members of the faculty have been recognized for their teaching excellence and the department received a commendation for excellence in teaching based on ratings of 4.5 on a 5.0 scale on student evaluations.

As a group, the faculty is highly involved in curriculum development activities to accommodate the rapid changes occurring in the local health-care industry (changes thought to be spreading rapidly throughout major metropolitan areas in the nation). The Director described numerous efforts she and other faculty had undertaken to identify changes in nursing-related occupations and the health-care delivery system in the immediate area. Among the strategies used to collect labor market data were focus groups designed to engage small groups of health-care professionals in in-depth discussions about the changing job market for nurses and implications for curriculum. (Several of the employers involved in the focus group had experience working with recent graduates of the CSCC Nursing Technology Program.) In addition, outside experts had been brought on campus for the specific purpose of providing professional development of the nursing faculty with regard to changes occurring in health care and nursing practices.

Besides these efforts, curriculum development committees were meeting internally and with external representatives of the local health-care industry to make decisions concerning curriculum modifications. A conclusion drawn from these various research activities was that there was a need to provide more cross-training involving other nursing-related occupations. An increased emphasis on critical health care was also identified. In addition, several faculty mentioned the need to prepare students to work in nursing-related occupations in a wider variety of settings than hospitals. Home health care and extended health-care facilities (nursing homes) were frequently mentioned as settings that would have a growing need for registered nurses. These were seen as viable alternatives

to the large corporate hospitals in the area that were aggressively downsizing their registered nursing staffs.

Employers

The health-care industry in Columbus is large and diverse to accommodate the growing metropolitan population of over one million. The nursing students were working in over twenty clinical settings in the central Ohio area. According to the Assistant Director of the program, who had responsibility for clinical placements, CSCC had a long-standing relationship with most of these health-care employers. Most were actively involved in the program's advisory committee which met routinely to review curriculum and evaluate the clinical placements provided for student nurses. Graduates of the program had assumed positions in many of the local health-care settings, providing a network to assist with classroom and clinical teaching.

Licensure Boards

Another stakeholder group that cannot be forgotten in relationship to the nursing occupation is the credentialing agencies. For CSCC, the key groups are the National League for Nursing and the Ohio Board of Nursing. These groups set the standards for the nursing occupation and the programs designed to prepare nurses. (Issues related to these licensure boards are mentioned in the "Lessons Learned" section.)

Students

Finally, like any educational program, students are the most important of all stakeholders to the Nursing Technology Program. The CSCC students were highly dedicated to their education and enthusiastic about preparing for a career in the health field. Most had to wait for up to two years to enter the program; however, that delay did little to discourage them from pursuing their dream of becoming a registered nurse. In fact, during the waiting period, some of the students took the coursework to become a nurse assistant in order to gain real-world experience in a health-care setting and enhance their chances of admission to the CSCC Nursing Technology Program. The level of student commitment was impressive given that many had serious economic and academic difficulties that must have made pursuing and completing any kind of formal postsecondary education very difficult.

Program Components

School-Based Learning Component

Students preparing to be registered nurses in the CSCC program take 52 credit hours in nursing courses combined with 53 credit hours in general education studies, covering seven quarters of formal classroom instruction, laboratories, and clinical experiences. The curriculum parallels the

***Curriculum Design for Associate Degree Nursing Programs: Teaching and Evaluation in the Classroom*, published by the National League of Nursing.**

The Director of the Nursing Technology Program described the curriculum as having three distinct levels tied directly to specific teaching and learning approaches. First, students participate in a somewhat traditional didactic, lecture/discussion experience in the nursing-related classes taught on the CSCC campus. We observed an auditorium full of nursing students (approximately 60 or so) during our visit to the campus. In this particular class, students were given a detailed outline of the instructor's lecture notes which also followed closely with the textbook reading assignment students had been given in preparation for the session. An overhead projector was used by the instructor to provide material visually during the presentation. Even though the class was quite large, an active dialogue occurred between the instructor and students. Questions were posed by both the instructor and students throughout the session, and students seemed to feel comfortable speaking up to ask questions or offer answers.

Closely related to this first approach is the laboratory/simulation strategy which provides students their first opportunity at hands-on practice, linking what they learn in lecture-led classes to actual practice. During this phase of instruction, faculty demonstrate appropriate behaviors and guide students to perform certain skills until they reach an acceptable performance standard. At this stage, students practice particular skills in the controlled (low-risk) laboratory setting until they are believed to have a sufficient enough level of proficiency to attempt them with real patients in a (high-risk) clinical setting. We perceived that this laboratory/simulation strategy (apparently used widely in all health-care occupational preparation programs) provided an excellent means of systematically transitioning students from school-based to work-based learning. The college's modern laboratory facilities provide a very realistic setting for gaining work experience and skill building vital to students when they enter the real-world environment. To illustrate the importance of this phase of instruction, we provide the following excerpt from our field notes:

The lesson started with the instructor asking students what they had experienced the day prior in the clinical setting, assisting them to make a direct connection between work-based and school-based learning. Several students eagerly shared their previous day's experiences. Then, the students were divided into four teams of four to five and asked to review the theoretical information they had just received in the previous hour in a large lecture-led class. Each of the teams was led by a CSCC nursing instructor and the students were encouraged to share ideas, ask questions, and experiment with care-giving skills. This highly individualized yet small-group team approach seemed to provide an exceptionally strong linkage of theory to practice. Even though students were obviously nervous about having to demonstrate their skills, they were also enthusiastic about getting the opportunity to do what nursing professionals really do. Students asked the instructor about how they might handle a particular situation when they would have to perform the skill in a clinical setting, with real-live patients. Throughout, the instructors provided support and guidance for the students as they tried out their new skills and knowledge. At the same time, students showed respect for the highly personalized instruction they were receiving.

The third phase of teaching and learning crucial to nursing preparation is the clinical phase. In this phase, students receive hands-on work-based learning experiences in real health-care facilities. Students gain experience with patients of all ages and in a variety of settings. The clinical experience provides the opportunity for students to meet an important objective of the program which is that "through the competency of technical skills, the utilization of knowledge, and the development of a sense of judgment and responsibility, the Columbus State Community College graduate nurse provides nursing care to promote an optimal level of wellness in clients." (More on the clinical phase in the next section on the work-based learning component.)

It is very important for readers to note that these three phases of the teaching and learning process are fully integrated and operating concurrently. What this means is that from the beginning of the Nursing Technology Program, all three modes of instruction--didactic, laboratory/simulation, and clinical--are evident. Unlike work-based learning programs that reserve actual practice in real-world work settings to the conclusion of the training experience, the nursing curriculum places students into the real world from almost day one. Lectures, laboratory/simulation activities, and clinical experiences are planned so that they reinforce one another. Because of this approach, there is a necessity for very close supervision of students and a large instructional staff in comparison to the total number of students served.

Connections between theory and practice were also evident in some efforts to better integrate vocational and academic education. Although the curriculum appeared to be fairly traditional in focus (e.g., human anatomy, general microbiology, psychology), sections of these courses were designated for nursing students. In these sections, students received instruction that applied academic content fairly directly to the nursing profession. In addition, the college as a whole was advocating better integration of vocational and academic education through changes being made by faculty committees to the institution's outcomes assessment process. How these efforts were affecting the Nursing Technology curriculum was not apparent during our visit, and the faculty did not describe involvement in this particular institutional assessment activity.

Finally, to support the three-phase curriculum for the Nursing Technology Program, a computer laboratory had been established. This laboratory was the brain child of one of the faculty members, but all (including the campus administration) showed great enthusiasm for the educational technology that was being tapped into for this program. The laboratory was designed to provide students with the opportunity to practice using skills and knowledge through simulations of specific health-care problems. The laboratory was open to all students in the Nursing Technology Program, even those that were not yet admitted to the Registered Nursing Program. The students we observed in the computer laboratory were enthusiastic about this instructional mode and supportive of CSCC's developments in this area.

Work-Based Learning Component

Clinical experiences are a vital part of the preparation of any health-care professional and

registered nurses are no exception. Typically, students participate in 5-18 hours of clinical experiences on a weekly basis. By the conclusion of their program of study, the CSCC nursing students are expected to have spent at least 1,000 hours in various clinical settings. The clinical experiences take place with local employers under the direct supervision of a CSCC-paid nursing instructor. Students are not paid while they participate in clinical experiences.

