Tech Prep Evaluation System for Illinois (TPESI)

1999-2000
Pilot Study Results

Edited by
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OFFICE OF COMMUNITY COLLEGE RESEARCH AND LEADERSHIP
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We also want to thank personnel of the Illinois Community College Board (ICCB) who participated in the TPESI pilot study. Our sincere appreciation is expressed to Carol Lanning, Karen Hunter-Anderson, and Rob Kerr, each of whom participated in on-site review visits and offered helpful feedback on the TPESI process. We further acknowledge our own Office of Community College Research and Leadership (OCCRL) faculty and staff, Steven Aragon, Donna Dare, Ghazala Ovaice, William Reger, and Jung-sup Yoo, who contributed as TPESI team leaders, team members and/or authors of sections of this report.

Finally, we would be remiss if we did not thank the local Tech Prep coordinators and support personnel who took time from their busy schedules to facilitate on-site visits and contribute input and advice regarding TPESI. To Barnie Eiserloh, Bill Maass, Beth Paul-Peterson, and Brenda Yates, we express our gratitude. We thank Debra Mills and Randy Fletcher of the East Central Illinois Tech Prep/ETC consortium for playing an advisory role in the TPESI pilot study.

Debra D. Bragg, Director
Office of Community College Research and Leadership (OCCRL)
Executive Summary


Enrollment Growth

The official enrollment of Tech Prep students rose between 1995 and 1999 in three of the four consortia involved in the pilot TPESI project. Whereas this finding is positive, the variation in definitions for the Tech Prep students across consortia, combined with concerns about the trustworthiness of Tech Prep enrollments within consortia, makes conclusions about Tech Prep enrollment trends difficult to confirm. In the four pilot sites, the enrollment of secondary Tech Prep students averaged between 11% and 60% of the secondary student population reported in ISIS. Only one consortium showed declining enrollments, and local officials attributed this decline due to a change in the definition of a “Tech Prep student” rather than an actual drop in student participation in Tech Prep programs or activities. In this particular consortium the only students counted as Tech Prep during the 1998-99 academic year were those who had completed high school courses that articulated with courses at the community college. In previous years Tech Prep was more broadly defined, including all students who had some level of involvement in the program.

Major Strengths

The major strengths of Tech Prep are characterized by a combination of strong leadership and business, labor, and community support and involvement. Administrative support and local commitment are recognized as one of the universal strengths of Tech Prep. In all four consortia, Tech Prep is perceived as a strong “grass roots” initiative, which is an interesting observation given the strong state and federal role in funding Tech Prep and providing oversight for it. Still, in all four consortia local personnel showed commitment to implementing and advancing the Tech Prep initiative. In particular, local personnel designated to lead Tech Prep as coordinators or directors showed an unwavering dedication to the concept, even under difficult circumstances. Their commitment was praised by educators and students at all levels and also by business and community leaders.

Another important strength of Tech Prep was the heavy emphasis on work-based learning (WBL), with this element being a significant element. Recognizing how diverse the regions are in terms of economics, demographics, and socio-cultural influences, it is important to note the evolution and strong support for WBL in all four settings. Regardless of whether the consortium was in a rural, urban or suburban local, WBL was a core element that engaged business/industry leaders in Tech Prep.

In addition, consortium leaders were discussing enhanced efforts to provide students with system-wide articulation agreements. Dual credit courses were becoming more prominent in local efforts to support transition into postsecondary education. Curriculum development in association with articulation agreements was evolving around new career-technical education (CTE) pathways endorsed by the state, and these changes were welcomed by most local educators.
Major Barriers to Advancing Implementation

One of the primary difficulties of Tech Prep was the inability of supporters to create an image and an identity for Tech Prep that was both distinct from other initiatives, such as Education-to-Careers (ETC), and able to attract attention and support from the local communities, from business and industry, and from students and teachers. Many of the barriers to advancing Tech Prep implementation to higher levels stemmed from its lack of visibility and unclear focus. The 2+2 model, for example, was linked to difficulties with secondary and postsecondary collaboration, and to minimal curriculum development beyond career-technical education (CTE) on the secondary and postsecondary levels. Because some officials feared the increased administrative burden of monitoring and following large numbers of Tech Prep students through the system, local evaluation efforts had been minimized. Yet, doing more systematic evaluation could, over time, create a clearer understanding of the effectiveness of local Tech Prep initiatives. And finally, another significant barrier to implementation seemed to be an unevenness of resources, information, and ownership among schools and the community college(s) within each consortia.

Major Recommendations

Eight recommendations are offered, based on the data collected by the TPESI on-site review teams:

1. Local Tech Prep leaders should continue to work with administrators and teachers to carefully define and implement key Tech Prep concepts more consistently with the state’s definitions and policy directives.

2. Related to the previous recommendation, the state should support local efforts to count Tech Prep students on a consistent way at the local level.

3. On the local level, more attention needs to be paid to educating key constituents of Tech Prep such as counselors, students, parents, business, labor, and community leaders as well as the general public.

4. A dedicated focus on marketing is needed on the state level to enhance understanding and support advanced implementation on the local level.

5. The synergistic relationship between in-service and curriculum development needs to be encouraged, supported, and rewarded.

6. Local governance, administrative, and policy issues (involving Tech Prep, CTE, and ETC) need to be sorted out.

7. More directed attention and technical support needs to be given to the identification and implementation of 2+2 core curriculum that offers bona fide sequences of academic and CTE courses.

8. Local consortia should be required to establish regular review strategies for articulation agreements and encouraged to try new articulation strategies.
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Introduction

During the 1999-2000 academic year a pilot study was conducted to refine the Tech Prep Evaluation System for Illinois (TPESI). This report provides a brief description of the TPESI process, enrollment trends, progress on essential and supporting elements, major results showing strengths of local Tech Prep initiatives, barriers to advanced implementation, student transition patterns, and recommendations. The first section provides cross-consortium results for the four consortia participating in the pilot project. They are the DuPage Tech Prep Consortium, Illinois Central College/Peoria Tech Prep Consortium, the Kaskaskia College Tech Prep Consortium, and the Rock Valley College/CEANCI Tech Prep Consortium. The remainder of the document describes major results and recommendations for these four Tech Prep consortia.

The TPESI Process

Development of the Tech Prep Evaluation System for Illinois (TPESI) began in 1998 through the work of the Office of Community College Research and Leadership (OCCRL) at the University of Illinois at Urbana-Champaign (UIUC), the Illinois State Board of Education (ISBE), the Illinois Community College Board (ICCB), and numerous local Tech Prep consortium directors contributing in various capacities, including as advisors and pilot site facilitators.

Goals that guide the TPESI system are comprehensive and progressive. They are to:

- describe the status of tech prep implementation in the state of Illinois.
- identify participants in Tech Prep, describe their predominant patterns of participation in Tech Prep, and describe how the participation of various Tech Prep student groups changes over time.
- identify the benefits (outcomes) of Tech Prep for students, especially outcomes linked to student learning.
- identify the benefits of Tech Prep for other stakeholder groups.
- discern strategies that support the continuous improvement of Tech Prep within consortia and at the state level.

Key elements of the TPESI process include:

- Local strategic planning linked to annual proposal/budget development, outcomes assessment (including Perkins III) and continuous improvement.
- Annual year-end consortium reports completed by consortia for local- and state-level analysis to identify patterns of results, trends, and issues.
- Monitoring of Tech Prep enrollments and outcomes using various state data sets such as ISIS, A1, and unemployment/wage records.
- Scheduled five-year on-site review cycle providing detailed feedback to local consortia regarding implementation, program effectiveness, and improvement opportunities.
- A state-of-the-art website providing ready access to ideas and materials associated with TPESI.
Along with a state-level definition for a Tech Prep program and Tech Prep student, state agencies specify that funds for Tech Prep are to be used to support eight essential elements that closely parallel the seven “essential elements” described in the Carl D. Perkins Act Amendments of 1998, adding work-based learning (WBL) as an eighth essential element that is unique to Illinois. The eight elements that should form the core of a local Tech Prep initiative in Illinois are:

- 2+2 program that leads to associate degree
- Articulation
- Curriculum development
- In-service training for teachers
- In-service training for counselors
- Equal access for special populations
- Preparatory services
- Work-based learning experience

As part of the TPESI pilot study, eight supporting elements emerged from the data collection associated with the on-site visits during the Fall of 1999. While not specified directly in legislation, these elements were identified through the evaluation process as critically important to the operation of effective Tech Prep initiatives. The eight supporting elements are:

- Leadership, organization and administrative support
- Parental support
- Business/labor/community involvement
- Transition of students to postsecondary education
- Identification and accurate reporting of Tech Prep students
- Secondary/postsecondary collaboration
- Evaluation and program improvement
- Contextual teaching and learning strategies

In terms of the evaluation methods, two on-site review visits took place with each consortium involved in the pilot project. One visit took place in the fall of 1999, and another in the winter or spring of 2000. Between the two visits UIUC personnel kept in contact with local Tech Prep coordinators to keep them informed about the project and to collect information needed to improve the TPESI process. Also, to facilitate understanding of the local approach to Tech Prep, documentation, reports, curriculum materials, course catalogs, and other materials were shared with the on-site review teams.

When on site, review teams collected information about Tech Prep using one-on-one or small group interviews. A standard interview protocol was pilot tested during each visit. Teams ranging from three to six personnel from the ISBE, ICCB, and UIUC conducted each on-site review visit over a two-day period. School and college administrators, teachers, counselors and other support personnel, and students were interviewed during each visit. Employers where students were engaged in work-based learning (WBL) experiences were also visited, and students and employer representatives were interviewed.
At the conclusion of each visit, a short de-briefing meeting was held with key stakeholders, and approximately 6-8 weeks later a preliminary report was shared with the local Tech Prep coordinator. To wrap up the pilot study, on June 12, 2000 local leaders of all four pilot sites attended a meeting in Springfield, Illinois to review the TPESI on-site process, discuss cross-site results and recommendations, and assist in making decisions regarding statewide roll-out of the TPESI process during 2000-01.

For more information about the data collection procedures utilized in the TPESI on-site review process, see the OCCRL website at http://occrl.ed.uiuc.edu/. This website provides a copy of the TPESI On-site Review Plan, the TPESI On-site Protocol, pre-assessment forms, and other information that details the TPESI process as refined for statewide roll-out during the 2000-01 academic year.

Cross-Consortium Results

This section presents a synthesis of enrollment trends, progress on essential and supporting elements, major strengths, barriers to advanced implementation, and student transition patterns for the four consortia involved in the TPESI pilot project during 1999-2000.

Enrollment Trends

The official enrollment of Tech Prep students rose between 1995 and 1999 in three of the four consortia involved in the pilot TPESI project. Whereas this finding is immensely important and positive, variation in definitions used for the “Tech Prep student”, combined with limited tracking mechanisms, makes growth in Tech Prep enrollment difficult to confirm. Current enrollment of secondary Tech Prep students averaged between 11% and 60% of the secondary student population reported in ISIS in the four consortia, supporting the contention that consortia differ widely on Tech Prep enrollments because of differences in local definitions and approaches. Only one consortium showed declining enrollments, and local officials described the drop due to a change in the definition of a “Tech Prep student” rather than an actual reduction in student participation. In this particular consortium, the definition of a Tech Prep student became more restrictive in 1997-98 to reflect only those students who had completed high school courses that articulated with courses at the community college. This redefinition took place, in part, to distinguish Tech Prep from Education-To-Careers (ETC) and career-technical education (CTE) programs available to all students.

Progress on Essential and Supporting Elements

This section provides a summary of major results that cut across the four pilot consortia on the essential and supporting elements of Tech Prep. Because of the importance of the “essential elements” specified in legislation, more detail is provided for the eight elements than the supporting elements. In actuality, results for all elements are informative and useful to improving Tech Prep implementation at the local level.
<table>
<thead>
<tr>
<th>Essential Element</th>
<th>Cross-Consortium Conclusions</th>
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<tr>
<td><strong>2+2 Program that leads to an Associate Degree</strong></td>
<td>All consortia showed persistence in implementation of core curriculum for Tech Prep, although efforts were sometimes limited to CTE programs with loose connections to community colleges. The following points help to characterize the general status of core curriculum in the pilot consortia:</td>
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<td>• Consortia emphasized 2+2 more than 4+2 approaches, supported by CTE courses offered at grades 11 and 12.</td>
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<td>• Consortia emphasized CTE courses more than academic courses in the creation and delivery of Tech Prep. Some concerns were expressed about the rigor of academic courses for Tech Prep and about Tech Prep students’ preparedness for college.</td>
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<td>• Consortia usually identified secondary curriculum more clearly and systematically than postsecondary, although some consortia struggled to implement core curriculum on both levels.</td>
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<td>• Most Area Vocational Centers (AVCs) were supportive of Tech Prep implementation, including offering new applied academics courses and workplace credentials.</td>
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<td>• Work-based learning (WBL) was usually considered a contributing or even more defining feature of the core curriculum.</td>
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<td>• Student participants interviewed about Tech Prep were positive and supportive of the program.</td>
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<td><strong>Articulation</strong></td>
<td>In all four consortia, formal articulation agreements started in the late 1980s or early 1990s (with Perkins II or earlier vocational education legislation) providing a foundation for Tech Prep. The following points help to characterize the general status of articulation in the four pilot consortia:</td>
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<td>• Course-to-course articulation agreements were predominant, established most often on an individual high school-to-community college basis.</td>
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<td>• Some consortia were moving toward consortium-wide approaches to articulation to overcome difficulties with community colleges having to maintain different articulated curriculum with each high school.</td>
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<td>• Students participated in articulated courses during high school and some received college credit once they matriculated, but many articulated credits were not thought to be utilized (although none of the sites had data to confirm this assumption.)</td>
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<td>• Dual credit was being implemented in some high schools in some consortia because this approach was viewed as easier for high school students/graduates to access college credits.</td>
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<td>• Some consortia had policies or procedures for regular review of articulation that were systematic, employing joint faculty advisory committees on an annual or bi-annual basis. Others had articulation agreements that were perceived to be out-of-date and/or ineffectual. When acknowledged, efforts to update these old articulation agreements were spotty.</td>
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<td>• Community college articulation policies (i.e., sunset rules, caps, placement testing) were perceived by some secondary personnel as contributing to students’ failure to matriculate to the community college and/or access articulated credits.</td>
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<td>Essential Element</td>
<td>Cross-Consortium Conclusions</td>
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| **Curriculum Development** | The priority given to curriculum development varied greatly across the four consortia. The following points help to characterize the general status of curriculum development in the four pilot consortia:  
  - The most consistent efforts at curriculum development focused on applied academics, integrated academic and vocational curriculum, and upgrading CTE content.  
  - Business/industry involvement usually took place in association with curriculum development through advisory committees at the community college or AVC levels. Business/industry advisory committees were rarely identified in association with high-school Tech Prep programs.  
  - In each consortium we observed large variation across the comprehensive high schools as to their involvement in Tech Prep curriculum development, depending on the school leadership’s priorities, resources, and student population served.  
  - Joint efforts between the secondary and postsecondary levels to support 2+2 curriculum alignment were viewed as a very important aspect of curriculum development. In fact, curriculum development was frequently attributed with facilitating better 2+2 alignment between the secondary and postsecondary levels.  
  - Curriculum development by secondary teachers was most often linked to enhancing applied academics instruction and applied curriculum materials.  
  - Successful curriculum development were tied closely to local in-service strategies, including AIP/VIP and summer workshops.  
  - Local officials recognized the need to engage in Tech Prep curriculum development in association with the Illinois Learning Standards, including problem solving and advanced academic skills and knowledge. Few details were given regarding how these activities were carried out.  
  - SCANS and improved CTE curriculum were mentioned as a focus of curriculum development, particularly by AVC personnel, including enhancing technical applications, hands-on learning, and lab activities.  
  - Teachers on both levels talked about adopting applied curriculum in their classrooms, but they had difficulty identifying specific examples in some cases.  
  - Joint planning time was a rare commodity in high schools. When it existed it seemed to have a large impact on the level of engagement of teachers—teacher teams in the best cases—in the planning and development of new curriculum. |
### Cross-Consortium Conclusions