The rationale for clinical experiences is clearly portrayed in the following CSCC report from 1991:

Learning experiences follow a pattern in each course and throughout the program. First the theory base is presented. Then students practice with the cognitive and psychomotor skills in a protected environment on campus. This is followed by practice of skills in the clinical setting, leading to integration of material in individualizing client care. These experiences assist students to develop decision-making skills by having the theory base with which to make decisions and by providing a safe learning environment with progressively more responsibility so mastery can be attained. Weekly clinical experience gives students an opportunity for using the cognitive, psychomotor, and affective skills presented the previous week. (Columbus State Community College, Nursing Technology, 1991)

During our visit to CSCC, we visited and observed nursing students and instructors in two disparate health-care facilities. Apparent during our visits were the efforts made to directly link theory with practice, classroom learning with work-based learning. To illustrate this connection, we provide the following excerpt from our notes:

Nursing instructors do formal instruction on the hospital floor, almost like an informational briefing one would expect to see used by the military. We observed an instructor in the "briefing" with a group of beginning nursing students, many quite nervous about getting their first chance to work in a large, corporate hospital setting. During the "briefing," the instructor provided very technical information related to the unit being studied in the college classroom as well as specific advice for dealing with the patients on the floor. Students were encouraged to create an individualized plan for each patient and to tie what they observed when caring for the patients directly to their coursework using what was referred to as a "path card." This card was to be used by the students to compare a patient's diagnosis to "what the textbook says to do." (Students were not encouraged to follow the textbook blindly; rather they were asked to consider whether the information made sense and appeared accurate given what they were learning in the real world.)

In addition to this technical orientation, the instructor advised the students on how to behave while working on the floor and how to interact with the regular nurses working there. The instructor was clearly very familiar with the hospital surroundings and knew many of the personnel regularly employed on the floor. Throughout our observations, the instructor acted as a coach in her interaction with the students, and her advice and encouragement appeared to set them at ease. In addition to this instructor, another CSCC nursing clinical liaison (adjunct faculty member) was working with another group of nursing students on the same floor. A brief interview with this

liaison supported our observations that students were serious (visibly nervous in some cases) about their clinical experiences, but also receiving an invaluable part of their professional development. This nursing instructor gave CSCC very high marks for the quality of the teaching and learning process, pointing out the strengths of the practice-oriented approach used with associate degree nurses in comparison to baccalaureate degree programs.

Connecting Activities

A very important connecting activity that occurs relatively early in the program is the placement of nursing students in local clinical settings. The faculty member responsible for coordinating clinical placements was a senior member of the staff and very knowledgeable about the various participating health-care agencies involved with the Nursing Technology Program. She spoke in great detail about the health-care facilities in the local area where students were being placed. She showed a great deal of concern for providing a meaningful match between students and clinical agencies. In making the matches, she drew upon her personal knowledge of the nursing administrators and staffs in the various clinical settings. In addition, she gave careful consideration to the diverse culture of the institutions (recognizing that attention to cultural diversity is a written goal of the program). For example, she arranged for us to visit a large hospital which she described as having very experienced personnel, high-tech facilities, and a corporate-like atmosphere. Another facility she described as being small, intimate, and family-oriented. In both cases, her descriptions were right on target and persons at those hospitals knew the CSCC nursing instructors and were personally familiar with the Clinical Placement Coordinator.

One reason the clinical placements are so important to the nursing students and the program is that they are recognized as a way for employers to screen potential hires. We were told that many students begin to apply for positions at the beginning of their sixth quarter (out of seven) and, near the end of their training, employers begin to make judgments about which students they want to bring on as full-time employees. Consequently, clinical placements, especially near the end of the program, can have an impact not only on students' learning experiences but their full-time employment opportunities upon graduation. This situation places a heavy responsibility on the Nursing Technology Program and particularly the Clinical Placement Coordinator to make fair and reasonable assignments of all students throughout the training, but especially nearing a student's graduation. Apparently, having the opportunity to demonstrate job worthiness near the end of the program in a high-paying setting can have long-term economic benefits.

An advisory committee operates to support the program. Many of the representatives of the local health-care employers who also provide clinical experiences for students participate on this committee. The committee meets on a regular basis and has been very supportive of the curriculum changes made by the faculty. Related to this activity, legally binding written agreements are utilized between CSCC and the local employers (clinical agencies) to solidify clinical experiences for students. These agreements accomplish the following: (1) they ensure that faculty members have control of students along with the freedom to provide appropriate learning opportunities, (2) they

ensure both parties have the opportunity to evaluate the arrangements, and (3) they provide for sufficient time to outplace students if a relationship is terminated. The faculty conduct periodic review of the clinical agencies, and the contributions of various agency resources, facilities, and services are routinely discussed among the faculty.

Lessons Learned

Several strengths are evident in the Nursing Technology Program. The faculty and administration are highly qualified, caring instructors who work hard to keep their curriculum up-to-date in a rapidly changing technical field. The main campus of CSCC where the Nursing Technology Program is housed has modern classroom and laboratory facilities, including the computer laboratory designed specifically for nursing students. External to the campus, Columbus provides a rich environment of diverse health-care providers of all types, ranging from the large, corporate hospital to the ultra-modern extended care facility, to the small, private clinic. Along with this diverse health-care community comes a wealth of health-care teaching institutions. In no way is CSCC acting alone in the central Ohio area in the preparation of registered nurses. To the contrary, the competition among health occupations programs in educational institutions is fierce. While this competition has its drawbacks, it also has the benefit of helping programs of high quality to remain viable. This benefit was given repeatedly by CSCC faculty who were optimistic about maintaining a market niche for their program in the changing health-care market in Columbus.

Another extremely important strength of the Nursing Technology Program is the three-phase instructional process that provides a very meaningful and real connection between theory and practice. By operating the pedagogical processes of lecture, laboratory/simulation, and clinical experience concurrently, students participate in a sort of reciprocal learning process that closely connects knowledge and skills valuable across all of these environments. Multiple teaching strategies were employed by the faculty to make the connections, including linking textbook reading assignments, laboratory exercises, "briefings," and patient care activities. Tools such as the "path card" provide students with documentation of what they've learned and practiced across the different settings. We viewed this pedagogical process as an extremely valuable model for transitioning students from school to work.

Of course, operating a program such as nursing is not easy, and one of the most serious concerns for many two-year colleges is cost. The high costs of maintaining the Nursing Technology Program were an ongoing issue for CSCC and the college administration; however, the President expressed a commitment to continuing to support the program if costs were kept within acceptable limits and as long as quality standards were maintained as well as they had been in the past. The Director of the Nursing Technology Program confirmed the President's interest in and dedication to the program and explained that she felt he had been supportive of the curriculum changes and faculty development activities she had initiated in the department. In fact, she described the President's entrepreneurial spirit as partially responsible for the success of the department and the college as a whole.

The Director described the current time as one of transition for the health-care industry as well as for the nursing profession specifically. She said that the changes were very difficult for some of the faculty, and there had been some disillusionment with the current downturn in the job market. She believed that some members of the faculty were being challenged to provide instruction in areas where they had received minimal prior training or had little previous work experience and this situation was placing increased demands on the department and college to provide professional development opportunities for the faculty. Also, the shift of teaching and learning from a more highly individualized approach to one involving teams had been difficult for some faculty. Yet, even though these changes were difficult to make on an individual basis, the Director felt they were essential for the long-term survival of the program. Modifications to curriculum were seen as vital to helping the program keep pace with what is happening in the nursing profession.

Keeping standards high and programs up-to-date with local labor market changes is crucial for any occupational program, but especially for the health-care industry. Of course, knowing how and where to change is not always obvious. Current trends in the health-care industry include dramatic downsizing of the traditional hospital facility and displacement of registered nurses with lower-paid, less-skilled nursing-related occupations (i.e., nursing technician, nursing assistant). The growth in such lower-paying occupations is creating havoc with the nursing profession. (In Columbus, for example, persons with no technical background were being trained in six weeks [often by the hospitals themselves] as nursing assistants to assume many of the duties that were once performed by professional nurses. These persons were being paid $6 per hour, whereas an entry-level registered nurse would be paid $13 to $14 per hour.)

A restructuring of work responsibilities seems to be creating many more lower-paid positions who report to fewer nursing professionals, mostly for the purposes of cutting costs. Unfortunately, the guidelines and standards set by the state and national nursing boards do not seem to be keeping pace with these changes. Consequently, educational programs such as the one at CSCC are operating with little direction from the profession. Some of the nursing instructors at CSCC are disillusioned about what they see happening to their own profession. The curricular decisions these nursing educators are being asked to make in response to labor market changes require deep-seated value judgments that get at the core of their professional lives. These are not easy decisions because they have long-term implications for the profession itself. However, a commitment to providing high-quality nursing education is evident at CSCC, and we were convinced the faculty there would ultimately make the kinds of decisions that would be most beneficial to their students.

Youth Apprenticeship Manufacturing Technology, Rock Valley College and Tulsa Junior College

Debra Bragg, George Johnston, and David Sargent

Rock Valley College (RVC) was created in 1964 to serve the needs of Boone and Winnebago Counties as well as parts of four other counties in north central Illinois. Over the past 30 years,

RVC has grown and changed in many ways. It has evolved from a small community college consisting of 35 faculty members and 1,100 students to 140 full-time faculty, 500 part-time lecturers, and over 9,000 students (see Table A-14). A high proportion of the student population is white (89%), which is similar to the community demographics. Another 5% of the student population is African-American, and the remaining minority population is made up of Asian, Hispanic, and other groups. The average age of students at RVC is 30 years old. About two-thirds of students are enrolled in the transfer curricula and one-third are engaged in the occupational/technical curriculum.

RVC is fully accredited by the North Central Association of Colleges and Secondary Schools and is recognized by the Illinois Community College Board. It serves 15 public high schools within its district, including urban and rural school districts. RVC offers 36 career programs, 17 transfer degree programs, and 7 local joint apprenticeship programs recognized by the Bureau of Apprenticeship Training and the U.S. Department of Labor (BAT/USDOL), including the Tech Prep youth apprenticeship in manufacturing which was the focus of this case study. RVC also offers joint educational agreements through ten cooperating Illinois community colleges for students interested in degree programs not offered there. The primary funding for the college is threefold: (1) tuition (approximately $35 per semester hour credit for in-district students), (2) local property taxes, and (3) state appropriations.

Table A-14
Enrollment and Student Demographics
for Rock Valley College
(Fall Semester 1993)

Enrollment and Student Demographics, AY '93-'94	Incidence
Institution's total head count enrollment	9,113
Institution's FTE enrollment	4,320
Ethnic composition of students (total population):	
African-American	5%
Native-American	<1%
Asian	2%
Hispanic	3%
White	89%
Other	--
Percent of total student population receiving Pell grants	UK
Average age of the institution's entire student population	30

Note: UK indicates unknown or unavailable information.

There are approximately 1,000 manufacturing companies within the college's district and many other companies in the nearby counties that collar the suburbs of Chicago. These companies range from small- and medium-sized plants to large multinational corporations. Although most of the local manufacturing firms are small, 80% to 85% of the manufacturers in the Rockford area have fewer than 100 employees. Approximately 33% to 35% of the local workforce is involved in manufacturing.

Program Overview and Goals

Beginning in 1990, through a grant from the Illinois State Board of Education, a Tech Prep consortium was launched in the Rockford area by RVC and the Career Education Associates of North Central Illinois (CEANCI), the regional office of the state's vocational delivery system. During the initial year, partnerships were built with the local manufacturing community, including the development of an executive committee. This group continues to meet monthly to provide direction for the consortium's initial planning and policymaking processes. Many representatives from this initial group remain the strongest supporters and financiers of the current initiative.

In 1992, the Youth Apprenticeship component of the program was added to the school-based Tech Prep Program for manufacturing technologies with the encouragement and support of the local manufacturing firms. During the first year of the Youth Apprenticeship effort, the Tech Prep consortium was supported by 16 local firms as well as representatives from local labor unions. Since that time, several more manufacturing companies have joined in the Tech Prep youth apprenticeship effort and, although not part of this case, a second Youth Apprenticeship Program has been initiated with local health-care providers in the health occupations.

The goal of the Tech Prep Youth Apprenticeship Program, according to a brochure from RVC/CEANCI is to "provide the students involved with the skills necessary to obtain journey-person status in a manufacturing career and to obtain an associate degree." In that same document, the mission statement says that "(W)e exist to enhance the competitiveness, employability, and career opportunities for area young adults by fostering a partnership with business, industry, and education. This business and education coalition will lead to an enriched apprenticeship training experience for the participants and greater community-wide acceptance of the value of this career path." Both statements are in keeping with the college mission and goal statement as outlined in the college catalog.

Funding to support the program has been provided by public and private sources. Federal Tech Prep Education Act funds and additional financial support appropriated by the state of Illinois for Tech Prep have co-mingled to support RVC's program. In addition, the Tech Prep Youth Apprenticeship Program has received funding from the USDOL as a part of a larger grant received by the state of Illinois (involving two other sites in Illinois in Youth Apprenticeship Programs as well). In addition, over $380,000 has been contributed by sponsoring companies to support students

and materials. The donation of facilities by a local manufacturer has been an essential resource to this program. The first two years (secondary level) of the Youth Apprenticeship Program utilizes a Tech Prep Academy, a 3,000-foot training site at Pfauter-Maag Cutting Tools, a German-based company. This academy was renovated and furnished with equipment donated by the area manufacturers involved in the program.

Although the program is very new compared to many work-based learning programs operated by two-year colleges, it has already been recognized for excellence. The Tech Prep Youth Apprenticeship Program received the Building Fairness (gender equity) Award from the Illinois State Board of Education and the Excellence in Work Force Preparation award from the Illinois Community College Board. It has also been featured in the January 4, 1993 issue of *Industry Week* magazine in an article entitled, "Apprenticeships: A Few Good Crusaders."

Key Stakeholders

Educators

The role of RVC faculty, staff, and administration seems to be twofold: (1) to help "sell" these types of workforce/economic development programs; and (2) to act as a facilitator and leverager of funds. The President of RVC describes the college's role in terms of leadership. He is concerned that work-based learning programs not confuse economic issues with "social engineering" ones. His point was that two-year colleges and their educational partners can provide opportunities, but their resources are not unlimited. The college acts as the fiduciary agent for the program and provides a home-base for the full-time Tech Prep Youth Apprenticeship Program Director employed with the special grant funds. In addition, RVC provides a summer institute for the students prior to their starting the Tech Prep Youth Apprenticeship Program. Still others in the college provide support for the program. The Career Dean and Director of the Division of Technology also spend a substantial amount of time on the program, as much as 25% according to the Director of the Technology Division (although his time is not budgeted on this program). In addition to these individuals, the Regional Director of CEANCI and secondary education faculty are involved in the program to varying degrees.

Employers

There seems to be a unique spirit of cooperation among the manufacturing industry representatives who in other arenas might see themselves as competitors. It would appear that an impetus for the program was a recognition by all of the stakeholders that Rockford needed to make a change in how youth were being educated for work. On several occasions, we heard remarks to the effect that companies had to "swallow their pride" and "all parties had to make some sacrifices," alluding to concerns that typically arise when competitors attempt to collaborate. All of the stakeholders stressed the importance of developing a mission statement early in the process and bringing it to every meeting to keep everyone "on track." In addition to the verbal commitment received from

local industries, commitments could also be measured financially. Each business partner is required to subsidize the program in the amount of $9,000 per apprenticeship. Recently, when an audit revealed that the program was not going to be as expensive as originally planned, the businesses were given the opportunity for a rebate. They declined on the grounds that excess monies should be put into savings for when state and federal funds "dry up," indicating the enthusiasm employers have to ensuring the program will survive over a longer-term basis.