<table>
<thead>
<tr>
<th>Essential Element</th>
<th>In-service Training for Teachers</th>
<th>In-service Training for Counselors</th>
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<tr>
<td><strong>All consortia engaged local personnel in a variety of professional development activities, including local workshops, AIP/VIP, Connections, and the NTPN conference.</strong> The following points help to characterize the general status of in-service training for teachers in the four pilot consortia:</td>
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<td>• Some consortia seemed to rely almost entirely on state-supported in-service for teachers such as AIP/VIP and Connections, while other consortia conducted a mix of local, state, and national options, including seminars involving outside speakers and WBL for teachers.</td>
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<td>• Some teachers pointed out the need to offer more advanced professional development and move beyond the awareness stage. They mentioned the need for more teaching methods and tools that they could apply directly within classrooms. At the same time, we heard teacher recommendations to continue awareness training for Tech Prep to accommodate new teachers entering the system. (A high incidence of teacher turnover was reported in several high schools.)</td>
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<td>• Local in-service was attributed with helping teachers improve classroom practice by providing work-site learning opportunities (enhancing teacher knowledge about modern workplaces and careers) and the resources to change teaching methodologies.</td>
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<td>• In-service for teachers sometimes combined Tech Prep and ETC resources because of the comparable focus of each initiative. Other grants were added by some consortia, including a North Central Accreditation (NCA) grant and an Advanced Technological Education (ATE)/National Science Foundation (NSF) grant.</td>
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<td>• Especially successful in-service efforts emphasized curriculum development linked closely to the creation of curriculum integration. (See related discussion in the Curriculum Development section.)</td>
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<td>• Having local in-service helped to facilitate more teachers gaining access to information about Tech Prep on the local level, but even when in-service was provided locally some teachers thought their time was too limited to support their participation.</td>
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<td><strong>In-service training for counselors was rarely separated out from in-service training for teachers, creating some advantages but also some disadvantages.</strong> The following points help to characterize the general status of in-service training for counselors in the four pilot consortia:</td>
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<td>• Combined in-service training for counselors and teachers had the advantage of ensuring that everyone heard the same messages and gained access to the same resources. A disadvantage was that specific concerns raised by counselors because of their unique role in identifying, recruiting, and facilitating student participation in Tech Prep were not addressed.</td>
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<td>• As with teachers, state-supported in-service options such as AIP/VIP and Connections were identified as useful ways to educate counselors about Tech Prep.</td>
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<td>• Though it varied widely, many high school counselors supported Tech Prep, including working with classroom teachers, doing presentations, and teaching Tech Prep classes.</td>
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<td>• In at least one consortium’s regional student services committees were used to deliver important information about Tech Prep and to keep counselors informed on a regular basis.</td>
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<td>• Counselors usually supported the idea of ICPs, but limited resources often prevented their use with 100% of the high-school student population.</td>
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<td>• In one consortium “developmental counseling” was used to support Tech Prep, and this was a positive finding.</td>
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<td>Essential Element</td>
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<td>Equal Access for Special Populations</td>
<td>All four local consortium coordinators said that all students had access to Tech Prep, but no consortia offered specific policy statements referring to equal access. The following points help to characterize the general status of equal access for special populations in the four pilot consortia:</td>
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<td>• Claims of equal access were universal, but some local officials (including Special Education teachers) recommended making Tech Prep even more accessible to all students.</td>
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<td>• Some consortia involved Special Populations coordinators in career exploration activities for special population students in association with Tech Prep</td>
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<td>• In some consortia, grant writing was encouraged to find resources to support participation by more special population and non-traditional students.</td>
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<td>• Some efforts were made to recruit non-traditional students into Tech Prep, but these efforts were not identified on a widespread basis.</td>
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<td>• Consortia having selective admission criteria for Tech Prep were likely to discourage participation by some special population students but this perspective was justified by the priority placed on increasing academic rigor and ensuring higher standards.</td>
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<td>Preparatory Services</td>
<td>A lack of clarity was evidenced in what constitutes preparatory services. The following points help to characterize the general status of preparatory services in the four pilot consortia:</td>
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<td>• A wide range of programs and services were identified when local constituents were asked what the consortium was doing to address the essential element of preparatory services.</td>
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<td>• Marketing and recruitment were probably the most widely recognized approach to preparatory services. Brochures were mentioned often as a marketing tool, but officials on all levels reported a need for more marketing of Tech Prep.</td>
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<td>• Career guidance and exploration was perceived to be a component of preparatory services in some consortia. ETC was usually linked to Tech Prep and recent enhancements of career guidance within schools.</td>
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<td>• Remedial education was rarely mentioned as a part of preparatory services, and we saw few special efforts to help students prepare for required academic course work at the postsecondary level.</td>
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<td>• In one AVC, a notable aspect of preparatory services included the creation of new credentialing systems involving traditional and alternative assessments, developmental guidance, career planning and placement, and service learning.</td>
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## Work-based Learning

Work-based learning (WBL) was a fundamental aspect of Tech Prep, though high schools differed in how they addressed it. The following points help to characterize the general status of WBL in the four pilot consortia:

- While many schools provided extensive access to progressively more advanced forms of WBL (starting with job shadowing and continuing to internships, co-op, and sometimes youth apprenticeships), some schools provided few opportunities for students to participate in WBL.
- Job shadowing was probably the most common WBL approach, and students were very positive about their job shadowing experiences.
- High schools having extensive involvement in WBL tended to see it for all students, including the college bound.
- Evidence of integration between the workplace and school sites was found in some sites, with some students reporting that WBL was a major factor in their doing well in high school courses. These students also attributed WBL with their developing plans for college and careers.
- AVCs showed a high level of support for WBL and leaned toward more advanced forms of WBL, such as co-op, internships, and youth apprenticeships. Community colleges were also heavily involved in WBL, also offering advanced forms.
- Most consortia involved small businesses in WBL, but some involved major employers, such as Caterpillar.
- Specific WBL programs associated with Tech Prep were almost always affiliated with CTE and ETC, blurring distinctions between these initiatives and clouding the ability to attribute impact to Tech Prep.
<table>
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<th>Supporting Element</th>
<th>Cross-Consortium Conclusions</th>
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<tr>
<td><strong>Leadership, Organization, and Administrative Support</strong></td>
<td>All four consortia displayed knowledgeable, committed leadership from the local Tech Prep coordinators. Within consortium we often found shared organizational structures for Tech Prep, CTE and ETC. Shared governance had the advantage of maximizing efficient use of resources and enhancing the potential to acquire new monies through collaborative grant writing projects. A disadvantage was the potential for conflict over goals, funding, and responsibility for program implementation. In the pilot schools, most administrators showed support for Tech Prep, though a high level of variation was evident. Exceptional administrator support usually stemmed from a philosophical appreciation for Tech Prep rather than the “Tech Prep” label that was sometimes associated with tracking.</td>
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<td><strong>Parental Support</strong></td>
<td>Parental awareness was usually encouraged through brochures, career fairs, and parental attendance at freshman orientations. Most consortia did not make special effort to enhance parental support for Tech Prep because parents were thought to be supportive already. Even so, some teachers and counselors said that parents in their schools preferred that their children attend four-year colleges and that this attitude precluded more widespread student participation. If true, we saw little effort to address this parental attitude in a strategic, concerted way. It is notable that most Tech Prep students thought their parents were supportive because of its focus on helping them prepare for the future while non-participating students knew very little about Tech Prep at all.</td>
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<td><strong>Secondary/Postsecondary Collaboration</strong></td>
<td>Improved working relationships between secondary and postsecondary personnel were observed in each consortium, though a universal finding was that secondary/postsecondary collaboration needed to be improved. In some consortia, faculty at the secondary and postsecondary levels participated in in-service and worked on curriculum development projects together. The most intensive collaborative efforts were linked to particular CTE program areas that were attempting to upgrade curriculum. AVCs made a dedicated effort to engage secondary and postsecondary teachers in collaborative endeavors, with some holding joint meetings on an annual or bi-annual basis.</td>
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<td><strong>Business/Labor/Community Involvement</strong></td>
<td>Business/industry involvement was very extensive in some consortia, particularly in the broadening of CTE programs to include more emphasis on workplace and academic skills, and in the creation of new credentials. Business/industry was involved in identifying skill levels that students should achieve in CTE, but also the academic subjects of math and science. Changing labor market needs were cited by some local officials as driving changes in curriculum, particularly within AVCs and community colleges. These institutions were particularly adept at balancing the multiple perspectives of business/industry. Regular luncheons involving local business/industry leaders, Chambers of Commerce, and educators encouraged support for Tech Prep. Business/industry was particularly evident in delivering WBL, usually job shadowing opportunities for students. AIP/VIP provided the opportunity for teachers to work in business/industry, which often stimulated changes in curriculum later on.</td>
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<tr>
<td><strong>Identification and Accurate Reporting of Tech Prep Students</strong></td>
<td>We found wide variation in how Tech Prep students were identified and reported, with four strategies being prevalent. These are: a) counting only those students who participated in CTE courses that articulate with the local community college as Tech Prep, b) counting all high school students as Tech Prep, c) counting students who took any high school CTE courses as Tech Prep, and d) counting students who met selective admission requirements involving average grades, regular attendance, and a good disciplinary record. It is notable that none of these definitions in and of itself accurately reflects the prescribed definition of a Tech Prep student established by the ISBE. If this phenomenon is indeed occurring throughout the state, these major differences in counting Tech Prep students would result in significant inconsistencies in the state’s ISIS data set. This situation is not likely to improve until tracking mechanisms for Tech Prep students are identified, communicated, and enforced statewide.</td>
</tr>
<tr>
<td>Supporting Element</td>
<td>Cross-Consortium Conclusions</td>
</tr>
<tr>
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</tr>
<tr>
<td><strong>Evaluation and Program Improvement</strong></td>
<td>Beyond the ISBE-required annual reports on Tech Prep implementation and enrollment, little program evaluation was done to assess the impact of Tech Prep at either the local or state level. In a few cases local consortia were piggybacking on other evaluation efforts (mostly senior and graduate surveys) to collect student satisfaction data. However, it is important to note that three consortia engaged in the pilot project became more involved in evaluation through the TPESI process, and this development was encouraging. It suggested to us that technical support could facilitate local evaluation, and some consortia may choose to do evaluation even though their resources are limited, if they find it meaningful and manageable. Evaluation for the purposes of documenting student outcomes is a complex form of assessment, and consortia will require much more extensive technical assistance to carry out this type of evaluation.</td>
</tr>
<tr>
<td><strong>Transition of Students to Postsecondary Education</strong></td>
<td>Limited information was available on student transition from the secondary to the postsecondary level. In some cases, only by looking at CTE on a program-by-program level were local leaders able to cite matriculation rates. Even so, local constituents thought Tech Prep supported transition, especially when new credentialing systems and WBL options were used. Job shadowing and career fairs were identified by students as successful transition mechanisms. Students also suggested that having concrete plans for college, work or the military was connected to Tech Prep participation, and this finding was consistent across sites. Unfortunately, little mention was made of scholarships, mentors, or tuition reimbursement as mechanisms to enhance student transition to college.</td>
</tr>
<tr>
<td><strong>Contextual Teaching and Learning</strong></td>
<td>The use of integrated academic and CTE, including applied academics, was spotty within and across high schools in each consortium. Most integration was occurring within courses and by particular instructors rather than on a more systemic level. A variety of curriculum integration activities were observed within schools and community colleges, but applied academics stood out as the most prevalent. Integration efforts were facilitated by curriculum development and in-service activities, especially when these two processes were combined in strategic ways. Some AVCs adopted applied academics to supplement the core academics of Tech Prep and CTE students. (In one consortium this development came about because of a local finding revealing that only 12% of students attending the AVC had taken geometry or more advanced math.)</td>
</tr>
</tbody>
</table>

**Note:** See the OCCRL website at [http://occrl.ed.uiuc.edu/](http://occrl.ed.uiuc.edu/) for more definitions and explanations of the essential and supporting elements.

**Major Strengths**

The major strengths of Tech Prep are characterized by a combination of strong leadership and business/industry support and involvement. Administrative support and local commitment were recognized as one of the universal strengths of Tech Prep. In all four consortia, Tech Prep was perceived as a “grass roots” initiative, which is an interesting observation given the strong state and federal role in funding Tech Prep and providing oversight. Still, in all four consortia local personnel showed commitment to implementing and advancing home-grown approaches to Tech Prep. In particular, local personnel designated to lead Tech Prep as coordinators showed dedication to the concept, even under difficult circumstances. Their commitment was praised by educators and students at all levels and also by business and community leaders.

Within Area Vocational Centers (AVCs) and some high schools, Tech Prep was supported because it was thought to help improve the image of CTE. It was utilized to acquire resources needed to update...
computer technology and equipment in support of high skill/high wage careers. Since Tech Prep was perceived to encourage a collaborative, labor-market driven approach it was thought to be current and forward-thinking in its focus. In this context, Tech Prep received a high level of support from business/industry to foster curriculum development and program improvement beyond basic academic skills, including SCANS and other competencies addressed at both the secondary and postsecondary levels. New credentials and performance-based assessments were implemented to support Tech Prep. Local in-service and state-supported initiatives such as AIP/VIP and Connections were cited frequently as contributing to past changes to make classrooms more learner focused. These improvements usually built on a foundation of formal articulation agreements, including recent attempts to make articulation more attractive and accessible.

In all four consortia, leaders of Tech Prep were discussing new efforts to provide students with system-wide articulation agreements. Dual credit courses were becoming more prominent in local efforts to support transition into postsecondary education. Curriculum development in association with articulation agreements was evolving around new CTE pathways endorsed by the state, and these changes were welcomed by many local educators.

An additional strength of Tech Prep in all four consortia was the heavy emphasis on WBL (including career exploration and awareness), with this essential element being a significant part of Tech Prep. Recognizing how diverse the regions studied were in terms of economics, demographics, and socio-cultural influences, it is important to note the positive evolution and strong support for WBL in all four settings. Regardless of whether the consortium was in a rural, urban or suburban area, WBL was a core element that engaged business/industry leaders in the Tech Prep initiatives. These efforts centered mostly on job shadowing but also more advanced forms of WBL, particularly within AVCs and community colleges.

**Barriers to Advanced Implementation**

One of the primary difficulties local consortia experienced with Tech Prep implementation was the inability to create an image and identity for Tech Prep that was both distinct from other initiatives, such as ETC, and able to attract consistent support from local administrators, teachers, and students. Some of the barriers to advancing Tech Prep implementation stemmed from its lack of visibility and unclear focus. The 2+2 model was linked to difficulties with secondary and postsecondary collaboration in some consortia and to modest attempts at curriculum development beyond CTE at either level.

Without requirements to monitor Tech Prep student performance and document their transition through the system, local evaluation efforts focused almost entirely on end-of-year reporting on secondary enrollment and implementation concerns. Notable exceptions were two consortia that conducted student follow-up surveys on their own or by implementing them with guidance from UIUC personnel. These consortia realized that a clearer understanding of the success of local Tech Prep initiatives could be obtained over time if evaluation was carried out more consistently and strategically. A final important barrier to implementation of Tech Prep was an uneven distribution of resources, information, and ownership among the secondary and postsecondary institutions within consortia.

The transition of secondary students into postsecondary education is not adequately understood though it is likely that a fairly large number of high school students were making the transition from high school to 2- or 4-year college. However, the continuation of students from secondary Tech Prep to postsecondary Tech Prep could not be documented precisely because of a persistent lack of data within sites. Without doubt more emphasis needs to be placed on the creation of student tracking mechanisms for Tech Prep (see more discussion of this point in the Recommendations section.)
While we saw nothing to suggest that special population and non-traditional students were systematically excluded from Tech Prep, we did not see strong inducements to encourage their participation. Could Tech Prep be a productive vehicle to assist more special population and non-traditional students to make the transition to college too? Though this question is unanswered, a logical response may be emerging because dual credit courses and contextual teaching and learning strategies focus on enhancing student access to advanced knowledge for more students. To facilitate progress in these areas barriers to collaboration between secondary and postsecondary faculty need to be removed. More emphasis needs to be placed on joint planning and curriculum development, with local in-service playing a central role.

Recommendations

Based on the data collected by the TPESI on-site review teams, we offer the following recommendations:

1. **Local Tech Prep leaders should continue to work with administrators and teachers to carefully define and implement key Tech Prep concepts more consistently with the state’s definitions and policy directives.** One of the primary ways of accomplishing this recommendation is to revisit the essential elements and definitions established by ISBE and consider their role in implementation of Tech Prep at the local level. Through a local consensus-building process, it is important to ensure that all key stakeholders within the consortia have a common understanding of what constitutes Tech Prep and how programs and student participants are to be identified and supported, based on notions consistent with the state.

2. **Related to the previous recommendation, the state should support local efforts to count Tech Prep students on a consistent way at the local level.** Across all four consortia, we interviewed school officials, students, and others who were unclear about what Tech Prep is all about and who should be counted as a participant. Several different methods of counting Tech Prep students emerged, even within a single consortium. Whereas autonomy in defining and developing Tech Prep programs can be valuable, too much variation makes it impossible to evaluate the impact of Tech Prep programs on student outcomes. With state and federal funding at stake, renewed emphasis needs to be placed on ensuring a common definition of a Tech Prep student and program that can be adopted consistently statewide. Technical assistance is needed to ensure that local consortia utilize these definitions appropriately and consistently.

3. **At the local level, more attention needs to be paid to educating key constituents of Tech Prep such as counselors, students, parents, business, labor, and community leaders as well as the general public.** If Tech Prep is to be successful in the long run, a more concerted effort needs to be placed on educating people about the concept in a way that is unambiguous, persuasive, and meaningful. State agencies should play a central role in leading and supporting this activity, with local consortia integrally involved.

4. **A dedicated focus on marketing is needed on the state level to enhance understanding and support advanced implementation.** Professional marketing dedicated to having a widespread impact requires a commitment of resources on the state level. If successful, a statewide marketing campaign could contribute immensely to the knowledge of and support for Tech Prep from many constituent groups, including educators, parents, students, employers, and the general public. If created with the support of local coordinators, more buy-in would occur at the local level.

5. **The synergistic relationship between in-service and curriculum development needs to be encouraged, supported, and rewarded.** Combined in-service and curriculum development
should focus on creating curriculum integration and new CTE programs emphasizing current labor market conditions and new technological innovations. Enhanced collaboration between secondary and postsecondary faculty can occur when curriculum development and in-service are combined in creative ways. Unfortunately when these elements are neglected, opportunities for faculty collaboration decrease. Therefore local consortia should be encouraged to place renewed emphasis on in-service combined with curriculum development, with more attention paid to disseminating successful strategies. Local consortia should be encouraged to conduct customized in-service on the local level with dedicated resources to support teacher involvement over time, including during the summer months. If ideas linked to such strategies were distributed widely, more practitioners could become involved in Tech Prep and positive benefits would be realized.

6. **Local governance, administrative, and policy issues need to be sorted out involving Tech Prep, CTE, and ETC.** With so many new initiatives, it has become very difficult for local practitioners to move forward with a clear understanding of what each program is intended to accomplish. When turf battles threaten progress and diminish enthusiasm, everyone suffers. We recommend that the state act aggressively to assist local consortia to sort out differences that undermine progress on Tech Prep, CTE, and ETC. Professional development that clearly defines these initiatives and shows how they are growing and changing over time is needed. Consortium leaders should be encouraged to share this information since they are usually the point person for disseminating information about Tech Prep locally.

7. **More directed attention and technical support need to be given to the identification and implementation of 2+2 core curriculum that offers bona fide sequences of academic and CTE courses.** To date more emphasis has been placed on CTE than academics education, and some consortia need to be encouraged to review their Tech Prep course sequences to be sure they emphasize increasingly progressive academic instruction, especially in the core academic areas of math, science, and English/communications.

8. **Local consortia should be required to establish regular review strategies for articulation agreements and encouraged to try new articulation strategies.** These actions need to emphasize up-to-date articulation strategies. Emerging local efforts to offer dual credit should be encouraged and monitored to ensure that the benefits being touted actually accrue for students, as should recent efforts to create consortium-wide articulation agreements involving most or all secondary schools within a community college’s identified Tech Prep region.
Executive Summary

The Tech Prep initiative headquartered at the DuPage Area Occupational Education System (DA-OES) has enhanced occupational programs in schools across the region. The DuPage consortium has effectively promoted Tech Prep as a bridge between education and work, and has worked to promote buy-in for career-related education from faculty throughout the entire K-16 system. There is a strong emphasis on developing high quality Tech Prep programs, particularly at the Technical Center of DuPage (TCD) and the College of DuPage (COD). With a high level of support from business and industry, particularly at TCD and COD, programs and curriculum have been modified, developed, and realigned to be mutually supportive, resulting in a healthy and growing grass roots initiative, supplemented by creative and strong local leadership and administrative support. A prime example of these efforts is the new Mechomtronics program, a highly sophisticated integration model, implemented at COD in 2000. Administrators, faculty, and site visit personnel all agreed that this program is an excellent model for Tech Prep of the future.

In terms of barriers, the low visibility of Tech Prep has had a significant impact on defining and identifying Tech Prep students in this consortium. As a result, faculty, administrators, and students are not clear about how Tech Prep students should be defined. At issue is how to assess outcomes that are attributable to Tech Prep with so little clarity about who is participating. While positive outcomes clearly do exist (at least on the basis of anecdotal evidence), specific quantifiable benefits of Tech Prep for students in this consortium remain largely undefined. Collaboration between secondary and postsecondary efforts and 2+2 alignment also require improvement, according to the TPESI team.

To better serve the needs of students in this consortium, the TPESI team presents the following recommendations:

♦ Develop a more rigorous definition of Tech Prep students;

♦ Implement better mechanisms for tracking Tech Prep students at the postsecondary level;

♦ Increase the visibility of Tech Prep; and

♦ Increase support for professional development activities, especially those blending secondary and postsecondary faculty.
DuPage Tech Prep Consortium

TPESI Pilot Evaluation Results

CONSORTIUM STATS: DuPage Tech Prep Consortium involves 24 secondary schools (98/99), the College of DuPage (34,000+), and the Technical Center of DuPage (formerly DAVEA) (1,000+). Altogether, the consortium has 24,265 secondary students of which 4,314 (18%) are considered Tech Prep participants. The TPESI pilot project also involved Naperville North High School (NNHS) (2,400+); and Willowbrook High School (WHS) (1,800+).

TEAM MEMBERS: Steven Aragon (UIUC), Lou Berkman (ISBE), Donna Dare (Richland Community College, formerly UIUC), and Rob Kerr (ICCB).

SITE VISIT DATES: December, 1999 and February, 2000

Essential Elements of Tech Prep

This section describes the TPESI team’s assessment of the eight essential elements of Tech Prep.

2+2 Programs That Lead to the Associate Degree

Most alignment of curriculum between secondary schools and the College of DuPage (COD) is provided through the Technical Center of DuPage (TCD). Many of TCD’s “high tech” programs (like computer information systems, electronics, and multimedia and TV production) satisfy the definition of Tech Prep and are supported by articulation agreements. TCD staff avoid the term “curriculum” and instead refer to “instructional delivery activities,” which are designed to address competencies and standards required by business and industry. In recent years, 2+2 program development at the TCD has focused on standards and the credentialing of students in over 20 program areas. Applied curriculum is addressed at TCD through identified academic modules within each of the program areas.

The division administrator in charge of the hospitality program at COD described the 2+2 program as particularly advanced. He indicated that 25 of 31 high schools, as well as TCD, have quality feeder programs. Secondary and postsecondary faculty collaboration and business and industry input facilitate ongoing program development and modification. One of the greatest challenges, in the opinion of this administrator, is the need to reinforce safety and security issues.

Administrators from graphic arts and photography indicated that the changing, high tech nature of their fields requires full-time and part-time faculty at both the secondary and postsecondary levels to maintain their programs "within a half a step of industry." Fulfilling equipment and software needs, particularly at the secondary level, is an important challenge for these high skill/high wage Tech Prep programs of study. Two instructors were concerned both with the development of technical skills at the secondary level and with how curriculum addresses students’ creativity and other skills required in the field.
Articulation

Articulation has been a strong component at this consortium, and several articulation agreements support the 2+2 programs of study offered by its schools. These agreements have been expanded to include articulation agreements with four more institutions. Currently, approximately 150 secondary to community college course-to-course articulation agreements are in place. The articulation coordinator for the consortium indicated that 245 articulated credits were awarded last year at COD, including both Tech Prep and non-Tech Prep. COD maintains agreements with other schools and community colleges outside its district to maximize the options for students. In addition, area high schools maintain agreements with other postsecondary institutions, such as the Wyoming Institute of Technology, Triton College, and other technical schools.

The articulation process for COD and area high schools is well documented. A handbook has been developed showing all articulation agreements, together with procedures for accessing articulated credit. COD also has an administrative position dedicated to articulation of their programs with other postsecondary institutions. At COD, a student can articulate any number of credits. Most agreements are for occupational courses, although COD honors one transfer level course, Education 101, from the Naperville district. To receive articulated credits, a student must be enrolled at COD and receive the articulated credit within two years of high school graduation. The articulated credit is not graded on the college transcript but shows up as "AC."

Students accrue the articulated credit while taking courses during high school, but they are often lax in receiving credit at the postsecondary level. In fact, no data were available to suggest to what extent Tech Prep students obtained articulated credits at COD. Administrators indicated that not all students take advantage of articulated credits, and they expressed concern about the value of this element for Tech Prep students.

COD has been part of the Illinois Articulation Initiative (IAI) and has developed transfer guides and web-based access to articulation information. Courses included in these agreements are reviewed on an ongoing basis. Some universities have developed with COD a 3+1 articulation agreement, through which students can earn an extra year of credit at COD that will count toward a four-year degree. The ETC coordinator for the region cited these efforts as prime examples of "taking away the labels and focusing on the goal" of what is good for students.

The dean of the occupational division at COD indicated that perhaps the greatest need for improvement in articulation agreements exists in the allied health field, where students need adequate preparation in both math and science prior to entering the programs. In some instances such as photography and graphic arts, articulation agreements are course-to-course, although division administrators indicated that program-to-program agreements might be preferable.

Curriculum Development

Curriculum development at COD was described as ongoing and flexible. All division administrators indicated that the dean of the occupational division at COD is highly supportive of needed curriculum changes. The overall sentiment within the college is that they need to be certain that "industry is happy" with what they are teaching and with the quality of graduates they are producing. In all occupational program areas, focus groups and/or advisory committee meetings are held regularly with industry representatives to determine the nature of changes that need to be made in the curriculum, and faculty work together to develop needed changes.
At Willowbrook High School (WHS), curriculum change has been driven primarily by the emphasis on technology. In recent years the school board of WHS approved a $6 million dollar technology plan for four years, which was also supported locally by the passing of a referendum to support technology. Along with original funds designated for improvements in technology, approximately $14,000 per year was allocated for equipment updates to be done every two years. Staff development time has been devoted to learning software and the Internet, and summer curriculum projects have been devoted to rewriting courses to incorporate current technologies. New teachers were hired only if they were technologically literate, and use of technology in the classroom is not optional. Computers were set up in every classroom with access to the Internet The consortium has funded a number of summer curriculum projects. Graduation requirements at WHS now include computer literacy. Though not entirely dedicated to Tech Prep, district administrators associate many of these changes with it.

Administrators at WHS described the school's curriculum integration efforts as "faculty driven" and "highly encouraged." Courses are proposed at the department level, approved by the instructional council comprised of department chairs, sent to the principal for approval, and then forwarded to the superintendent’s advisory council. While administrators at Naperville North High School (NNHS) indicated that curriculum changes have been slow, one of the changes that has taken place in response to Tech Prep and Education-To-Careers (ETC) has been in the communication arts program, entitled PRISM. The entire freshman English curriculum has been rewritten to incorporate technical writing, and to infuse career-related information. Administrators indicated, however, that there has been little integration of academic and occupational education beyond the communication arts curriculum. Most recently, a new course is being developed that integrates science and technology.

The curriculum development process at TCD is described as labor-market driven and as guided by business and industry input on advisory committees. Most advisory committees are joint efforts with COD, by program area, and these support 2+2 curriculum alignment.

The new Mechomtronics program developed by COD and secondary schools is the future model of Tech Prep programs of study in the area. The program was offered for the first time in 2000 when COD offered a two-year tuition waiver for the first 25 students who participated. The program “focus[ed] more on developing workplace skills than technical skills,” and targeted a cohort of traditionally college-aged students pursuing studies in mechanical or electrical engineering. Applied learning experiences provided structure for the courses required for degree completion. According to administrative staff at COD, at least one intention of the program was to emphasize better preparation in high school, including at least a geometry-level foundation in math.

**Inservice Training for Teachers**

Professional development includes a wide variety of opportunities. Over 2,000 teachers participated in Tech Prep/ETC combined professional development activities during the 1998-99 academic year. The annual report, however, listed fewer such opportunities because of differing opinions about what can legitimately be counted as a Tech Prep activity. Administrators attributed Tech Prep with changing classroom practice by providing work-site learning opportunities for teachers and counselors, and resources to support changes in teaching methodologies. Teachers’ perceptions of what students need to know have changed as a result of their work-site experiences. As the Tech Prep consortium coordinator stated, "they saw competencies that students needed and they brought that back to the classroom."

Support has also been allocated for curriculum development and integration efforts. At TCD during the summer of 1999, a team of five staff members developed 73 curriculum units. Core specialists in
designated academic areas were hired to support staff in the curriculum development process. Academic teachers from the consortium are also supported for participation in Math/Science Technology Day held each April. As result, a variety of curriculum modules have been developed, and students have the opportunity to use these modules online. During the summer of 1998-99, faculty from COD who were involved in the development of the Mechomtronics program attended the annual integration conference in Boulder, Colorado. The annual report indicates that a total of 376 secondary and 32 postsecondary traditional learning instructors and 78 secondary and 5 career-technical instructors participated on interdisciplinary teams.

According to administrators at the comprehensive high schools, professional development has "caused some curriculum changes," though a number of challenges remain. At NNHS, Goals 2000 and ETC funds have supported the training of faculty to support teaching of SCANS skills and other competencies, but district administrators and faculty indicated a great need for professional development that involves more faculty in real curricular reform. Finally, despite their support for professional development, administrative staff from WHS indicated that they are reluctant for either students or teachers to be out of the classroom because of the "body of content" that needs to be covered in the curriculum.

Inservice Training for Counselors

Counselors are included in most professional development opportunities offered by the consortium. The annual report for 1998-99 provided the following information on counselor participation in professional development.

♦ 50 secondary faculty and 30 secondary counselors participated in an I Care Seminar.
♦ 40 secondary faculty and 40 secondary counselors participated in a Developmental Counseling workshop.
♦ 20 secondary faculty and 12 secondary counselors participated in a Millennium class.
♦ 16 secondary faculty and 16 secondary counselors participated in an articulation class.

Equal Access for Special Populations

The consortium’s Tech Prep coordinator indicated that special populations and gifted students have access to Tech Prep and ETC efforts. Both he and the ETC coordinator collaborate on grants written for special populations at COD to be certain that these two initiatives continue to address the needs of these students as well as those included in the middle majority.

Preparatory Services

Secondary schools involved in the pilot study have enhanced career guidance, although most schools did not elaborate to the TPESI team about other preparatory services. TCD cited a range of ways in which it works with feeder schools to ensure that students who enter its programs are prepared. TCD also described ongoing monitoring of student progress through the credentialing system it has piloted. This system includes approaches for assessing student performance in academic, technical, and career competencies. Counselors are required to complete checklists for students attending TCD. These checklists include an assessment of the students' ICP, 504-plan, remedial reading scores, GPA, and the types of classes students have completed. The counselors' completion of the checklist of these selected student outcomes serves as a means of "pre-credentialing" TCD students.
In response to local corporate downsizing and the rising costs of education, the evolution of “Tech Prep Naperville style” has focused on developmental counseling for all students, including preparatory services. According to NNHS administrators, the school has been a state model because of its implementation of National Career Development Guidelines and developmental guidance practices to meet student career and educational needs. Faculty and counselors indicated that the Tech Prep grant provided them with assistance in developing courses, using portfolios, and developing district career/college resource centers. Their developmental guidance plan includes infusing career guidance into classes for all students at both the middle and high school levels and conducting a variety of assessments throughout the educational process. WHS has followed a similar developmental model that has infused career guidance more broadly into the curriculum.