Industry representatives (senior executives and human resource personnel) play a critical and highly involved role in the Youth Apprenticeship Program. Pfauter-Maag sent the coordinator to one of its German plants to study how such apprenticeships work. The companies continue to meet regularly with the consortium as a formal governing board to address all aspects of the training program. At present, one of the concerns of industry is ensuring that the transition from secondary to postsecondary education is as seamless as possible. During the transition of the first group of secondary students into RVC during the summer of 1994, a few students encountered difficulty with a college-level English course (taught in a traditional manner). To address this problem, the businesses showed enough concern to raise the issue at the senior executive level. Consequently, gentle pressure from the senior executives caused college administrators to rethink the academic curriculum offered at RVC. It should be emphasized that the Chief Executive Officers were committed to maintaining high academic standards for the program, not lowering them. According to the President of RVC, this situation clearly demonstrated industry's commitment to that goal for the Tech Prep Youth Apprenticeship Program.

Industry mentors (referred to as meisters at RVC based on German terminology) are not part of the curriculum committee, but are actively involved with the training of the students at the work sites. Meister training consists of one 4-hour session, a time period that local educators readily admit is too limited, but practical at this stage. One participating company's policy dictates that meisters must have been with the company a minimum of five years and have a reputation "on the floor" of being good trainers. On the part of employers, we observed some resistance to taking senior workers (supervisors and lead workers) away from the shop floor for too long to work with youths. One of the meisters had been with a participating company for 25 years, and he was self-taught. His phrase was he "didn't have an education." He saw his role as a guide and was very supportive of his student mentee, encouraging her to continue when she had difficulties. His attitude was one of deep caring and concern, an important quality for any teacher. On the other hand, his limited educational background made it difficult for him to reinforce more advanced academic competencies that he himself did not possess.

Students

As a result of recruitment efforts in the greater Rockford area, 30 applicants applied to the Tech Prep Youth Apprenticeship Program. Of the 30 applicants, 15 were selected to make up the first class. The group consisted of 8 males and 7 females. Of these, 11 completed the two-year secondary program (11th and 12th grades) and 10 went on to RVC in a related academic program. Program

administrators indicated that they continue to take only as many students as they have sponsors. Since the initial class of 15, the program has grown to enrolling 31 students with an equal number of corporate sponsors in the 1994-1995 academic year. In addition, a second Tech Prep Youth Apprenticeship Program was started in the health occupations area.

All of the students who were interviewed were enthusiastic about their youth apprenticeship experiences. Some described greater motivation for their academic subjects having seen how they relate to the workplace. Several students said mathematics was their favorite academic subject. One student indicated that he had completed math up through calculus, and the assessments completed by students upon entry to RVC confirmed that the students were well-prepared academically in mathematics. Three students had difficulties in an English composition course taken in summer school immediately following high school graduation, and this situation had raised concern from employers and postsecondary educators about the academic preparedness of the students. To assist the students who were having difficulties and in the interests of future students enrolled in the program, steps were taken in a coordinated fashion by the secondary schools, RVC, and employers to improve the English communication aspects of the program.

It would appear that students' parents were supportive of the program. Several students indicated their parents had encouraged them to continue on in their postsecondary studies and in the pursuit of a career in the manufacturing industry. A number of the students interviewed said their parents were employed in manufacturing occupations like the ones they were training to assume. Although it was not possible to determine how widespread this phenomenon might be, it is reasonable to assume it is representative for a sizable proportion of the students in the program since small- to medium-sized manufacturers are the predominant employment base in Rockford.

Program Components

School-Based Learning Component

The Tech Prep Youth Apprenticeship Program in manufacturing starts at the junior level of high school and culminates in two degree options at the postsecondary level at Rock Valley College. These two programs are an AAS degree in Automated Manufacturing Technology and a Bureau of Apprenticeship Training (BAT) approved four-year Adult Apprenticeship Program (AAP) in Tool & Die/Precision Machinist which can lead to an Associate Degree in General Studies (AGS). The fall semester of 1994 was the first year that students had advanced far enough in the program to attend RVC. Of the 15 students who started the program, 11 finished and 10 continued on to RVC immediately after high school. Approximately half are enrolled in the Adult Apprenticeship Program and the other half are in the two-year AAS program.

Prior to the beginning of their junior year in high school, students participate in a nine-week session held at RVC for which they receive credit. During that nine-week session, students are introduced to the field of technology and also visit each of the sponsoring companies. The first year of the program

(junior year in high school) is taught at the Tech Prep Academy where students spend two hours a day learning how to use lathes, mills, and drill presses. The Academy is a 3,000 square foot space renovated by and located in Pfauter Maag. Each student receives a basic scholarship of $1,000 with a differential reward paid for making good grades ($1,100 for a "B" and $1,300 for an "A"). Second-year students (senior year of high school) work either at the Academy or at one of the sponsoring companies for four hours a day for which they are paid. Officially, students are not employees of the manufacturing firms; they are hired by a local temporary agency as a way of limiting liabilities to the companies. In addition, this policy eases the burden of hiring students as permanent employees who would require benefits in addition to wages. One additional benefit of this approach is that the employment agency issues appropriate tax forms for the students.

Graduates of the Tech Prep Youth Apprenticeship Program may continue to work part-time at a sponsoring company while attending RVC when they matriculate to the postsecondary level of the program, although this aspect of the program is not considered an official part of the program. Of special significance to many of the students, up to 1,500 hours from the Tech Prep Youth Apprenticeship On-the-Job Training Experience can be applied towards the 8,000 hours of on-the-job training needed to complete the AAP. The AAP also requires 144 hours per year of theory. This program is conducted in conjunction with the Rockford Tool and Machinists Association (RTMA), which is not an organized union. The completion of the AAP may result in a journeyman's card as a machinist.

Recruitment of students into the program at the secondary level has grown in sophistication over the past few years. However, in the early years, the strategies were more targeted. At first, a letter was sent to 187 high school sophomore students all from Harlem High School who were deemed to be qualified based on a criteria that included a 2.0 GPA (grade point average), attendance (fewer than 5 misses per year), and a successful score on an attitude scale. Then, interested students were invited to attend a meeting and a second meeting was arranged.

High schools that are a part of the program are engaged in curriculum integration across vocational and academic education, rather than using applied academics. Integration occurs through the collaborative work of interdisciplinary teams of teachers that actively reinforce related concepts (e.g., geometry in building trades or in computer-aided design). Many of these teachers have participated in "Learn and Earn"--a professional development experience enabling teachers to visit local employer work sites and incorporate their own learning into the school-based learning component of the curriculum. Integration is further reinforced through the use of workplace mentors who have participated in training on the basics of pedagogy at the start of the school year and who continue to attend meetings with the teams of teachers.

The integration model used at the college is one of infusion, which focuses on work skills across the curriculum. RVC employs several activities to help faculty become more familiar with the needs of industry. Vocational instructors can work in industry as part of a program called Vocational Instructor's Practicum funded by the Illinois State Board of Education. Stipends are not large

(approximately $5.00 per hour) and the state covers the faculty with a special insurance packet to minimize expenses to the business. Faculty (and counselors) can work up to 200 hours during the summer. Academic faculty also participate in similar activities through the "Learn and Earn" Program, a summer professional development program for secondary and postsecondary personnel funded using Tech Prep grant dollars.

Work-Based Learning Component

During the first year of the high school phase of the program, instruction and performance-based assessment are performed by a certified secondary industrial technology instructor in the Academy setting. Teaching and assessment during the second and ensuing years is done primarily by the workplace meisters. To demonstrate mastery of the occupation, students are required to complete 137 machining competencies in 13 major categories ranging from shop safety to fastener technology, layout and measurements, vertical mills, and metallurgy and heat treatment. Each competency may be checked as either having been mastered, requires supervision, or is not yet mastered.

Students reported they rotated through various aspects of the industry in which they are apprenticing. In some cases, students worked for three weeks in one department and then moved on to another. In other cases it was reported that students had shown a special aptitude and there was a temptation to leave them for an extended period on one particular job. However, students were moved around to encourage them to gain a broader perspective of the occupation. Students are paid a stipend that is based partially on grades earned. Their pay is received at the end of the semester; however, there was some discussion about changing the pay to every two weeks hoping to link wages and work performance more closely.