At COD, the combining of career planning and placement, work-based learning (including job shadowing, co-op experiences, and internships), and service learning into one office has greatly enhanced the service to students in all their programs. Through this office a wide range of support services are provided that assist students in moving between educational and work settings.

Work-Based Learning Experience

Work-based learning is more limited and traditional at the comprehensive high schools in the pilot study than at TCD. According to administrators, teachers, and students at WHS, very few opportunities are available for work-based learning. The district curriculum director considered co-ops to be strong in the business program, but noted that the medical careers and the travel and hospitality programs, and science-based occupations participated in work-based learning only at the postsecondary level. While administrators indicated that some students participate in job shadowing, no data were available to indicate the number of students who participate. While many students work part time, their work is typically not affiliated with their course work.

The premiere feature of the Tech Prep initiative at NNHS, however, has been its internship program, which is supported by district funds. NNHS has attempted to tie all internships directly to course work and to provide a broader experience for students at the work site. Administrators believe internships are for students across a broader range of abilities, including college-bound. Similarly, one business representative who has sponsored co-op students for a number of years indicated that the scope of co-op experiences (now internships) and the skills of co-op students have changed somewhat with the implementation of Tech Prep. This employer indicated that a recent co-op student is now employed at the company as their webmaster, and their intention is to use the internship program for recruitment of quality workers.

NNHS currently offers internships in six program areas that allow students to explore their field of interest through work-based learning experiences. In addition, the Naperville Area Chamber of Commerce provides interns with opportunities for job shadowing. According to faculty, approximately 120 to 140 students from NNHS are involved in paid internships each semester. Five staff members at NNHS work to coordinate these internships for students.

Students interviewed from across the consortium indicated a high level of satisfaction with their work-based learning experiences. Some students indicated that their employers have asked them to stay in their jobs even after their internships or co-op experience has been completed. Students said that their jobs often presented challenges that compelled them to learn more in their academic and career-technical classes. They cited a number of instances in which they took problems or questions from the work site back to their teachers or classes to find answers. For the most part, students felt that work-based learning was a major factor in their doing well in their courses at school.
Supporting Elements of Tech Prep

This section describes the TPESI team’s assessment of supporting elements of Tech Prep.

Administrative Support

ETC and Tech Prep in this region share an organizational structure and governance, which maximizes resources for both initiatives. The downside is that Tech Prep in this region lacks a distinct identity and visibility. Nonetheless, the support and work of local administrators is highly commendable and has clearly been a significant factor in maintaining quality educational programming and support for both initiatives.

A joint advisory committee for Tech Prep and ETC meets in the middle of each quarter to address Technical and Professional Preparation (COD’s Tech Prep initiative). While it is not an official governing structure, this group provides leadership for both initiatives. It includes the Tech Prep and ETC coordinators for the region, the articulation coordinator, TCD’s key administrator, COD’s Tech Prep coordinator, and the associate dean of the occupation division at COD. These key individuals also work jointly to prepare related grants that support Tech Prep and ETC.

Despite consortium-wide leadership, the level and type of administrative support vary widely from school to school. Administrators at NNHS are engaged in decision making related to funding as well as other decisions that impact the ongoing implementation of Tech Prep. At WHS the curriculum coordinator for the district has strongly supported the infusion of technology into the curriculum, and has provided equipment, resources, and materials to support curriculum development. TCD administrators have been particularly adept at balancing and addressing the multiple perspectives of business and industry, secondary education, and postsecondary education.

Parental Support

Parental awareness about various facets of career preparation were addressed locally through ETC more than Tech Prep, though efforts associated with ETC had improved the image of both initiatives, according to administrators. WHS parents were described by school administrators as “a typical Tech Prep-type” of population and were perceived as supportive of Tech Prep-type initiatives. On the other hand, NNHS parents expected their children to go to four-year colleges, and they had been negative toward vocational education historically. However, the downsizing of local and Chicago-based corporations that had affected Naperville parents, together with the introduction of ETC, had changed parental perceptions in the community toward technical occupations. (It is important to note that school officials made these observations since the TPESI team had no direct contact with parents. In fact, the team did not observe specific efforts at any of the schools directed at parental awareness.)

Secondary/Postsecondary Collaboration

The region’s ETC coordinator indicated that a cultural shift has taken place at COD, and that faculty and staff are now able to talk about solutions and to customize curriculum to meet community needs. She also indicated increasing opportunities to engage college faculty across all curriculum areas and institutional levels in developing SCANS-based, relevant curriculum. For example, over the past five years home economics departments had modified their curriculum at both the high school and college levels through strong collaboration and through an awareness of the need to continue to upgrade the quality of graduates. According to the director of the hospitality programs at COD, of the 31 high schools in the college district, 25 had “viable home economics programs” geared to support the tran-
sition of students to postsecondary programs of study in hospitality careers. Similarly, she indicated that everyone had a role in Tech Prep and ETC, including the college president who continued to meet with industry representatives to address ongoing needs in 2+2(+2) curriculum development.

Particularly at TCD, faculty collaboration was strong. TCD instructors were required to maintain good working relationships with postsecondary faculty. Some met one or two times each year with math and science teachers. Faculty members were required to meet every two years on a rotating basis with their postsecondary counterparts.

Faculty collaboration was handled somewhat differently at WHS as result of the fact that it is a high school rather than a unit district. Teachers at WHS attended professional development activities with faculty from their feeder schools, and they had faculty exchanges with teachers from their feeder schools. Faculty collaboration at NNHS was less apparent.

**Business/Labor/Community Involvement**

According to administrators from COD and TCD, some changes in the delivery of occupation-related education can be attributed directly to Tech Prep. Business and industry have significantly increased their input since Tech Prep laid the foundation for their participation. Formerly, vocational education programs were seen as vehicles for teaching occupational skills, and occupational skills were seen as “a means to an end.” More recently, however, greater value has been placed on developing programs of study through which students gain a combination of workplace, academic, career skills, and credentialing.

At COD, a number of changes have taken place, particularly with certain occupational areas where labor market needs have driven the need for placing qualified graduates into the work setting. For example, because of the huge demand within the graphic arts, photography, and hospitality industries in the region, COD administrators and faculty in these areas have continued to modify and upgrade their curriculum through strong collaboration with employers and secondary faculty.

In addition to collaboration with other secondary and postsecondary faculty, TCD also requires that their faculty collaborate with business and industry representatives, and that they participate in three visits to industry each year and report back on their experience. These activities become part of their annual review, which includes 31 items, including currency in the industry.

**Identification and Accurate Reporting of Tech Prep Students**

At each of the two comprehensive high schools in the pilot study, administrators indicated that, in theoretical terms, all students are Tech Prep students—even though they said that not all students are counted as Tech Prep students. At WHS technology has been integrated into the curriculum for all students and all students are defined as Tech Prep students. The lines between Tech Prep and non-Tech Prep are more blurred than ten years ago because the mission of the school now is to provide training in technology for all students. Therefore students are encouraged to participate in Tech Prep. Counselors meet with all eighth grade students and parents for an intake interview. Future career plans also serve as a means of identifying Tech Prep students, and students are encouraged to complete sequences of courses in their chosen career paths. However, according to administrators, only those students who have participated in an articulated course are counted as Tech Prep students.

At NNHS, administrators considered Tech Prep applicable to a narrow group of students in approximately the middle 40%. However, the target population expanded with the fusion of Tech Prep and ETC in this region. NNHS indicated that for purposes of defining Tech Prep students, students in
career-technical areas geared toward AAS degrees are considered Tech Prep students. For the purposes of counting students for the Information System for Illinois Students (ISIS), only students who complete courses that articulate with courses at COD are counted as Tech Prep students.

Likewise, at TCD and across the consortium, students in courses that articulate with COD are counted as Tech Prep students, and the ISIS data system is used for tracking Tech Prep students at TCD and other schools across the consortium. In 1999, COD, TCD, and high schools in 13 districts were reported in the annual report as using ISIS for reporting student information related to Tech Prep.

Evaluation and Program Improvement

An evaluation of student outcomes, consisting of complete transcript evaluations of all TCD students found that only 12% of their students had taken geometry. In addition, 30% of students whose transcripts were reviewed had never taken math courses beyond general math. In response to these findings, two course subject specialists were hired in math and language arts to work collaboratively with feeder schools to support the improvement of academic skills for TCD students. A resource room is now open every hour at every high school to increase academic skills and provide tutoring and other resources for students who need academic support.

Student surveys are conducted regularly at TCD and other schools in the consortium. NNHS plans a follow-up study as part of their Tech Prep plan. Results of a survey conducted three years ago indicated that 18% of NNHS students had attended COD. Administrators interviewed stated that this percentage had likely increased due to a number of changes in the business and educational climate in the region. At TCD, an attempt to align assessment of student outcomes with program improvement has been made.

Transition of Students to Postsecondary Education

Personnel involved with Tech Prep at NNHS indicated that they have given attention to transition through a number of programs including STEP, and that the number of students they serve is increasing. Two faculty members indicated that they were working with 10-20 students to place them in work-based learning options, and another faculty member had worked with approximately 20 additional students to place them in work settings and appropriate academic classes. Other transition activities included those that related directly to credentialing of students or assessing student competencies in secondary career-technical education programs.

From the college’s perspective, a number of COD division administrators indicated informal knowledge of student transition patterns into their programs. For example, the hospitality program coordinator indicated that approximately 60% of his students in the hospitality AAS degree program are recent high school graduates. Approximately 20 students enter the program from TCD each year, and most articulate from 5 to 13 credits. Likewise, several other division administrators and faculty indicated that approximately 50% to 60% of their students were recent high school graduates. Many who took courses in the career-technical divisions were transfer students who were either exploring or taking courses like computer information services and photography for elective credit.

Local Ownership/Commitment and Coordination

Without exception, faculty and administrative staff regarded the leadership of the Tech Prep and ETC coordinators for the region as key to the success of the Tech Prep and ETC initiatives in this area. Much of the local commitment and ownership has resulted directly from the willingness and ability of these two key people to work together to continue to find innovative solutions. The buy-in of admin-
administrators and faculty at both the secondary and postsecondary levels seemed to grow out of their inten-
tional focus on the key principles of each initiative instead of on maintaining labels and titles for
each.

Career Guidance and Development for Tech Prep Students

Career guidance has been infused into the curriculum at all secondary schools in the pilot study, al-
though each school has used different strategies within courses and grade levels. At NNHS, the funds
received for Tech Prep have gone primarily toward career guidance materials (including assessments
and Enter Here videos) and toward the follow-up survey of graduates of NNHS. At both WHS and
NNHS, the career guidance system is strategic and developmental, with a variety of assessments
given each year and with career guidance infused into the curriculum, particularly through language
arts.

Students interviewed at COD and other schools in the pilot study, however, indicated a very low level
of awareness of career guidance activities. Most students interviewed indicated that they received
very little assistance in making career and academic choices. Some remembered specific activities,
such as career-related research papers or career interest inventories, but for the most part they were
dissatisfied with or at least unaware of their high school career exploration experiences. Several stu-
dents suggested that the first two years of high school could well be dedicated to opportunities to ex-
plain their interests instead of so much emphasis on meeting academic demands and requirements.

Summary of Tech Prep Enrollments

The 1998-99 annual report submitted to ISBE by this consortium indicated that 13 school districts,
TCD, and COD provide input in the form of ISIS data. The same report also indicated that, at pre-
sent, 214 students have enrolled in COD Tech Prep programs directly from high school. Of those
students, 136 were required to take remedial math, reading, and/or writing classes. In addition, 131
students from the 1998 graduating class enrolled in Tech Prep programs with credits in escrow, dual
credit, or other forms of earning college credit. Based on the annual Tech Prep consortium report for
1998-99, 173 students from the 1997-98 graduating class continued as Tech Prep students in the 14th
grade at COD.

For the secondary component, school administrators at WHS indicated that approximately 20 of their
students go to TCD in their junior year but that other Tech Prep programs are offered at the school.
WHS faculty indicated that students in their Tech Prep and other career-technical programs follow a
variety of transition patterns. Other students attend Triton College, and many students go to COD.
As possibly a typical suburban region of a major metropolitan area, the perception of parents of stu-
dents at NNHS is that their children will transition to a four-year college, even though they also indi-
cated that the high school-to-college matriculation is changing. The director of the DAOES region
indicated that approximately 80% of TCD students go on to COD.
Summary of Major Strengths and Concerns

This consortium has combined ETC, the School Improvement Plan (SIP), Goals 2000, and other initiatives to place large numbers of faculty in the work site and develop curriculum in response to the demands of business and industry. The alignment of Tech Prep with ETC has enhanced the overall image of career-technical programs in schools across the area, particularly TCD and COD.

Local administrators have emphasized the updating of technology and equipment to support education for high skill/high wage careers. Programs are labor market driven, requiring high levels of collaboration. Students from COD perceived that TCD offers a number of high quality technical programs for students in a variety of career areas.

This consortium also has strong leaders who have remained committed to Tech Prep over time, and who have made a deliberate attempt to let the initiative grow on its own, without “shov[ing] Tech Prep down anyone's throat.” The result seems to be a strong grass roots initiative, with strong pockets of Tech Prep activity across the consortium. Key personnel at both the secondary and postsecondary levels share responsibilities for implementing and advancing Tech Prep, resulting in the advancement of the essential elements of Tech Prep to a relatively mature level. Based on the collective assessment of the individual TPESI team members, all elements but one (i.e., parental involvement) met or exceeded the requirement, as defined by the state.

The high level of support from business and industry, particularly at TCD and COD, has fostered program improvement and curriculum development. Particularly at TCD, faculty and administrators emphasize the development of many skills that go beyond basic academic skills measured by standardized tests. SCANS skills and other competencies are included in assessments at both the secondary and postsecondary level. Assessment is also used formatively to guide students and faculty. In

addition, many curriculum efforts are aimed at integration of academic and career-technical education. As a prime example of these efforts, the new Mechomtronics program, a highly sophisticated integration model, is being implemented in 2000.

Articulation has also been a strong element of the consortium. Formal agreements supporting secondary to community college, secondary to four-year, and COD to secondary, community college, and four-year curriculum are in place. Schools have implemented a strongly developmental approach to career guidance that moves students from awareness to exploration to practice.

With respect to student involvement, students interviewed did not know whether or not they were Tech Prep; neither were faculty and administrators clear on this question. Postsecondary faculty, however, seemed to know which students were Tech Prep participants because they attributed to them higher levels of preparation than other students. Part of the reason for this lack of clarity arises from administrative resistance to classifying students, but also because of the confusion of Tech Prep with ETC and other career-technical programs, co-ops, and internships. In fact, most students have not followed a designated course sequence and do not strictly qualify as being a Tech Prep student. In essence, local definitions do not adhere to the specific definition prescribed by the state. Aligning local definitions with state definitions may run the risk of limiting the value of some of the efforts of this consortium conducted under the auspices of Tech Prep.

Locally, the concern exists that defining and identifying students precisely will limit the effectiveness of Tech Prep, particularly since most local high schools consider Tech Prep to be for all students. As one administrator put it, Tech Prep students "don’t go around the hallway with ‘TP’ on their foreheads…every student is an individual." In his view, the sequences and structures of Tech Prep should be used as guidelines, with the understanding that variation will occur. Students participating in articulated courses are counted as Tech Prep students, but this does not resolve the deeper issues of "identification" of Tech Prep students. Thus, if students do not know they are Tech Prep (and they do not) and teachers are not aware of who the Tech Prep students are (and they are not), Tech Prep has limited identity even though many essential elements of Tech Prep are viable.

Faculty collaboration appeared to the site visit team to be an area needing improvement, and administrators and faculty recognized that better alignment of courses and articulation would be beneficial. One administrator at COD indicated that a great deal of collaboration happens but that it is unofficial and happens "naturally" in the day to day routine of things.

**Recommended Next Steps**

- **Clarify the definition of a Tech Prep student.** The issue of defining the Tech Prep student is a critical area needing improvement in order to move toward local consensus and compliance with the state. Also, COD administrators and the TPESI team concurred that having the Illinois Community College Board (ICCB) at the table is critical at this stage in the implementation of Tech Prep (and ETC).

- **Institute systematic counting and tracking of Tech Prep students.** A contingent area for improvement is the implementation of a systematic approach to counting and tracking Tech Prep students. At present, there is no system in place for tracking students from high school to COD, although there was expressed willingness on the part of COD personnel in the data management area to implement such a system. Personnel involved in Tech Prep, as well as the TPESI team, identified this as a need.
Enhance the visibility of Tech Prep. The Tech Prep coordinator at COD felt that his role was to "stay in the background" and support initiatives developed by others because he sensed resistance to the label of Tech Prep. One result of this low-key approach is that Tech Prep remains relatively "invisible", and much of the good associated with Tech Prep may get lost in the translation. Increasing the visibility of Tech Prep and developing a clearer understanding of what it entails may be essential for the survival of the initiative in this region.

Improve professional development. WHS administrators mentioned specifically the need for both VIP/AIP and the type of professional development activities supported by Goals 2000 funds. They indicated that the district needs money to send teachers to AIP/VIP and also needs resources for curriculum development projects as well as for state of the art equipment and technology. In addition, professional development might well be needed to support more strategic and deliberate attempts to bring secondary and postsecondary faculty together for ongoing course development and closer alignment and coordination of courses in 2+2 Tech Prep programs of study.
ILLINOIS CENTRAL COLLEGE/PEORIA TECH PREP CONSORTIUM

by Steven Aragon

Executive Summary

High schools within the Illinois Central College/Peoria Tech Prep consortium are engaged in curriculum reform involving applied academics, and they offer some interesting and creative examples of applied academics instruction. Faculty development is encouraged through the use of AIP/VIP and Connections. Similarly counselors participate in AIP/VIP and Connections to remain current. Local administrative support for Tech Prep is very strong and clearly helps push Tech Prep forward. While the level of support varies across schools, it is not uncommon to find Tech Prep support and sponsorship among superintendents, board members, and principals. Also, the use of planning teams, commitment to professional development, and designated resources promote the continued growth, development, and evolution of the Tech Prep initiative.

In this supportive environment, students participate in work-based learning experiences ranging from career exploration and awareness to the most common practice of job shadowing, and many students have ICPs. In addition, each school is conscious about making students aware of Tech Prep activities (although, they may not be referred to as Tech Prep) through the use of regular career counseling sessions, brochures, and pathways.

In terms of areas needing improvement, articulation was thought by the TPESI team to be a weak element because articulation agreements, student transcripts, and surveys were not available to document that students actually made the transition between the secondary and postsecondary levels. Also, the lack of a clear connection between the secondary and postsecondary levels was troublesome. Teachers at both the secondary and postsecondary levels stated they did not have opportunities to work together. The TPESI team saw this as a critical issue because the activities associated with secondary-to-postsecondary articulation should be based on collaboration.

To improve Tech Prep within this consortium, the TPESI team recommended the following steps:

♦ Sequence 2+2(+2) Tech Prep pathways so they are clearly defined, articulated and current, and so they can be marketed to students and parents.

♦ Review articulation agreements and update them on a routine basis.

♦ Enhance communications between the secondary and postsecondary faculty by consistently implementing various collaborative activities.

♦ Identify and use consistent definitions for the “Tech Prep student” across the consortium.
TPESI Pilot Evaluation Results

**SITE:** Illinois Central College/Peoria Tech Prep Consortium has 28 high schools (98/99), plus the Illinois Central College in East Peoria, Illinois. A total of 12,315 secondary students are served by these schools, including 4,300 Tech Prep students (35%). The pilot evaluation process included the Midwest Central High School (MCHS) (277); the Illinois Valley Central High School (IVHS) (671); and Peoria Heights High School (PHHS) (223).

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**SITE VISIT DATES:** November 1999 and March 2000

**Essential Elements of Tech Prep**

This section describes the TPESI team’s assessment of the eight essential elements of Tech Prep.

**2+2 Programs That Lead to the Associate Degree**

The Tech Prep initiative includes widespread pockets of curriculum that support 2+2 programs leading to associate degrees. At both the secondary and postsecondary levels, a wide range of curricula has been created to develop academic and technical competencies. Despite the strengths of these efforts the local Tech Prep effort still seems more autonomous than systemic. Some attempts have been made to build strong connections between the secondary and postsecondary programs and to create a seamless 2+2(+)2 pathway for Tech Prep participants, but they have not been particularly effective. As a result, Tech Prep pathways are not clearly defined as a structured sequence of specific courses supported by articulation agreements, and current and well-established sequences are not identifiable to students and parents. Faculty members at the postsecondary level seldom, if ever, communicate with their secondary colleagues in similar areas.

It is important to note that since the TPESI team visit the consortium has initiated planning meetings between secondary and postsecondary sites, and these have been highly successful. A positive impact of the TPESI process in this consortium seems to be the identification of potential problem areas and the rapid response of the Tech Prep coordinator and others to take action to make improvements.

**Articulation**

The lack of a strong 2+2 sequence of courses, aligned with state definitions of Tech Prep, accordingly, is further complicated by ill-defined support for articulation. The development and implementation of articulation lags behind other essential elements. Most articulation agreements that exist were developed prior to or early in the Tech Prep implementation process, and have not evolved away from the original agreements. According to the Dean of Instructional Services, Illinois Central College (ICC) has seen an increase in articulation agreements over the last five years, but these are typically lower level academic courses and do not provide a seamless transition to the postsecondary level.
(particularly, one that does not require some kind of remediation). ICC administrators stated they are challenged in this area because of remediation issues that should have been solved at the high school level. No provision has been made for addressing how articulated courses meet specific competency requirements for placement in postsecondary academic and career-technical classes. This lack of clarity about what competencies and skills are developed within specific courses may be the result of a lack of communication between secondary and postsecondary academic and career-technical faculty. One EFE coordinator stated that Tech Prep is [italics added for emphasis] articulation agreements, although the TPESI team assessed this element as one of the weaker components of the initiative. Another EFE coordinator said that course-to-course articulation agreements are probably the trickiest aspect of Tech Prep. According to the Dean of Instructional Services at ICC, due to the issues surrounding articulation, they are moving towards offering dual credit.

Curriculum Development

Overall, curriculum development draws upon the applied academics model. Both the secondary schools and ICC indicated a variety of curriculum integration activities; however, applied academics stood out as the predominant approach. In fact, ICC has won state-level awards for integration activities, and these accomplishments are important to changing instruction at the college level. Still, more varied curriculum integration activities were happening in the secondary schools than at ICC, but many of these integration activities were not systematic or routine. Most were course-to-course or instructor-to-instructor oriented.

The influence of Tech Prep and the applied academics model was most apparent at Midwest Central High School (MCHS). The Tech Prep coordinator at MCHS, who also taught English, added a career focus to the language arts courses starting at the 10th grade level. In addition, this teacher developed a Tech Prep English work site experience class. Algebra 1 was integrated with Introduction to Technology using a linked model of curriculum integration. As a result of this step, the two courses required projects related to both courses. During AY 2000-2001, MCHS is piloting a Tech Prep AP physics class with five students. Agriculture and science are integrated through the use of an on-site greenhouse and environmental science ecosystem. Finally, a career focus has been added as part of the drivers’ education class.

Inservice Training for Teachers

A major focus of this consortium is professional development, but no mention was made of activities that went significantly beyond AIP/VIP and Connections. Interviewees indicated that they have attended national conferences on a regular basis and have brought home materials from these events. Materials have purportedly been shared with staff and faculty involved in Tech Prep.

Inservice Training for Counselors

As with teachers, counselors participate in AIP/VIP as well as Connections conferences. They also participate in local, state, and national conferences on a regular basis. However, no mention was made of activities that went beyond simply attending the events (i.e., presenting, facilitating, training, etc.).

Equal Access for Special Populations

No specific equal access policy was described during meetings with administrators and teachers.
Preparatory Services

Preparatory services that allow special populations to participate in Tech Prep include marketing and recruitment through the use of brochures and other informational material. During interviews with local administrators, counselors, and teachers, no description was made of any sort of remedial services, nor was any evidence of such services described in the schools’ course directories. Career guidance is a significant avenue for providing students with information related to Tech Prep, but the focus of the program seldom includes (in writing) the postsecondary component.

Work-Based Learning Experience

This component of Tech Prep is a strong feature among the Tech Prep high schools visited by the TPESI team. The rural character of the area has not precluded the implementation of work-based learning activities; in fact, students at several high schools are required to participate in work-based learning (usually job shadowing). Area high schools also build on students’ exploratory experiences to place students into a variety of more meaningful work-based learning activities. For example, MCHS places students in co-ops and job shadowing experiences at the junior level and grants course credit for the experience. Illinois Valley High School (IVHS) also places students in co-ops but less frequently than MCHS. These placements are intended to build skills in the workplace environment, and schools have attempted to ensure that students are not used for menial tasks during their work-based experience.

Ten work-based learning programs are currently in place in the consortium, three of which have been nationally recognized for excellence (culinary arts, construction trade, and manufacturing technologies). The manufacturing technologies program has a partnership with Caterpillar. There are two national award-winning programs with Caterpillar. First is a Career Exploration program that that was started in 1995 with grants from both ICCB and Caterpillar. Initially this program started as a career exploration program, but it has since evolved into an articulated program (with 6 credits) leading to co-op experiences. Students involved in this first program start in their junior year and go to ICC for the first nine weeks for professional studies in different manufacturing areas (e.g., welding, robotics, CAD etc). In the second nine weeks students go to Caterpillar and rotate to different work sites every two weeks in not only the manufacturing areas covered while at ICC, but also industry specific areas to Caterpillar (e.g., statistical process control, shipping & receiving etc). In their senior year students are placed with an area manufacturer where they tend to remain after graduation. To date, no graduate of this program has been placed at Caterpillar; however, many have found employment with area manufacturers who are Caterpillar suppliers. Of those students who entered ICC, 60-65% (according to the Tech Prep coordinator at ICC) remained in the manufacturing cluster, and several have earned two-year engineering degrees.

The consortium has a second work-based learning program that Caterpillar helped to create to combat skill shortages it has experienced. Caterpillar approached ICC and the Peoria EFE with a grant from ISBE to create the “Skills Trade” program. A 2+2+2 program (two years in high school, two years towards the associates at ICC, and a two-year apprenticeship at Caterpillar) eventually replaced the traditional four-year apprenticeship program. Students are not guaranteed placement in the two-year apprenticeship program. Juniors and seniors who are placed go directly to an unpaid job at Caterpillar, and Caterpillar banks tuition dollars for those who finish the program and matriculate on to ICC. In response to the Skills Trade program, ICC created three associate of applied science degree programs. Initially the program did not have any articulated credit, but they do currently receive a few hours of math credit.
Currently the Career Exploration program is on a one-year hiatus due, in part, to a large number of students shifting over to the Skills Trade program. According to the Tech Prep Coordinator many of these students have shifted over to the Skills Trade program because of the belief that they will be placed into a Caterpillar apprenticeship. The Skills Trade program has initially received 4.5 million dollars and has now received 10.5 million dollars in total, which includes such expenditures as job shadowing for teachers and even gas money for students. The Tech Prep coordinator has also indicated that secondary counselors tend to recruit high-end students who aspire to enter engineering, so there are fewer traditional career-technical students. Both the Career Exploration and Skills Trade program recruit students in the last semester of their sophomore year to start the program in the first semester of their junior year. Both programs require students to take a modified version of Caterpillar’s employment test, as well as go through two interviews (one with an educator and the other with a Caterpillar employee). The Skills Trade program also requires a drug test.

The Caterpillar work-based learning programs were the first such programs in the consortia. As a result of their success, several other work-based learning programs were created. Only eight of the ten programs in the consortia are Tech Prep programs (the other two are for special education students in the areas of custodial and ground maintenance).

### Supporting Elements of Tech Prep

This section describes the TPESI team’s assessment of supporting elements of Tech Prep.

**Administrative Support**

Administrators at the high schools involved in the pilot study have been strong supporters and advocates of Tech Prep. For example, school administrators and the superintendent at IVHS have consciously decided to use Tech Prep as a means of whole school reform. Likewise, through the strong leadership and support of the principal at MCHS and the chairman of the school board, Tech Prep has been used as a vehicle for reform. At Peoria Heights High School (PHHS), the principal and the guidance counselor have emphasized career guidance for all students, with a focus on more technical and occupational areas for a broader range of students. The support of these key personnel has generated buy-in for Tech Prep at the secondary level. In fact, in one instance an administrator indicated that faculty either bought into the philosophy of Tech Prep reform or they left. Without this level of support, Tech Prep would be far less mature at these high school sites. The presence and participation of superintendents, school board representatives, school principals, and other administrative staff is evidence of support for the consortium’s initiatives.

While Tech Prep leadership is strong at the high school level, conflict over consortium-level decision-making is a point of concern for the TPESI team. Consortium-level Tech Prep leadership is shared among the Tech Prep director at ICC and three EFE System Directors who have substantial input into the Tech Prep budget and administrative decisions. This type of structure has diffused the attention, support, and resources available to Tech Prep, and has created conflict over Tech Prep and traditional career-technical education programs. As a consequence, the TPESI team saw Tech Prep caught in turf battles and possibly placed on the “back burner” behind other career-technical activities.

**Parental Support**

Parental support was not discussed specifically; however, both MCHS and PHHS indirectly addressed parental support as elicited via brochures as well as student interviewees identifying Tech
Prep initiatives with their parents. However, no mention was made of more advanced initiatives such as parent participation in industry visits or career awareness days.

Secondary/Postsecondary Collaboration

As noted previously, the communication between secondary and postsecondary faculty is limited. Until initiated by TPESI, few meetings or other avenues were mentioned through which secondary and postsecondary faculty would work together to share ideas, plan and integrate curriculum, or solve problems. Enhancement of communication through a variety of collaborative activities could go a long way toward facilitating improvement of the Tech Prep initiative at the local level. Since the initial site visits and writing of this report, however, meetings between the secondary and postsecondary levels have been initiated, and this is a positive step.

Business/Labor/Community Involvement

Beyond the comments made previously regarding work-based learning experiences, the TPESI team made few other observations regarding business/labor/community involvement.

Identification and Accurate Reporting of Tech Prep Students

At present, students are not defined in a way that enables schools to enter data consistently and accurately into ISIS. Many of the secondary schools have defined Tech Prep so broadly that every student can be counted as a Tech Prep student, and this practice is consistent with the philosophy that views Tech Prep as a whole school reform effort. IVHS, for example, conceived Tech Prep as a vehicle for curriculum reform that included more integration and technology, more career guidance, and more alternatives other than a college prep track for all students. In addition, it appears that this school also conceived of Tech Prep as enhanced career-technical education. PHHS conceived Tech Prep very similarly to ETC in that it focused on career guidance for all students. MCHS administration saw Tech Prep as an opportunity to ramp up academic and career-technical programs for a broader range of students.

Because in each instance Tech Prep was “opened up” at least somewhat to more students than career-technical education would traditionally have been, definitions have gotten cloudy. Each school visited had its own slightly different operational definition of Tech Prep, which tended to be more broadly defined in comparison to the state definition. Consequently, alignment with state definitions can only take place once a consortium-wide definition is agreed upon. Finally, there was no evidence that Tech Prep participants were being effectively tracked after high school, including upon entry into the community college. The one exception was the senior survey and plans being put into place by MCHS administrators to collect data on student matriculation after high school graduation. At this writing, results of the senior survey conducted in spring 1999 had been tabulated but additional follow-up results were not available.

Evaluation and Program Improvement

Evaluation is not consistently implemented across this consortium; it takes place sporadically and varies greatly in validity and reliability. Most schools provided anecdotal evidence but were unable to provide data (quantitative or qualitative) related to the effectiveness of Tech Prep or of student outcomes associated with it. MCHS was the most advanced in its level of program evaluation. As mentioned above, MCHS attempts to survey as many students as possible after graduation to identify the “path” they have taken since high school. However, limited funds prevent them from conducting this process routinely, and to perform accurately such essential activities as tracking to address changes
and sending follow-up mailings. In addition, MCHS has begun comparing student outcomes between Tech Prep and non-Tech Prep students. These two initiatives could be beneficial to others in the consortium to model and implement. The consortium still considers the ISBE-mandated mid-term and final reports as the primary data collection and reporting mechanism, but mention was made of how the data were incorporated into program improvement, either formally or informally.