In and of itself, the Tech Prep Youth Apprenticeship Program does not provide a credential of occupational and academic competencies recognized beyond the local labor market. However, students who do not choose to continue at the postsecondary level are seen as valuable potential employees by the local members of the coalition because of their successes in finding full-time training-related employment. Yet, even then, having students complete the postsecondary collegiate credential is strongly encouraged by educators and employers alike. Many employers provide tuition reimbursement for students who become full-time employees and choose to continue their education at RVC.

Connecting Activities

One of the strengths of the program is the regular consultation between workplace mentors or meisters and college faculty. There seems to be a highly developed level of cooperation and coordination on various aspects of the program. There is a formal memorandum of understanding between RVC and Pfauter Maag that clearly identifies the roles of each party. In addition, there are formal agreements between the college and the participating high schools, and there are school Tech Prep liaison agreements. We obtained copies of these agreements and "Letters of Understanding"

identifying the responsibilities for the student, sponsor, coordinator, and parent or guardian, and a formal Youth Apprenticeship Agreement with the sponsor. All of these agreements detail the exact responsibilities of each party, providing a template for program implementation and operation into the future.

Initially, there were six sites sponsoring youth apprenticeships. That number has grown to 16 companies. In August 1994, the Tech Prep Youth Apprenticeship Initiative was expanded into the health career area. In this new program, 17 students from four area high schools are being sponsored by five area health-care partners. Students will receive scholarships (paid by the health-care providers) and will receive training in work-based learning at the health-care partner's facility. The current RVC catalog lists four health-care career programs: Nursing, Nursing Aide, Pharmacy Technology, and Respiratory Care. Other allied health-care programs are available through cooperative agreements with other community colleges.

Finally, the college offers a variety of programs to assist students who need special attention, including an individualized learning center that is available in the evenings and on the weekend. Signs on RVC's hallway walls, clearly visible to students, indicated that the career program SIGI+, a commonly used database for information on careers, is available for students. Unfortunately, several of the students we interviewed seemed unaware of these opportunities, although they were still adjusting to the transition from secondary to postsecondary education and might make use of these resources as they become more comfortable at RVC.

Manufacturing Technology Youth Apprenticeships at Tulsa Junior College

Program administrators at RVC attributed many ideas implemented in relation to the Tech Prep Youth Apprenticeship Program in Rockford to a similar program in Tulsa, Oklahoma. Learning of the Tulsa program, we decided to conduct a site visit (conducted in two separate visits) to learn about how that particular program was planned and operated. A two-person research team collected data in Tulsa in a similar manner as in Rockford; the same person led the Rockford and Tulsa research teams to ensure continuity in comparing the two programs. Before describing the similarities and differences between the programs, it is important to define the overall population of students attending Tulsa Junior College (TJC) compared to RVC.

Even though the Manufacturing Youth Apprenticeship Programs have developed some interesting similarities, there are important differences in the communities and colleges that sponsor and house the programs. First and foremost, the two communities differ dramatically in size. Tulsa, Oklahoma, is nearly three times larger than Rockford, Illinois. The population of the metropolitan areas is 368,330 and 134,500, respectively. Like the population of the regions, the two colleges differ in size. The institutional head count for TJC is approximately three times larger than for RVC, the FTE enrollment is nearly five times greater for TJC than RVC (see Tables A-15 and A-16).

The characteristics of the students at TJC and RVC differ as well. A higher proportion of the

student population represents minority groups at Tulsa, although the white population there remains high at 84% as it does at Rockford. The percentage of TJC students that is female is 59%. At TJC, the majority of students are enrolled in a technical-occupational curriculum (57%) compared to a transfer curriculum (43%). (RVC reported one-third of students in technical-occupational compared to two-thirds in transfer.) The vast majority of students in both colleges attend part-time and hold part-time or full-time jobs while going to college.

Table A-15
Enrollment and Student Demographics
for the Tulsa Junior College
(Academic Year 1993-1994)

Enrollment and Student Demographics	Incidence
Institution's total head count enrollment	30,481
Institution's FTE enrollment	19,422
Ethnic composition of students (total population):	
African-American	8%
Native-American	4%
Asian	2%
Hispanic	2%
White	84%
Other	1%
Percent of total student population receiving Pell grants	35%
Average age of the institution's entire student population	31

Note: UK indicates unknown or unavailable information.

Although there are some important differences between the settings of the two-year colleges, there is at least one important commonality. Both communities rely on manufacturing firms as a substantial part of the local employment base. In fact, many of the Tulsa manufacturers operate in the same markets nationally and internationally as those in Rockford. In addition, in both communities, several of the firms are European-based or operate plants or subsidiaries in Europe where apprentices have a long tradition. European-based or affiliated manufacturing firms in both Rockford and Tulsa are some of the staunchest supporters of the Youth Apprenticeship Programs. Their support comes primarily in the form of financial contributions for apprentice wages, donations of facilities and equipment for hands-on training of apprentices, and workplace mentors for apprentices. Altogether, private contributions by local manufacturers have accumulated to substantial levels in both communities on behalf of the Manufacturing Youth Apprenticeship Programs.

Program Components

Like the program in Rockford, the Tulsa Youth Apprenticeship Program has received high acclaim. Locally the *Tulsa Tribune*, *Tulsa Business Journal*, and *Tulsa World* have published articles supporting various aspects of the program since its inception in 1991 under the title of "Craftsmanship 2000." Nationally, *Forbes* and *Nation's Business* covered the program in May and June of 1992, respectively. In its *Want To Earn While You Learn?* marketing brochure, Craftsmanship 2000 is described as

the school-to-work transition program for the next century's work force. That's YOU! But it's no ordinary "vo-tech" program. A four-year program, it progressively blends high standard academics with high-tech training to produce the kind of educated and highly-skilled young men and women who are in greater demand than ever before! And believe it or not, you get paid for going! Craftsmanship 2000 students work eight-hour days during school months and throughout the summer at companies that sponsor the program.

- **Enter at the 11th grade level and earn your high school diploma from your home high school while attending classes at Tulsa Technology Center.**
- **In the third and fourth year of the program, receive 25 hours of higher education credits from Tulsa Junior College.**
- **Get more actual on-the-job experience than in any other program--up to 2,400 hours are possible in just one machining course!**
- **Earn a biweekly stipend and annual bonus dollars based on performance and attendance records.**

Although many features of the Craftsmanship 2000 Program operate as originally planned, some aspects have changed. The following description tells about the original plans for the program and how it has been modified. In addition, the school-based learning, work-based learning, and connecting activities components of the Tulsa Manufacturing Youth Apprenticeship Program are compared with the program at Rockford.

School-Based Learning Component

Approximately twenty students have been admitted into Craftsmanship 2000 at the beginning of each school year since 1992. During the fall of 1994, the first group of students admitted in the eleventh grade in the fall of 1992 matriculated to TJC. Of the 16 students who continued at TJC, 80% were white; 13% were African-American; and the remainder were Hispanic, Native-American, Asian, or of other race or ethnic origins (see Table A-16). Only two students in this first group were female. Similarly to the Rockford program, the number of females and minority students has increased in Tulsa as recruitment efforts have expanded to encourage their participation. Students recruited into the program were said to "enjoy making things . . . and seeing results."

Table A-16
Manufacturing Youth Apprenticeship Program
at Tulsa Junior College
(Academic Year 1993-1994)

Enrollment and Student Demographics	Incidence
Total number of students enrolled in program	16
Ethnic composition of students:	
African-American	13%
Native-American	<1%
Asian	2%
Hispanic	<1%
White	80%
Other	3%
Percent of total students receiving Pell grants	UK
Average age of students	19
Graduation rate for students	67%
Job placement rate for students	95%
Transfer rate for students (based on student plans)	21%

Note: UK indicates unknown or unavailable information.