As mentioned above, since the initial visits to the schools were made, as a part of this TPESI pilot, MCHS developed and implemented a more comprehensive senior survey to enhance current evaluation activities. This survey asked graduating seniors about their educational experiences during high school, jobs that were held during high school, and plans for continuing to college and/or starting a career after high school. Plans are made to administer this survey to graduating seniors as well as track students beyond high school, on an annual basis, if resources permit.

**Transition of Students to Postsecondary Education**

The consortium has obtained a transition grant from ISBE and is planning to work toward the goals of this element. As part of their senior survey, MCHS has attempted to assess not only student satisfaction with their high school experience but to track students after high school. In addition, MCHS is in the preliminary stages of implementing a student tracking system in collaboration with ICC. This system aims to identify the Tech Prep participants while they are still in high school and assist them in their transition to the postsecondary institution through career awareness, meetings with postsecondary counselors, and student follow-up surveys.

Tech Prep participants at MCHS appear to have a great deal of focus in their academic and career aspirations. Of the students interviewed, many indicated that they would like to matriculate to college. These students felt that both their counselors and key teachers were instrumental in guiding them into their majors as well as postsecondary aspirations. For example, one student who had chosen to matriculate on to a four-year institution and major in education indicated that, “the influence …by friends, family and faculty encourage[d] me to go into the career of counseling and psychology [which] led me to the classes that I’ll need to help [me when I’m in the] College of Education—UIUC.” Yet another student relayed her postsecondary goals to include a bachelor’s degree in biology and ultimately a medical degree. This particular student was part of the health occupations Tech Prep pathway at her high school and also participated in a work-based learning experience at a local hospital. The Tech Prep programs at some of the high schools in the consortium supported and even facilitated student aspirations for postsecondary education through their job shadowing and career intervention days. Students were able to gain first-hand knowledge of a “typical” day in the life of a given career professional. As a result of these experiences, and their work-based learning experiences, several students indicated that Tech Prep had guided them toward their educational major and career goals.

**Local Ownership/Commitment and Coordination**

In addition to the strong administrative support, all pilot schools have existing Tech Prep teams comprised of academic and career-technical teachers. While a few key people continue to “carry” the initiative in most schools, the teams are still of significant size (beyond a few key people). Based on the interviews, administrators and counselors do not participate on these teams but rather serve as the sponsors and advocates of the school’s initiatives. In instances where Tech Prep is a school-wide initiative or reform rather than confined to certain career-technical and academic areas, it is not uncommon for almost all faculty in a school to be involved in a Tech Prep team. Even those faculty that are not directly associated with Tech Prep initiatives are kept aware of them and serve in an advocacy role.
Career Guidance and Development for Tech Prep Students

Career guidance and career exploration are strong components of the local consortium based on the stage of implementation. These activities are associated with both ETC and Tech Prep, with very little distinction between the two initiatives. Exploration of career options is a strong feature in many schools, and guidance counselors use assessments and exploration activities to assist students in making choices about career pathways and Tech Prep programs of study. Counselors at each of the high schools appear committed to Tech Prep and they actively recruit and place students in Tech Prep programs of study, when appropriate. Most counselors also identify Tech Prep participants and enter data, but they do not seem to resent this additional work as overwhelming, probably because of their commitment to Tech Prep. Counselors work with classroom teachers and do presentations and teach classes themselves to enhance Tech Prep.

Summary of Tech Prep Enrollments

Figure 2 shows that, according to ISIS, Tech Prep enrollments remained flat between 1995-96 and 1997-98, but rose during the 1998-99 academic year. In fact, 1998-99 Tech Prep enrollments doubled between the 1997-98 and 1998-99 academic years, according to ISIS. The reason for such dramatic enrollment growth was not evident to the TPESI team, and it is certainly possible if not likely that the difference is due to a shift in definitions and reporting practices rather than an actual increase in student enrollment.

Figure 2

ICC/Peoria Tech Prep Consortium
Tech Prep Enrollment from 1995-96 to 1998-99
Summary of Major Strengths and Concerns

While there is continued room for improvement, there are also clear strengths. For example, the high schools visited as part of the pilot study have activities that represent the applied academics model, and there are examples of interesting and creative instructional practices. This is probably most common at MCHS in which academic and career-technical teachers are designing lessons together.

Faculty development and administrative support are important to the Tech Prep initiative, and they are evident in this consortium. While the types of activities that teachers participate in are not necessarily innovative or go beyond AIP/VIP or state-supported activities such as Connections, they are encouraged as a way of keeping teaching current and promoting the diffusion of information once teachers return and share their experiences. Similarly, counselors also participate in AIP/VIP and Connections to remain current. Local administrative support for Tech Prep is very strong and clearly helps push Tech Prep forward. While the level of support varies across schools, it is not uncommon to find Tech Prep support and sponsorship among superintendents, board members, and principals. Based on the TPESI team’s observation, the use of planning teams, commitment to professional development, and strategy for designation of resources can promote the continued growth, development, and evolution of Tech Prep.

In this supportive environment, students participate in work-based learning experiences ranging from career exploration and awareness to the most common practice of job shadowing. In particular, MCHS encouraged students to participate in job shadowing and combined career exploration and awareness with the majority of their academic and career-technical courses. Across the schools visited, many students had ICPs. In addition, each site is conscious about making students aware of Tech Prep activities (although, they may not be referred to as Tech Prep) through use of regular career counseling sessions, brochures, and pathways. As noted previously, other activities that make this element strong include career awareness and exploration for students and professional development activities for counselors.

Other elements, however, tend to promote concern for the ultimate success of Tech Prep. For example, while the consortium claimed the existence of various Tech Prep clusters, these programs were neither documented nor marketed strongly. It also appeared that the marketing emphasis was placed on the secondary initiatives more so than the postsecondary ones.

Articulation, though the purported heart of the Tech Prep initiative, was rated as weak by the TPESI team, because, even though secondary and postsecondary schools could identify Tech Prep participants, evidence of articulation agreements, student transcripts, and surveys was not present to show that students transition between the secondary and postsecondary levels.

The lack of “connection” between the secondary and postsecondary levels was evident in the lack of collaboration among faculty. Teachers at both the secondary and postsecondary levels stated they did not have opportunities to work together on curriculum planning, development, and implementation. The evaluation team saw this as a critical issue because the activities associated with secondary-to-postsecondary articulation should be based on collaboration.

Nevertheless, the secondary and postsecondary sites were able to identify Tech Prep participants, but using a more loose definition rather than the state definition. The local definition is one that states that all students are Tech Prep participants if they are receiving some type of career-technical education. While the TPESI team applauds the schools for exposing as many students to Tech Prep as possible, it is clear that not all fit the state’s definition simply by taking one or more career-technical courses.
Recommended Next Steps

♦ **Clearly define the 2+2(+) curriculum.** Sequenced pathways need to be clearly defined, clearly articulated, current, and well established in a way that is marketable to students and parents. Currently, one can find descriptions of these sequenced pathways as well as lists of dual credit courses in marketing materials and course catalogs; however, specific, sequenced pathways are not clearly laid out for student review. PHHS comes closest to having sequenced pathways outlined in course catalogs, and these should possibly be replicated by other schools within the consortium. Student awareness of 2+2 programs can be increased by articulating them more clearly and making them more visible rather than requiring students to guess or track down information on their own.

♦ **Review and update articulation agreements on a regular basis.** All articulation agreements should be reviewed and updated on a routine basis. Policies should be established for the purpose of addressing how articulated courses will address specific competency requirements for placement in postsecondary classes. If articulation is truly “at the heart” of Tech Prep as some local administrators claimed, then it is critical that the secondary and postsecondary levels work together to identify dual credit courses and 2+2 curriculum.

♦ **Enhance secondary and postsecondary communication.** Secondary and postsecondary faculty need to enhance communication by consistently implementing various collaborative activities. Specifically, designees from all secondary schools and ICC should be at the table discussing Tech Prep and actively seeking collaborative activities. 2+2 curriculum and articulation agreements only emerge as a result of these kinds of collaboration. While many good things can take place within a particular school, without communication and collaboration, critical elements of Tech Prep are not likely be achieved.

♦ **Institute a standard process for identifying Tech Prep students.** Tech Prep students need to be more rigorously defined. It is important to examine current consortium definitions against ISBE guidelines and modify as necessary. As noted previously, this consortium would be advised to begin by coming to consensus as to what Tech Prep means. Currently, each school has a slightly different operational definition of Tech Prep. Without consistently applying a common definition across all schools, accuracy in student tracking will be impossible to achieve, and aligning to state and federal definitions is also improbable.
Kaskaskia College Tech Prep Consortium

by W. M. Reger IV

Executive Summary

In this consortium Tech prep is intended to provide students with basic exposure to the career world, and it provides a small core of technical programs that lead to transition to postsecondary education. At the secondary level teachers are motivated by Tech Prep to collaborate on the development of curriculum, and at some schools they are assisted by business and industry leaders in providing students with opportunities to learn and work in school- and work-based experiences.

In this consortium the feature of Tech Prep that is most outstanding is work-based learning (WBL), career awareness and exploration activities. This strength is the focal point for many other consortium-wide strong points, such as business and industry involvement, counselor awareness, and faculty development through their own brand of work-based experiences with AIP/VIP. Personnel in this consortium, including the local Tech Prep coordinator, are committed to implementing the program and providing students with a quality experience. With respect to this particular strength the TPESI team observed strong, committed champions at all three high schools visited, where individuals were willing to organize and develop programs that sometimes transcend the traditional culture that provides the schools.

Even so, despite their commitment, local leaders and teachers perceive the available time to be shorter than the demands of implementation. Staff and teachers spend a majority of their time in development activities, which limits the amount of time for other important activities, such as writing grants. The differences among the schools within the consortium, which arise from differences in EFE administration, may also produce consortium-wide difficulties if resources are not more evenly distributed. Furthermore the hesitancy of the administrators and teachers in this consortium to define Tech Prep students more specifically may result in a diffusion of program effectiveness.

To better serve the needs of students in this consortium, the evaluation team presents the following recommendations:

- Define Tech Prep students more specifically in order to encourage a greater focus of programs and resources, to increase dedication to high academic standards, and to increase transition into postsecondary experiences.

- Place work-based learning experiences such as job shadowing, apprenticeships, and internships even more explicitly within the Tech Prep program.

- Place articulation agreements more centrally in the process of transition by making them more responsive to students’ needs as they follow educational paths after high school.

- Focus curriculum development on rigorous integrated academics and career-technical education (CTE) options that allow Tech Prep students to compete for acceptance to postsecondary programs.
KASKASKIA COLLEGE TECH PREP CONSORTIUM

TPESI Pilot Evaluation Results

SITE: Kaskaskia Tech Prep Consortium includes 13 secondary schools including the Okaw Area Vocational Center and the Kaskaskia Community College. There are a total of 5,213 secondary students with 603 identified as Tech Prep students (12%). Schools involved in the TPESI pilot evaluation were Mulberry Grove HS (MGHS), (140); Breese Central High School (BCHS), (540); and Salem High School (SHH) (880).

TEAM MEMBERS: Donna Dare (Richland Community College, formerly UIUC), Darlene Jackson (ICCB), Shawn Rotherham (ISBE), W. M. Reger IV (Illinois State University, formerly UIUC), and Jung-sup Yoo (UIUC).

SITE VISIT DATES: November 1999 and April 2000

Local Approach to Tech Prep

Tech Prep in this consortium is mostly a secondary education program with a heavy emphasis on work-based learning activities. Students in the consortium tend to identify Tech Prep with such activities as job shadowing and career awareness. Though the transition to postsecondary education is under construction, the consortium offers 24 regional articulation agreements and dual credit agreements in four programs. Tech Prep has influenced the development of curriculum at the secondary level, though administrators and teachers consider Tech Prep’s greatest contribution to establish more effective transition to postsecondary education. Tech Prep funds have also provided for improved training of teachers and counselors. Secondary schools hesitate to identify students as Tech Prep in order to make its advantages more widely available to their students.

Essential Elements of Tech Prep

This section describes the TPESI team’s assessment of the eight essential elements of Tech Prep.

2 + 2 Program That Leads to Associate Degree

Participating schools have been developing course sequences for Tech Prep occupations since 1994. In addition, the consortium, as a whole, reported fewer than ten Tech Prep students from the 1998 high school graduating classes enrolled as first-year students at Kaskaskia College. Tech Prep is mostly a secondary education program with little focus on the postsecondary level. The consortium seeks to improve this situation by increasing the number of programs that offer articulation and dual credit agreements, and now offers 24 regional articulation agreements and dual credits in four program areas at four high schools.

Salem High School (SHH) is an exception to the general trend. Students at this high school can receive up to 8 hours college credit from Kaskaskia College in Electronics. In addition to job shadowing students can participate in their junior and senior years in 8-week paid summer internships. It has a clearly identified goal of two-year degrees, and invites speakers and other representatives from...
Kaskaskia College and several other 2-year technical schools to encourage the students to opt for the 2-year postsecondary option. In its statement of definition of a Tech Prep student, the school states that a Tech Prep student “seeks further education after high school.” The students interviewed unanimously indicated that they intended to seek a 2-year postsecondary certificate or degree before going on to complete further education.

Students interviewed from Okaw AVC also reported involvement in course taking for college credit. Okaw AVC offers dual credit at Kaskaskia College in four programs (Electronics, Model Office, Administration of Justice, and Welding). Students interviewed at Mulberry Grove High School (MGHS) said that they hoped to pursue careers that would require some kind of 2-year degree such as, for example, dental assistant, but they did not see their course-taking at the high school level as a necessary step in that direction. They chose those careers based on their job shadowing experiences and the possibility of postsecondary education had little to do with their decisions about the future.

At Breese Central High School (BCHS) the situation was relatively similar. Students had a strong career focus based on their job shadowing and other work-based learning experiences, but they did not have a strong course sequence or program that would eventually lead to a postsecondary degree. One student had an athletic scholarship to a 4-year college. None of the students had taken any college credits while in high school. The guidance counselor at this school indicated some articulation with Kaskaskia College, but no dual credit arrangements. The school offers Career Pathways brochures in seven program areas that inform students of postsecondary coursework, but none of the students indicated any participation in Career Pathways.

**Articulation**

The first articulation agreements were adopted in the mid-1980s and therefore antedate Tech Prep. The consortium does not define a Tech Prep student in terms of his or her participation in an articulation agreement, though individual schools could make that connection, according to local Tech Prep leaders and administrators. Articulation agreements between the high school and Kaskaskia College follow a regional pattern, and are made according to the needs of specific programs. Students take advantage of articulated credits when teachers or counselors discuss the possibility, and some students do take advantage of this avenue of transition. However, fewer than 10 Tech Prep students from the 1998 high school graduating classes had enrolled in the associated community college with credits in escrow, dual credit, or other forms of earned college credit. Dual credit is seen as more of an advantage to students at Salem High School (SHS) than other high schools because students there can take college credits directly to any college or program they desire, even into the military.

Program-specific articulation was first established in 1990, and these agreements are updated annually, usually involving joint advisory committee reviews. As mentioned above, not all students know about or take advantage of articulated courses or dual credit. At BCHS articulation agreements have been in place since before 1988, and some program areas have multiple agreements. The students at this school, however, did not use the agreements to their advantage in earning credits in college because many students did not want to move from a secondary program into the exact same postsecondary program, which was described by the administration as too restrictive. Students and administration prefer dual credit because it offers a broader spectrum of choices when student consider postsecondary options. Any student at BCHS may participate in articulation agreements, whether they are considered Tech Prep or not. One program that is articulated is the electronics program, which is articulated to both 2- and 4-year programs. Unfortunately, the TPESI team was not able to interview electronics students to determine their participation in articulates courses.
Health Occupations at Okaw AVC is one of the oldest articulated programs in this consortium. A student can take earned dual credits to any community college or four-year college in the area, and they can use them in any program as well, according to local administrators. Articulation agreements continue to be developed between the high school and colleges. As of FY 99-00, dual credit agreements exist in Welding, Electronics, Office Technology, and Administration of Justice.

Curriculum Development

Before 1996 applied curriculum materials were purchased for schools and appropriate training was provided. After 1996 secondary teachers formed teams that supported integrated instruction. Curriculum development appears to be driven by new technology and by the efforts of the consortium to involve both business and industry. AIP/VIP result in the development of new curriculum and revision of old curriculum. Curriculum development is considered to be particularly successful at the postsecondary level; two to three projects are accomplished each semester. At the secondary level, most curriculum development takes place in the summer months.

At SHS the influence of Tech Prep is made clear to students in math classes because the differences in curriculum are defined in recruiting materials. Tech Prep geometry differs from regular geometry, for example, because in Tech Prep geometry the teacher is more of a facilitator than lecturer; the class is highly group oriented, with hands-on experiences, discovery and practical applications; and makes liberal use of computer technology to teach principles. When Tech Prep chemistry is compared to traditional chemistry, we find similar features: a reorganization of concepts around specific contextual topics; practical applications in labs; group activities, requiring less math and note-taking; and information gathering outside the classroom related to the unit of study.

Tech Prep has helped the Health Occupations program in the Okaw AVC focus its curriculum, and has helped teachers and staff both develop inter-institutional relationships and determine the needs of the students. According to administrators and teachers, Tech Prep does not necessarily improve curriculum or skill levels taught in the classroom, since “curriculum in many programs is set by the state and schools have little say in changing it.” The contribution of Tech Prep has been to bring curriculum “in line” or to establish smoother transitions from secondary to postsecondary levels. Tech Prep has also affected curriculum because the Tech Prep teams in the schools recruit faculty to assist with curriculum projects or writing grants.

Inservice Training for Teachers

Teacher development is coordinated by a committee comprised of ETC and Urban-Rural Opportunities Grant (UROG) members, as well as Tech Prep, EFE System directors, and work-based learning coordinators. Inservice activities include seminars, speakers, presentations, working with business and industry to provide teachers with further experience, and attendance at conferences such as NTPN. A mentor-training handbook is provided through Tech Prep funds to encourage mentoring. Teacher in-service includes support for teachers to attend statewide conferences. Coordinated staff development for teachers begun in 1998/99 with the Tech Prep teams, elementary career development coordinators, and postsecondary faculty at Kaskaskia College. Secondary teachers also frequently participate in career and curriculum development projects supported by Kaskaskia College Tech Prep consortium funds. Postsecondary faculty participates to a lesser degree as well.

SHS had a good example of teacher in-service in its Prime Time program, which allowed teachers to meet for planning from 8-9 AM each morning. The teachers were paired into interdisciplinary teams that had responsibility to form the Tech Prep program from its inception by deciding and planning the Tech Prep program and activities, and by targeting which students to include in the Tech Prep pro-
gram. This tradition of teacher involvement in planning has led to ongoing staff development. Teachers at this school receive, for example, technological mentoring. Each teacher has an Individual Technical Plan (ITC), which guides their training in computers and other learning technologies. In addition, the teachers interviewed at SHS participated actively in AIP/VIP experiences. Tech Prep has led to increasingly meaningful staff development activities.

Teacher in-service could also be said to occur informally as part of the Tech Prep team activities, though the activity of these teams varies considerably. The Tech Prep team at BCHS meets when the superintendent calls a meeting, which is usually on a monthly and sometimes bi-monthly basis. The Tech Prep team at MGHS meets frequently, though only in sub-committees, not as a full team. These teams have as their focus, however, curriculum and program development and not teacher training.

**Inservice Training for Counselors**

Counselors receive information and training from the regional student services committees. One element of counselor training is the Job Profiles Catalog which helps them assist students to become aware of career options by comparing student Work Keys assessment results with the Catalog. Counselors also participate in AIP/VIP experiences.

**Equal Access for Special Populations**

No specific equal access policy was expressed during meetings with administrators and teachers, but evidence exists that equal access is practiced. The consortium relies heavily on work-based learning experiences and career awareness activities, which naturally tend to serve the needs of all students, including special populations. The Kaskaskia Special Education District Staff received work-based learning and mentor training. The consortium’s Special Populations Coordinator gave input concerning career exploration materials appropriate for special populations.

Also, special education teachers belong to the Tech Prep team at BCHS. Accordingly, there is reluctance at schools like BCHS to define Tech Prep students narrowly in order to be more responsive to the interests and needs of students at the ends of the spectrum, including special populations students. This desire to be more inclusive is evidence of offering equal access for special populations. SHS, which defines its Tech Prep students more definitively, places the emphasis on behavior as the critical criterion that potentially blocks access to the Tech Prep program. If a student is academically sound but has behavioral problems, the Tech Prep program is inaccessible. If, on the other hand, the student is behaviorally sound but has some academic trouble, they are allowed access with teacher recommendation. No explicit comment was made as to how this policy affected special populations, but it could have a mixed effect on their access to Tech Prep programs.

**Preparatory Services**

Preparatory services that assist populations to participate in Tech Prep include primarily marketing and recruiting kinds of activities at Kaskaskia College and other sites. High schools in this consortium did not describe any sort of preparatory (remedial) services in our interviews with administrators and teachers, nor is there any evidence of such services described in the schools’ course directories. At SHS, remedial math is offered to incoming freshmen.

**Work-Based Learning Experience**

Work-based learning experiences are a fundamental aspect of Tech Prep in this consortium, though only one of the four high schools we visited appeared to have a continuum of experiences; the other
three appeared to be more random. At the postsecondary level Tech Prep students have access to a variety of work-based learning experiences, including unpaid internships/clinicals, apprenticeships, paid internships/clinicals, community/service learning, and paid cooperative education. Work-based learning grants were key to the development of this component.

Work-based learning coordinators at the secondary level spend the bulk of their time coordinating job shadowing, internships, and apprenticeships. At Vandalia High School (VHS) the guidance counselor arranges the job shadowing experiences for the student. At BHS there is a strong job-shadowing program which includes mainly Tech Prep juniors. These students commonly have two experiences in the fall and spring of their junior year. Their contacts with employers reinforce the need to go on to the community college. Apprenticeships are extended job-shadowing experiences of three to five days in length, culminating in a written paper describing what was observed. Internships include a ½ credit per semester and are not offered exclusively to Tech Prep students. At SHS juniors and seniors job shadow four times a year, once a quarter in the morning or afternoon. Students receive initial training on how to contact businesses and then establish contacts with businesses themselves. At MGHS students job shadow as part of a career week activity that exposes them to a variety of careers. They could job shadow for a full day anytime during the career week. Students arrange these appointments themselves, complete permission slips and verification forms, and then develop lists of questions to ask during the job shadow experience. Each school district holds some sort of award activity that recognizes the students’ job shadowing experience.

Identified job shadowing as one of the key features of Tech Prep and, when asked how their educational experience might be improved, suggested that more job shadowing should take place. They identified it as one of the drawing points of the Tech Prep program that distinguished them as different or unique from other students, and it gave them experience in the community. The majority of students interviewed indicated that they took advantage of multiple job shadowing experiences, and many noted that their connections were with family or friends who were already in an attractive career. Employers interviewed indicated that they were pleased with the preparation and presentation of the students who came to work with them, though they expressed relatively little familiarity with Tech Prep or related programs.

Supporting Elements of Tech Prep

This section describes the TPESI team’s assessment of supporting elements of Tech Prep.

Administrative Support

Administrative support of Tech Prep is strong throughout the schools, even though the local definition of Tech Prep was unclear. Administrators at all levels saw value in their conception of Tech Prep and were willing to support it with time and funds.

Parental Support

Most parental support is elicited via brochures, career fairs, parental attendance at freshman orientation, and student discussions with their parents. The students interviewed stated almost unanimously that their parents were in favor of the Tech Prep program because they saw its value in helping the students enter the world of work more efficiently. Even those students who reported that their parents knew little about it also reported that they were positive toward the program because the student was involved in valuable activities.
Secondary/Postsecondary Collaboration

The focus of secondary/postsecondary collaboration has been to develop more dual credit opportunities. The initial desire to bring secondary and postsecondary curricula in line was one of the original motivations for Tech Prep in this consortium, and administrators note that Tech Prep has indeed engendered positive relations between secondary and postsecondary faculty. Secondary and postsecondary instructors review curriculum to ensure that content and outcomes are appropriate. Most schools get assistence from postsecondary schools when developing new courses. Secondary teachers mentioned that they had connections with community colleges either through in-service experiences or through former employment.

Business/Labor/Community Involvement

Business and industry involvement centered on job shadowing experiences, except at Okaw AVC and SHS, where business and industry played a more central role. At the Okaw AVC it is clear to administrators and teachers that business and industry dictate the skill levels that students must achieve. At SHS this is also the case, but the business and industry involvement goes somewhat further. Teachers at SHS have been actively involved in eliciting from business and industry what skills are necessary to be taught in math and science, for example. The math teacher, especially, in order to develop an applied Tech Prep math curriculum, went to surrounding businesses and asked them what kinds of math they used in their work. Using their responses she then developed her curriculum. The science teacher took advantage of AIP experiences to work in various summer positions in order to develop more applied methods for his chemistry classes. Students and teachers from MGHS and BCHS have toured local businesses.

Identification and Accurate Reporting of Tech Prep Students

Some school administrators found it difficult to define Tech Prep students. BCHS and MGHS appeared to operate on a recruitment basis, marketing generic career awareness (and some exploration), but Tech Prep students did not appear to differ from non-Tech Prep students. Tech Prep students at BCHS are organized in Tech Prep groups in each class, and students must apply for admission and are selected on the basis of grades, attendance, and future career goals. The Tech Prep team of teachers selects acceptable applicants if more than 20 apply. The exception to this is SHS, which has specific characteristics in writing to define student participants in the Tech Prep program. SHS students apply to the Tech Prep program and are screened based on grades, attendance, and disciplinary record. They must follow a “Tech Prep Maintenance Agreement” that continues to emphasize behavior, grades, and participation.

Tech Prep, nonetheless, is identified among students, parents, and faculty as a positive force in the education of secondary students. The resistance to defining Tech Prep students arises out of administrative concerns: either administrators wish to avoid shutting a portion of the student body out, or they wish to avoid the increased paper work associated with larger numbers of Tech Prep students. The overall consortium-level Tech Prep student identification standard is program attendance. Other issues that contribute to reluctance to define and label students as Tech Prep is the necessity of re-entering the Tech Prep student data into the ISIS data base each year. In addition, faculty sometimes view the local definition of a Tech Prep student to be an evolving definition as the school and the district seek to build and develop their programs.
Evaluation and Program Improvement

Evaluation is recognized in this consortium as an area requiring more effort. The FY 2000 Required Tech Prep Elements Work Plan evaluation activities reflect a tendency to evaluate maintenance of activities rather than outcomes. Administrators recognize that more should be done to evaluate the benefits derived by the students from Tech Prep. Some schools document anecdotal evidence, outcomes-oriented evaluation was not seen in the schools. It is a hopeful sign is that administrators and teachers are anxious to begin more structured evaluation of student outcomes.

Transition of Students to Postsecondary Education

Tech Prep has made student transition into postsecondary education smoother, but the lack of an appropriate student tracking system is an obstacle to gathering evidence. One current objective of the consortium is to emphasize the successful transition of Tech Prep students into the postsecondary level. UROG and ETC grants transition into the employment sector by creating partnerships. Integrated instruction, and school- and work-based experiences will provide secondary students with academic and technical skills necessary to complete an articulated program of study resulting in a certificate or associate degree, or transfer to a 4-year degree program, the military or subsequent employment.

Among students we find that purposeful transition to postsecondary education, the workplace, or the military was more common among the students at Okaw AVC and SHS, where Tech Prep programs were more solidly in place. Although all students planned to attend postsecondary education at some point, the students at Okaw AVC and SHS had more concrete plans and advantages, including internship experience in their chosen area of study and more advanced coursework. At BCHS we found that students were also interested in going on to some kind of postsecondary education, and the school supports this transition with course sequences that are articulated. The Tech Prep program exposes the students to the community college through tours. The students recognize that the Tech Prep program has value for getting them into college, though the Tech Prep English does not provide the students with research writing skills, focusing instead on more practical applications such as writing business letters and resumes. No student mentioned any sort of Tech Prep-related scholarship to support transition into postsecondary education.

MGHS approached Tech Prep differently. This school offered little coursework to support a smooth transition into a postsecondary Tech Prep program. The emphasis was on job-finding skills, so that, even though the students we interviewed expressed intentions to seek further education, their secondary education experience did not specifically support their goals.

Local Ownership/Commitment and Coordination

The Business and Education Alliance at BCHS holds regular luncheons with administrators at which students who have participated in work-based learning experiences present reports of their experiences. At SHS the local Chamber of Commerce is supportive of school-based work activities such as a Christmas Santa photo business enterprise, and a student employment service, in addition to work-based learning experiences and curriculum development.
Career Guidance and Development for Tech Prep Students

Career awareness appears to be a fundamental aspect of Tech Prep in the four schools we visited, but only two schools appeared to provide selected focus for the students. One problem is that students in small-size schools feel that they have very limited options related to career exploration and course taking.

Summary of Tech Prep Enrollments

Figure 3 shows that, according to ISIS figures, enrollments in Tech Prep have risen from 1995-96 to 1998-99, when Tech Prep enrollment comprised about 12% of the total number of students in the consortium. Table 1 illustrates student enrollment in Tech Prep by school. Though the real numbers of Tech Prep students appear to be small it is important to bear in mind that these numbers are controlled both by formal policies of admission to the program and, to some degree, by non-standardized local definitions of Tech Prep students.

Figure 3

Kaskaskia College Tech Prep Consortium
Tech Prep Enrollment from 1995-96 to 1998-99
Table 1

Kaskaskia College Tech Prep Consortium
Number of Tech Prep Students by High School

<table>
<thead>
<tr>
<th>High School</th>
<th>Total School Population</th>
<th>Number of Tech Prep Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mulberry Grove High School</td>
<td>140</td>
<td>10</td>
</tr>
<tr>
<td>Breese Central High School</td>
<td>540</td>
<td>60</td>
</tr>
<tr>
<td>Salem High School</td>
<td>880</td>
<td>150</td>
</tr>
</tbody>
</table>

Note: Data on student enrollment collected during site visit interviews.

Summary of Major Strengths and Concerns

The feature that most characterizes Tech Prep in this consortium is the element of WBL-oriented career awareness and exploration activities. This strong point is supported by other strengths within the consortium, such as business and industry involvement, counselor awareness, and faculty development through work-based experiences (AIP/VIP). The strength that drives Tech Prep forward in this consortium is without a doubt the personnel who are most committed to implementing the program and providing students with a quality experience. With respect to this particular strength we observed strong, committed champions at all three high schools, who were willing to organize and develop programs within the limitations of their specific school culture.

The most prominent barrier to Tech Prep, in the perception of local administration, would be the time element. Staff and teachers have the perception that they are constantly participating in staff development of one sort or another, which limits the amount of time for activities such as writing grants.

The evaluation team observed that larger, more organized schools, and smaller schools tend to exhibit varying levels of Tech Prep implementation. An advanced Tech Prep program like that at SHS attracts high tech software, while a small school like MGHS could not support programs that would require these upper-end amenities. This disparity may be explained by the differences in the EFE systems and the coordinators and directors that support programs at the various schools.

Administrators and faculty in this consortium hesitate to define Tech Prep students. This hesitance was more pronounced at schools at which Tech Prep was not as entrenched. At Salem High School a specific definition was in place. At MGHS, a definition was not in place because the staff was relatively new, relatively unorganized, and had not yet moved forward to the point that a specific definition would have been serviceable. Evaluators considered this hesitation at BCHS to be the result of a dedication to providing services for all students. School administrators argued that defining a Tech Prep student specifically would exclude students they do not wish to exclude, and their “notion” of what is a Tech Prep student constantly changes.
**Recommended Next Steps**

- **Define the Tech Prep student and use the definition consistently.** A more specific definition of Tech Prep students will allow the consortium to encourage a greater focus of programs and resources, and to foster among students an increased dedication to high academic standards. Although the schools generally tend to recruit from the general school population, their standards of recruitment rely on general characteristics such as behavior and, sometimes, academic performance, rather than commitment to further Tech Prep education at the community college.

- **Support Tech Prep student transition to education and careers.** More emphasis should be placed on students’ career plans and on the role that postsecondary education will play in those plans. This will result in a clearly defined Tech Prep student community, more focused on continuing education.