In both Rockford and Tulsa, student recruitment efforts have become more sophisticated over time, although recruitment into the Tulsa program has been problematic. Recruitment for the fall of 1994 involved several strategies: the distribution of materials, videos, and banners; brochures targeted to students, parents, employers, school counselors, and other groups; school visitations; meetings with parent and community groups; and one-on-one home visits with students and parents by local program officials. Still, even with these many approaches, recruitment was challenging. Several people pointed to the wages received by students in the program as the most powerful recruitment tool, but the number of students who have applied has remained small. One TJC administrator described the situation as follows:

Recruiting into this program is a problem. Students don't want to commit to 8 hours a day. They also don't want to have to get up in the wee hours at 6 o'clock in the morning to have to go clear out to the southeast part of the metropolitan area to school. So they [Craftsmanship 2000] are having problems. . . . The most positive recruiting tool is that the students are paid and you look on that as a positive, and I think it is, but I think it can also be a negative because you have some students who say they're interested but who really aren't interested, they're just interested in money.

All students are paid for attending school, similar to employees of a company. A private foundation

was organized to handle corporate sponsorships and student wages. Under the original plan, first-year students were to be paid $7,480, with the stipend increasing to $7,920 for the second year. During the third and fourth years, students were to be paid $13,200 and $14,080, respectively. The exact amount of each student's stipend is dependent upon attendance and performance as it is in Rockford's Youth Apprenticeship Program.

Students in the program have benefited from receiving the monetary stipends, but they have been "interested in the education" as well, according to a TJC administrator. There are admission standards such as a 2.0 grade point average in core academic courses including a "C" or better in either Applied Math I or Algebra I, but they do not seem to be overly stringent. Thus far, the vast majority of students who start the program in the eleventh grade remain in it to graduate from their home high school. At the secondary level, students take English, math, science, and social studies classes along with vocational-technical classes at the area vocational center, Tulsa Technology Center. Several applied academics courses developed by the Center for Occupational Research and Development (CORD) are used in Tulsa (in contrast to the Rockford's curriculum where applied academics courses are not used).

The academic classes in Tulsa were described as far more rigorous than what students would have taken if they'd stayed in their home high schools, especially in the academic subjects. The students also participated in apprenticeship-like training in local manufacturing firms, although at the beginning of the program the most intensive training of this sort occurred during the summer months when students were not engaged in extensive formal schooling. As students progressed through the program, they participated in more and more hours of actual on-site work-based learning during the academic year. According to the original plan, by the fourth year of the program students take classes at TJC but spend most of their time working as apprentices for their corporate sponsors.

Teachers and workplace mentors involved in the program were "hand picked," according to a key official of the Craftsmanship 2000 Program. Any instructor or mentor associated with the program should be highly flexible, competent in his or her field, and should care about kids. The local official described the students as "kids who don't have a lot of trust. They [instructors] need to be a friend." Instructors need to be prepared to spend a lot of time and have a lot of energy to be successful. Most importantly, they should "have a missionary zeal and believe they can make a difference" and all of that takes "top-level commitment."

All the students who continued on at TJC were enrolled in a Numerical Control Program that emphasizes Computer Integrated Manufacturing (CIM). (A total of 35 students were enrolled in the Numerical Control Program at TJC in the fall of 1994 but most were not associated with Craftsmanship 2000.) The Craftsmanship 2000 students were expected to compete head-to-head with the other students in the program in taking 15 hours of general education courses, 25 hours of technical and academic courses specifically designated for the program, and another 27 hours of technical courses. When students complete the program, they receive a terminal AAS degree and a

certificate of occupational skills.

Initially, Craftsmanship 2000 was planned as a four-year program beginning with the eleventh grade of high school (the junior year), extending through the fourteenth grade, and culminating in the AAS degree at TJC. However, before the first group of students could move through the four-year sequence, the program was changed to only a three-year commitment to address concerns of business and students. One TJC administrator explained,

The program has changed quite a bit lately. . . . We're having a hard time finding corporate sponsorship for this. And, also they're having a hard time finding students who want to commit to a four-year program. I'll tell you this is a pretty tough commitment even for the best because these kids . . . are asked to be . . . there by 8 a.m. and they work 8 to 5 and they're home past 6 o'clock at night. That's a pretty good chunk of responsibility for a young person to commit to. Forget the football, forget all the other activities, this is your life. So, that's kind of tough. And, the expense of a four-year commitment for a corporation is tough so they've cut it back to a three-year [program]. At the end of the three years, they get certification as a Craftsmanship graduate [and] that can be taken to TJC and it's good for 25 credit hours.

Although the stipends to students continue to be paid, referred to as the "earn and learn" aspect of the program (in contrast to Rockford's "Learn and Earn" Program for faculty), students receive the stipend for three years only. They are paid as youth apprentices for all three years taken at the Southeast Campus of the Tulsa Technology Center. Since many students are expected to be employed by their sponsoring companies after graduation and many companies already offer tuition reimbursement for work-related postsecondary education, this modification was not expected to be detrimental to the quality of the program. Rather, it was thought to have the advantage of reducing costs for corporate sponsors and cutting the initial time commitment that had to be made by students and their parents.

Even with the challenges of maintaining the program, a TJC administrator remained optimistic about the future of Craftsmanship 2000. At the same time, he recognized the difficulties in keeping industry and students involved. He stated, "As long as you can get support from industry and you have a population of students that are interested, I think you can make it happen, but those two things are hard to find together."

Work-Based Learning Component

The original sponsoring companies for the program were American Airlines, Inc.; Baker Oil Tools; Hilti, Inc.; Public Service Company of Oklahoma; Webco, Inc.; T. D. Williamson, Inc.; and Yuba Heat Transfer, each providing corporate sponsorships for student stipends and wages. Although the program is relatively young, maintaining these corporate sponsors and recruiting new ones has been a challenge for the Tulsa program. A college administrator pointed out the strong relationship TJC has had with local businesses for some years. He said that prior actions have established a sound

foundation for programs such as Craftsmanship 2000, but even with a track record of successful partnerships, many businesses are reluctant to make long-term financial commitments to a program such as Craftsmanship 2000. He explained,

TJC is all about economic development, working with business and industry. I really think one of the reasons this program has done quite well and why we are partners is we have already done quite a bit of work with a lot of the companies involved. For example, American Airlines. When we opened the college, one of the criteria for opening was the fact that we were going to offer courses for American Airlines so they could set up their new reservations system--that was back in 1987. So, American Airlines has been our partner for a long time. . . . Hilti Corporation was very involved. We were offering a lot of computer courses for their employees. So, it [Craftsmanship 2000] fits well with the mission [of TJC].

This TJC administrator continued by saying that Craftsmanship 2000 has support from the college, but that maintaining business and industry commitment to the program at such an extensive level (estimates ranged from $30,000 to $50,000 per apprentice for a four-year time period) could be problematic. He stated,

I don't think [gaining] TJC's commitment is a challenge. I think the real challenge is the companies. As long as the companies are making money and being successful, it's not a problem. But, you let a company start downsizing and having some [economic challenges], then their level of commitment may fall.

A new company was joining the program as a corporate sponsor, but another--a long-standing supporter of TJC and Craftsmanship 2000--was likely to pull out because of economic difficulties. The TJC administrator raised an issue related to sponsorships of the Craftsmanship 2000 Program by large corporations. He said,

It seems like one of the dilemmas is that . . . a lot of growth in the labor market is in pretty small employers, but yet this [Craftsmanship 2000] really requires a commitment from pretty large employers. So, the potential growth in jobs may not match where these big companies are at economically. . . . We've not been successful [recruiting small companies] but we've talked about . . . having several small companies go in and sponsor one student, but we're still working on that.

In order to reduce the total cost of the program to the local firms, the program was reduced to a three-year program delivered by the area vocational center, Tulsa Technology Center. While this modification was expected to be effective in reducing costs, it would also weaken the postsecondary component of the program and TJC's role as a formal partner, a concern for some TJC administrators.

An additional concern expressed with the current program was that it had not been granted approval as a formal apprenticeship program by the Bureau of Apprenticeship and Training (BAT)

in contrast to the program in Rockford that had achieved BAT approval. This was a disappointment to several of the Tulsa officials interviewed. A TJC administrator explained that local officials "went clear to Washington, DC" to get the program approved, but that "they [the BAT] didn't want to change even though at the national [level] . . . [apprenticeship] is the big thing."

Connecting Activities

Craftsmanship 2000 operates with an extensive network of subcommittees made up of public-sector and private-industry personnel, with the Tulsa Chamber of Commerce acting as the centerpiece of the program. Several Tulsa officials commented that the program "would not happen" without the active leadership of the Chamber of Commerce which had provided a viable communication channel between industry, TJC, and the Tulsa Tech Center. Particularly between TJC and industry, relationships were thought to be strengthened as a result of Craftsmanship 2000. Apart from this particular program but related to it, contract training had begun with a few of the sponsoring corporations. Both industry and education were thought to have created a more positive image as a result of participating in Craftsmanship 2000.

Numerous subcommittees involving people from local high schools; area vocational centers, especially Tulsa Tech; TJC; the Chamber of Commerce; manufacturing firms; and other community-based organizations were operating to deal with issues related to curriculum, instruction, workplace mentoring, marketing, and evaluation. Of all the subcommittees, the one involving workplace mentors and industry coordinators was particularly active, meeting four hours each week. Initially, the subcommittee contributed to developing standardized grading procedures and ensuring students were gaining experience with appropriate basic technical skills. More recently, an important task of the subcommittee has been to align worksite projects with the in-school curriculum. The weekly meetings are attended by one-half or slightly more of the workplace mentors and these individuals describe the work of the committee as valuable to their ability to contribute as mentors to helping students/apprentices learn in the workplace.

In terms of the entire network of subcommittees to support Craftsmanship 2000, a TJC administrator described the in-kind contribution of time by personnel from the various participating organizations as "enormous" so far, but the commitment must not stop. It appears to be neverending because each time something significant changes, the subcommittees have to make accommodations and implement new plans. Some people expressed frustration with the complex subcommittee structure for Craftsmanship 2000, saying "too many people" and "too many subcommittees" are involved. Others were not concerned. They believed they were contributing to a communitywide effort to create a new educational program for the young people of Tulsa. These individuals recognized the inefficiencies in the system, but valued the opportunity to contribute to a participatory approach.

Lessons Learned

One of the strengths of both Manufacturing Youth Apprenticeship Programs is the high level of commitment and involvement on the part of industry. In both communities, the apprenticeship programs can be described as truly "industry driven." In both Rockford and Tulsa, a few leading manufacturing firms provided the impetus, motivation, and support to establish the programs. In Rockford, in addition to the $9,400 that each firm pays to sponsor a youth apprentice, the companies have contributed nearly $400,000 in goods and services, including more than $100,000 worth of equipment for the Academy facility. In Tulsa, an estimated $30,000 has been donated per apprentice and in-kind contributions of personnel and time have been extensive. In relation to both programs, this level of support from industry deserves special attention.

Related to corporate involvement is an area of concern that requires further discussion. The issue relates to sustaining corporate support for Youth Apprenticeship Programs over the long term, especially where a few large corporations provide the main financial support. Several companies in Tulsa that supported the initial development of the program have already pressured Craftsmanship 2000 officials to reduce the time span of the program, resulting in the elimination of the formal part of the program at TJC. Part of the rationale to reduce the program was to lessen the time demands on students; however, the need to meet corporate demands to reduce costs was acknowledged openly. In Rockford, such financial concerns were not apparent, possibly because the cost of the program was already much lower. (Only two years of schooling were supported by the companies and the annual stipends paid to students were lower in Rockford than in Tulsa.) Regardless, both programs are still quite new, but it is difficult to predict their long-term stability when students' education is so dependent upon private sources. If the Youth Apprenticeship Programs are to be maintained, arrangements need to be made to secure a stable funding situation from both public and private sources over the long term.

Mentioned previously, students engaged in the Youth Apprenticeship Programs make an unusual commitment of time to the program. Many Youth Apprenticeship Programs operate eight-hour work/school days, and many young people are not prepared to make such a big commitment. We heard complaints about the time demands placed on students in both Rockford and Tulsa. One of the accommodations made for students in Rockford was to allow them to continue to participate in extracurricular activities at their home high schools. Students who were involved in sports in high school could make up time missed from the work sites by working holidays and other periods when high school was not in session. Even if they were unable to make up all of the hours, they were not eliminated from the program; however, they were not allowed to transfer as many of the on-the-job hours as they otherwise might have to RVC. The accommodation made in Tulsa was more dramatic--to eliminate corporate sponsorship for the final year of the program, effectively cutting the program to a three-year initial commitment. Either way, local officials need to be aware that placing extensive demands on students above and beyond what is commonly associated with traditional schooling may not be met with enthusiasm by students or their parents. Schools, employers, students, and parents need to work together to develop program requirements that are rigorous enough to produce acceptable results, but not so burdensome as to stifle enthusiasm for the

program.

Another related concern has to do with the high cost of the program, particularly when measured against the small number of student participants. In Rockford, at least $300,000 of state and federal funds have been used, along with nearly $400,000 of gifts, private grants, and in-kind contributions from industry. This is a tremendous investment for eleven first-year high school graduates (of the initial group of 15) of whom ten have matriculated to RVC. In Tulsa, state and federal grants have also contributed to the program in addition to the approximately $30,000 in corporate sponsorship for each apprentice. There, sixteen students in the first cohort group matriculated to TJC. Granted, only one class has moved from high school to college in either Rockford or Tulsa; however, the numbers are quite small in both cases, raising concerns about the feasibility of this approach as a work-based learning model for the masses of students. At this point, we suspect the long-term viability of Youth Apprenticeship Programs remains in question for the reasons discussed previously, so basing new programs on this model may be ill-advised. Where the particular program is small, highly focused, and has a well-established relationship between industry and education, the Youth Apprenticeship Model may be successful. However, where large numbers of students need to be involved in a variety of work-based learning situations, youth apprenticeships do not seem as feasible as other models such as co-op.

Even though students expressed concerns about the time commitment required of the programs, most spoke highly of what they had gained. They were especially enthusiastic about the work experience they had received and wages they had acquired. There was a clear sense of self-confidence and pride in their accomplishments and this pride extended to the business partners and workplace mentors as well. However, it would appear that not all members of the faculty and staff at RVC or TJC understand or agree with the academic preparation of the students. There is an assumption in both programs that students would be ready for entry-level college work once they graduated from high school, yet not all students were indeed ready for college. In both programs, the secondary curriculum was perceived to be rigorous and students were thought to be advancing academically, but that assumption may not hold when one looks at students' performances at entry into college.

In Rockford, three matriculating students had difficulties passing an entry-level summer school English composition class. In Tulsa, none of the incoming students achieved the minimum score of 19 on the ACT exam to enroll in TJC without remediation. Later, when students took TJC's equivalency exam, all were accepted with the exception of one or two. "But, it was a disappointment that no students had even a 19 on the ACT, the bare minimum," said a TJC administrator. These findings raise concerns about the adequacy of the preparation of secondary students for the postsecondary level, even when industry is highly involved in determining curriculum requirements. One college administrator described the high school students as "pampered" and having been "brought along," a fairly common sentiment among some college faculty. If students are nurtured along to complete high school and readied for work but not for college, their academic futures could be stifled or even dead-ended, an outcome detrimental to the long-term viability of the program. As

youth apprenticeships proceed, it is important that they prepare students to be successful throughout their entire educational experiences, secondary and postsecondary, even if college is not a student's immediate choice.

Finally, in both Rockford and Tulsa, the relationships between the secondary and postsecondary levels were not particularly well-developed. For example, articulation agreements were being employed, but they were not a prominent feature of either program. Also, corporate sponsorships were directed toward the secondary portion of the program but not the postsecondary. Additionally, a majority of students were matriculating, but their college programs were not well-understood by them or their parents, and some were not ready for entry-level college studies. To complicate matters more, the small numbers of students/youth apprentices in the programs inspired little enthusiasm among some college administrators and instilled negative attitudes in others who perceived the programs as being "special," for students who were not college material. To add to the mix, neither the program in Rockford or Tulsa had established a formal transfer component. In both cases, students could pursue a transfer with four-year colleges or universities, but there was no formal agreement to transfer students' credits without a case-by-case review. Taken together, these findings raise concerns about the strength of the secondary and postsecondary relationships underlying the Youth Apprenticeship Programs. Without a clearer definition of the entire curriculum and how educators, employers, and students contribute and benefit, the potential for Youth Apprenticeship Programs to provide upward mobility into higher education and beyond may be jeopardized.

Appendix A: Footnotes

[1] The Management Internship System includes students in the following major areas: management, marketing, fashion merchandising/marketing, travel industry technology, and credit union management.

[2] Approximately 250 mostly small hotels dominate the town of 15,000 and there are two large hotels in the immediate area. One of these hotels is the Park Place, the site of work-based learning for students in the Hotel and Restaurant Management program at NMC.

Appendix B:
Biographies of NCRVE-NCOE Research Team Members

Debra D. Bragg is an Assistant Professor in the College of Education at the University of Illinois at Urbana-Champaign (UIUC). She holds a joint appointment in the Department of Vocational and Technical Education and Department of Educational Organization and Leadership. Her responsibilities currently entail being a Project Director for the National Center for Research in Vocational Education (NCRVE) where she directs a national study of Tech Prep policy and implementation and a related study of work-based learning in U.S. two-year colleges. She has

authored numerous monographs, technical reports, book chapters, and journal articles on various school-to-work policies and programs, especially pertaining to Tech Prep. At UIUC, Debra directs the Office of Community College Research and Leadership and coordinates a graduate program designed to prepare future leaders and scholars in the field of community college education. Dr. Bragg's M.S. and Ph.D. degrees are from The Ohio State University in Comprehensive Vocational Education, an interdisciplinary program combining vocational education, educational research and evaluation, and public policy analysis.

Mary Burnett is a Dean of Professional Technical Education at the North Seattle Community College in Seattle, Washington. She joined the Seattle Community College District VI in 1984 as Associate Dean for the Division of Health and Human Services at Seattle Central College. Mary has her doctorate in education from the University of Nevada, Las Vegas, and was employed at the Community Colleges of Nevada as an early childhood faculty member, Social Sciences Associate Dean, and Director of the Henderson Branch Campus from 1972-1984. She is a member of the National Council for Occupational Education (NCOE) Work-Based Learning Task Force and was appointed Region I NCOE representative in 1995.

Robert W. Day is the Division Chair of Business Technology and Health Sciences at Mountain Empire Community College in Virginia. He has nearly 25 years of experience in community college education in the South. His background in postsecondary occupational education and work-based learning includes eleven years of state-level experience with the Texas Higher Education Coordinating Board and the South Carolina State Board for Technical and Comprehensive Education, where he was involved with state curriculum oversight of occupational/technical education, cooperative education, internships, and other work-based learning. His campus experiences include Director of Development at Technical College of the Lowcountry, South Carolina; Division Chair of Business and Technology at Dabney S. Lancaster Community College, Virginia; and his current position at Mountain Empire Community College where he and his faculty are broadening work-based learning opportunities in Division programs. Dr. Day holds an A.B. in Business Administration from the College of William and Mary in Virginia, an M.Ed. in Educational Administration from Georgia State University, and a Ph.D. in Higher Education from Florida State University.

Sandra Filion Foster is Vice President of Planning and Development for Riverside Community College District in Riverside, California. Dr. Foster holds B.A. and M.A. degrees from Michigan State University, and she earned her Doctor of Philosophy in Public Policy Analysis at the University of Illinois at Chicago. She was responsible for developing one of the early models of integrated Tech Prep and Work-Based Learning as Associate Vice Chancellor of the City Colleges of Chicago, with support from the John D. and Catherine T. MacArthur Foundation, the Joyce Foundation, leading financial services firms, and the local manufacturing industry. This integrated career preparation model is central to Riverside Community College's strategic plan for expansion into a three-college district with model work-based learning programs in automotive technology, engineering and manufacturing technology, the arts, and health sciences.

Russell E. Hamm is Vice President for Instruction at Arapahoe Community College in Littleton, Colorado. His responsibilities involve administration of all occupational-technical and academic curriculum offered by the college. Dr. Hamm has held a number of executive offices in the National Council of Occupational Education (NCOE), including the presidency. In 1993-1995, he served as the chairman of NCOE's Task Force on Work-Based Learning, and he assumed the role of project co-director of the NCRVE study on work-based learning in the two-year college. He played a major role in conceptualizing and implementing the two-year NCRVE study on work-based learning, including co-authoring the first technical report entitled, *Work-Based Learning in Two-Year Colleges in the United States* (1995). Dr. Hamm holds a Doctor of Philosophy in Public Policy Analysis at the University of Illinois at Chicago.

George Johnston has had 17 years teaching experience at the two-year college or university levels. He is currently employed as a Professor in the Department of Engineering Science and Technology at Parkland College, Champaign, Illinois, and is a certified electronic engineering technician. He served three years as Tech Prep Coordinator for a 15-school consortium before taking a year's leave to pursue a Ph.D. in Community College Leadership in the Department of Vocational and Technical Education at the University of Illinois at Urbana-Champaign. While Tech Prep Coordinator, Mr. Johnston was actively involved with all of the advisory committees for the college and worked with the local Chamber of Commerce in establishing a working Tech Prep committee. Mr. Johnston has an AAS degree in Electronic Engineering Technology from Parkland College. He holds a B.S. in Education and a M.A. in Speech/Theater, both from Kansas State University in Manhattan, Kansas.

Jim Jacobs is Associate Vice-President for Business and Community Services at Macomb Community College in Michigan. His main responsibilities at the college entail the institutional leadership for both Tech Prep and School-to-Work activities. He has written numerous articles that deal with school to work and economic development, especially considering the community college role in such programs. On the state level, Dr. Jacobs is a member of the School-to-Work State Advisory Board for the State of Michigan. On the national level, he serves on the Work-Based Learning Task Force for the NCOE. Dr. Jacobs holds a B.A. in Political Science from Harpur College in New York, and a M.A. and Ph.D. from the Department of Politics and Economics at Princeton University, New Jersey.

Paula A. Puckett is employed as a Research Assistant in the Office of Community College Research and Leadership at the University of Illinois at Urbana-Champaign while working on her Ph.D. in Community College Leadership in the Department of Vocational and Technical Education. She was a co-author of the NCRVE report entitled *Building a Preferred Future with Tech Prep Systems*, published in October of 1994. Prior to her graduate studies at UIUC, Ms. Puckett conducted and coordinated communications, computer sales, and management training as Training Director for a large financial institution in Illinois. Ms. Puckett received her B.A. in Speech Communication from Illinois State University and an M.A. in Educational Counseling from Eastern Illinois University. She was the 1995 recipient of the Rupert Evans Award for outstanding scholarship and leadership as an advanced graduate student in the Department of Vocational and Technical Education at

UIUC.

David Sargent has served the past ten years as Coordinator for Resource Development for the Georgia Department of Technical and Adult Education. Prior to this, he served as Director of Continuing Education at a four-year private college. He served eight years as Coordinator for Career and Professional Development at a two-year public college. He serves as Executive Director for the Georgia Fund for Technical and Adult Education, Incorporated, a statewide foundation that serves all departmental programs. He has assisted in the establishment of 26 new local technical institute foundations. During October 1994, Dr. Sargent was involved in a research study sponsored by the National Council for Resource Development and was part of the Federal Funding Task Force in Washington, DC. Dr. Sargent received his B.B.A. in Management from the University of Georgia, his M.Ed. from Brenau University, and his Ph.D. in Educational Leadership from Georgia State University. He now serves on the boards for the Georgia Adult Education Association and the Georgia Economic Developers Association.

Kay A. Trinkle is the Tech Prep Consortium Coordinator for Dakota County District 917 near Minneapolis, Minnesota. Ms. Trinkle is formerly a Research Assistant in the Office of Community College Research and Leadership at the University of Illinois at Urbana-Champaign. She had primary responsibility for assisting with the two-year NCRVE study on work-based learning in two-year colleges in the U.S. and she was a co-author of the initial report from that study entitled, *Work-Based Learning in Two-Year Colleges in the United States* (1995). She also co-authored the NCRVE report entitled *Building a Preferred Future with Tech Prep Systems*, published in October of 1994. Prior to her graduate studies at UIUC, Ms. Trinkle worked in private consulting on issues related to workforce development.