- **Tie work-based learning experiences more directly to Tech Prep participation.** Work-based learning such as job shadowing, apprenticeships, and internships need to be tied more explicitly to Tech Prep participation. The general student population can certainly benefit from these activities, but there should be some defining element that distinguishes Tech Prep students from the rest of the student body, and that provides them with a higher degree of technical experience and involvement that goes beyond general career exploration. This connection could perhaps be accomplished by joining work-based learning experiences with upper-level technical courses.

- **Strengthen articulation agreements.** Articulation agreements need to be reviewed, revised, and marketed to Tech Prep students. These agreements need to support a student’s interest in and need for further education. They need to provide the student with seamless and flexible transition into postsecondary education, and so should perhaps be more responsive to the likelihood that a student will develop new interests and seek new educational directions.

- **Encourage rigorous academics.** Curriculum development should focus more on rigorous integrated curriculum that will allow Tech Prep students to compete for acceptance in 4-year as well as 2-year colleges. Too much emphasis is made on career preparation skills, such as resume writing, etc.
Rock Valley College/CEANCI Tech Prep

by Jung-sup Yoo

Executive Summary

Tech Prep is intended to provide students with a solid foundation for further education and stable employment. In the consortium involving the Rock Valley College (RVC)/Career Education Associates of North Central Illinois (CEANCI), Education For Employment (EFE) region, educators and business and industry leaders work collaboratively to create opportunities for students to explore their career options and hone their knowledge and skills. In this consortium Tech Prep is understood at two different levels. At one level, the majority of educators, focusing on applied academics and career awareness and exploration, think that Tech Prep is for every student. At another level, Tech Prep is synonymous with Tech Prep/Youth Apprenticeship (TP/YA). The consortium has implemented TP/YA programs in manufacturing, business, accounting, financial services, and health wherein secondary and postsecondary curricula and work-based learning (WBL) are integrated.

The consortium has implemented a system-wide articulation agreement across the TP/YA program areas involving RVC and high schools associated with CEANCI. Educators, employers, students, and parents think highly of the TP/YA programs and demonstrate their strong support. Educators strive to enhance the quality of instruction through curriculum development and WBL. One notable effort is the "Virtual Company" project in business education. The American Association of Community Colleges (AACC) in 2000 recognized this project for its excellence, noting that students benefit greatly from such programs. The consortium’s Tech Prep Business and Financial Services Youth Apprenticeship program has been recognized with the National Tech Prep Network (NTPN) Exemplary Worksite Learning Award, finishing third place in this national competition.

Whereas the RVC/CEANCI Tech Prep initiative has many strengths, opportunities for improvement do exist. First, the focus of the TP/YA program on selected career areas presents some concerns because the TP/YA programs can serve only a limited number of students. Placements in WBL sites are limited, reducing the number of students who can participate, slowing the growth of Tech Prep overall. Second, some high school students interviewed felt that they did not receive adequate guidance and counseling regarding their educational and career options. Third, even though administrators and teachers emphasized their effort to develop integrated and applied curriculum, the students we interviewed considered the knowledge and skills earned in academic classes to have minimal applicability to work, despite a clear focus on CTE skill enhancement. High school students understood the focus of Tech Prep to be on technical courses (including those offered by RVC) and work-based learning experiences offered by employers. Administrators, teachers, and counselors confirmed this perspective, also suggesting some high schools did not make the Tech Prep curriculum their central focus.

To better serve the needs of students in this consortium, the TPESI team presents the following recommendations:

- Expand alternative models of Tech Prep utilizing the TP/YA model but also other models, such as the Integrated Tech Prep model that is primarily school-based.
- Strengthen counseling and guidance related to educational and career options.
- Increase opportunities for local personnel to participate in professional development.
- Ensure on-going program evaluation and student outcomes assessment.
Rock Valley College/CEANCI Tech Prep

TPESI Pilot Evaluation Results

SITE: RVC/CEANCI Tech Prep Consortium consisting of 15 secondary schools, including CEANCI and Rock Valley College (98/99). A total of 7,906 secondary students were enrolled in the consortium is 4,729 reported as Tech Prep participants (60%). High schools included in the TPESI pilot project were Belvidere High School (BHS), Harlem High School (Harlem HS), and Hononegah High School (Hononegah HS).

TEAM MEMBERS: Debra Bragg (UIUC), Carol Lanning (ICCB), Jim Oettel (ISBE), Susan Retzer (ISBE), and Jung-sup Yoo (UIUC).

SITE VISIT DATES: December, 1999 and April, 2000

Local Approach to Tech Prep

In the RVC/CEANCI Tech Prep consortium, Tech Prep is understood on two different levels. At one level, the majority of high school personnel (administrators, faculty and counselors) think that Tech Prep is for every student, focusing on applied academics and career awareness and exploration; they believe that Tech Prep is a philosophy that guides educational reform. At another level, Tech Prep is comprised of TP/YA programs implemented within the consortium with the support of employers in the Rockford area. These two different levels of thinking about Tech Prep create some confusion about Tech Prep among the people interviewed. The focus is on TP/YA programs wherein Tech Prep courses are offered in RVC, and on work-based learning conducted by individual employers. Given this overview of Tech Prep in this region, the following status report about essential and supporting elements provides further detail about the level of implementation and quality of Tech Prep in this consortium.

Essential Elements of Tech Prep

This section describes the TPESI team’s assessment of the eight essential elements of Tech Prep.

2+2 Program That Leads to Associate Degree

The RVC/CEANCI Tech Prep consortium has several 2+2 programs, called Tech Prep/Youth Apprenticeship (TP/YA). The TP/YA programs are sometimes seen as an alternative to high school curriculum rather than genuine 2+2 programs encompassing two years of high school curricula and two years of postsecondary curricula. TP/YA programs focus on secondary education, leaving postsecondary education (2-year college or 4-year college education) or employment of students’ own choice appropriate to their future plan. The TP/YA began first in manufacturing in 1992 with the support of six manufacturing companies, and expanded to include financial services and health occupations in later years. The consortium is now developing additional programs in the areas of Graphic Arts/Printing and Automotive (Tech Prep Newsletter, Fall 1999). These two programs, now in the pilot stage, provide students with a WBL option without the apprenticeship agreement.

Students in the TP/YA program follow a relatively well-defined sequence of courses. Students are selected on a competitive basis through an interview process with employers. The standards for student selection are positive attitudes and work ethic, consistent class attendance record, and moderate to high academic performance (at least 2.0 in a 4.0 class rank scale) at the sophomore year. Students
take a placement test at RVC to take college credit courses in the form of credits held in escrow. Most students appear to have taken advanced academic, science, math or advanced placement courses. Students in the programs take their academic classes at their high school and some technical courses at RVC. They work at the companies of their choosing during the summer and afternoons every other week of their senior year.

Most students interviewed showed a great deal of satisfaction with the TP/YA programs. Students in manufacturing stated that the program provided them with opportunities to get employment before or immediately after high school graduation, and it provided an opportunity to take college classes. Students in financial services and health occupations preferred having opportunities to experience actual work situations as the majority intended to further their education. There was a difference in the level of satisfaction about the programs though (Tech Prep Alumni Survey, 1998). The consortium's alumni survey revealed that participants in the Manufacturing program showed the highest level of satisfaction, while participants in the Health occupations program showed slightly less satisfaction.

TP/YA programs are unique 2+2 programs, including extensive WBL experiences. However, TP/YA programs serve a limited number of students. For example, in 1999 a total of 81 students (juniors and seniors) from 15 high schools were engaged in the three program areas.

Articulation

Articulation between RVC and area high schools offer some system-wide agreements between RVC and CEANCI, with CEANCI composed of 15 high schools. These articulation agreements are for students who enroll in the manufacturing, financial services and health sciences TP/YA programs (see Table 2 for articulated courses in these areas).

Table 2
Program Articulation

<table>
<thead>
<tr>
<th>Career Areas</th>
<th>Titles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing</td>
<td>Rockford Tooling &amp; Machine Association (RTMA) Tool &amp; Die/Precision Machinist Apprenticeship #9919</td>
</tr>
<tr>
<td></td>
<td>(CEANCI Course #76020, 76021, 76022; and RVC Course # APT 190 &amp; APT 191)</td>
</tr>
<tr>
<td>Business, Accounting, and Financial Services</td>
<td>Small Business Management, Office Technology Systems, Banking, Management (CEANCI Course #24005, 20503, 52001, 52002, 52003; and RVC Course # Office 129, Information Processing; PCI 145, Introduction to Windows; Business 297, Career Application Laboratory; BUS103, Business Math. Direct credits include Marketing 288 and Business 101 for a total of 6 credits.)</td>
</tr>
<tr>
<td>(total 8 articulated credits)</td>
<td></td>
</tr>
<tr>
<td>Health Sciences</td>
<td>Office Technology Systems, Respiratory Care, Pharmacy Technology, Nursing (CEANCI Course # 50010, 50011, 50012; and RVC Course # HLT102, HLT104)</td>
</tr>
</tbody>
</table>

Source: Articulation agreements between RVC and CEANCI written in 1995, with updated information provided by Beth Paul-Peterson (10/00).
Students must complete all RVC admission requirements before being admitted to the articulated college program. In order for articulated credit to be granted, the student must enroll in an articulated program at RVC within 2 years following high school graduation. College credits for high school articulated courses granted after students have completed six hours of at least "C" grade college coursework in the articulated program. Students must earn at least a "B" in high school in the identified articulated classes. They may be required to return to lower level courses if they fail to make satisfactory progress in the next higher course. Those who have passed the College Board Advanced Placement (AP) Examination may receive credit for college courses. Articulation agreements between RVC and CEANCI member schools are confined to CTE programs only (RVC/CEANCI Articulation Agreements, 1995).

To improve TP/YA programs, additional communication needs to be done. Some students have already received college credits, but others remain unclear about the process for receiving college credits. Several high school graduates who had six college credits available to them, and who were enrolling in RVC, said that the college credit was of little value when they actually applied for it. When TP/YA students matriculate into RVC, the major area of study is often changed or more specialized from when they participated in TP/YA in high school. At RVC the requirements for graduation are different according to students' specializations. Also some high school students were concerned about whether the college credits received from RVC can be transferred to other schools, especially 4-year colleges.

The other type of articulation agreements is between RVC and individual high schools. Hononegah High School has an articulation agreement with RVC in electronics. According to the Harlem High School principal, the high school has extensive articulation agreements with RVC. Little information about this type of articulation agreement was available to the TPESI team, which was unable to find many details regarding the type of articulation agreement, the specific content of the agreement, and how the agreements worked. Further information is needed to identify how extensively this type of agreement is being implemented in their consortium.

Since the TPESI team visited the Rockford area in the spring of 2000 the Tech Prep coordinator indicated that the consortium had begun to deal with articulation agreements because local officials realized that they did not reflect credit granted. According to the local Tech Prep coordinator, articulation agreements are now "undergoing a massive review.” In addition, programs are under review to increase articulated and direct (dual) credit. The consortium is also beginning a region wide course sequencing project for all RVC CTE degree and certificate programs.

**Curriculum Development**

Curriculum development was understood as applied academics and academic and CTE integration. Most curriculum development activities were focused on technical courses that academic and CTE content. The majority of teachers mentioned pressure for curriculum change, referring to the Illinois Learning Standards, occupational skill standards, employability skills, technology, or contextual learning. Teachers in both high schools and RVC wanted to incorporate employability skills (often from SCANS) into the curriculum. The major focus of employability skills has been on boosting the student attendance rate and improving work ethics. It was not apparent that emphasis was being placed on problem solving or other advanced academic skills and knowledge. Because Tech Prep focuses on TP/YA, in which technical courses are delivered by RVC and work-based learning by employers, high schools do not necessarily see themselves as an integral part of the Tech Prep curriculum. Articulation between secondary and postsecondary curriculum demands change on both sides. However, little evidence of joint curriculum change was observed. Many teachers indicated that they
adopted applied curriculum in their classrooms, but when asked for specific examples, they could not point to a coordinated secondary/postsecondary initiative or one that emphasized academic content.

Students' perception of the application of knowledge and skills earned from classes revealed a different picture. Students indicated that career-related classes use examples taken from actual work situations and provide hands-on experiences, but they saw little or no applicability of the knowledge and skills learned in academic classes to what they do at work. When asked about the relationship between the classes they took at high school and the work they were doing, one student responded that the classes in high school did not explain to her how the course material related to the work setting. Another student offered a more positive assessment, saying he had many hands-on experiences through the "Technology Academy" and "Business Academy" in his high school. Students who took classes in both high school and RVC for the TP/YA program mentioned that, with except for a few exceptions, they did not experience applied methods in high school classes. RVC technical classes seemed to be more helpful to students regarding facilitating deeper understanding of work situations.

Several exemplary curriculum development activities have had an impact on the schools. In Hononegh HS, one math teacher developed an applied math course, including lots of lab activities, emphasizing research and use of the computer. This course was developed for students who were not successful in traditional math, and its success have had a "spill-over effect" within the school such that other math teachers and auto tech teachers tried to develop similar classes.

One concern identified by several persons interviewed was whether 4-year colleges would accept applied classes as a prerequisite for college. At RVC, one instructor developed a "virtual company" to deliver a Business Math class in a more hands-on and applied manner wherein students engaged in every aspect of business. This program received national recognition for excellence from the American Association of Community Colleges (AACC) in April 2000. Additional accolades followed for faculty and staff, creating a sense of enthusiasm and commitment to the “virtual company” model. Possibly other applications will follow because of the national recognition of this concept.

**In-service Training for Teachers**

The consortium established the "Learn N Earn" program, a consortium-wide professional development program provided to faculty, administrators and counselors at both the secondary and postsecondary levels. The topic of the workshop sessions follows closely with essential elements of Tech Prep, including curriculum development, effective teaching, learning styles, and business tours. Participants indicated that the "Learn N Earn" program was very useful for understanding Tech Prep and getting information to use in the classroom, but it was perceived to be hard to "get into" because teachers thought enrollment in the program was very limited. Other professional development activities included conference attendance such as the Connections Conferences in Illinois and other conferences provided by professional associations. AIP/VIP was also mentioned as a useful means of providing professional development.

Many faculty members felt a great need for professional development activities, saying they need more than a "philosophy" and more emphasis on methods and tools they can apply. Furthermore, some high school administrators indicated their schools have extensive faculty turnover. For example, two schools hire 20-25 new teachers each year. The principal of Harlem HS lamented the failure of teacher education to inform new teachers about Tech Prep-related concepts and some model programs resulting in misunderstandings about what Tech Prep is. Teachers mentioned two types of professional development activities: programs helping teachers and counselors get acquainted with Tech Prep, and more in-depth programs that provide teachers with specific skills and information. They felt both types of professional development are necessary, especially now when new teachers are
coming into the system but more experienced teachers need continued emphasis on Tech Prep con-
cepts to take it to a more advanced level.

**Inservice Training for Counselors**

Whereas counselors have developed an ICP, more work remains for the region. Many differences
exist in the region on how the ICP is carried out. If not already done, secondary and postsecondary
development activities should clarify postsecondary credit, sequencing of courses, the ICP process,
and the reporting and tracking of Tech Prep students. Many students indicated that they get informa-
tion about their options for Tech Prep and articulated credit from teachers, family members, and
friends rather than counselors. Some teachers also mentioned they do better than counselors in pro-
viding information about articulated programs. This suggests a need for professional development for
counselors, providing them with more information about Tech Prep programs, college options, and
career planning for students.

**Equal Access to Special Populations**

Special education teachers want more opportunities for special education students to participate in
Tech Prep. One special education teacher estimated that about 10% of the total student population at
her school is considered special population. She spoke at length about the positive experience Tech
Prep had provided one disabled student who participated in the machine tools youth apprenticeship,
but she also recognized that Tech Prep required academic competencies that would not qualify all
special needs students to participate. Overall, it seemed few special efforts were made to involve
special populations in Tech Prep, but some efforts were made to recruit non-traditional students in
each of the TP/YA programs. However, we noted that if the career was traditionally male such as
manufacturing, the vast majority of students were male. The same was true for Financial Services
where females were far more likely to participate.

**Preparatory Services**

Preparatory services for students are provided through CEANCI and individual schools. CEANCI
provides 8th graders and 10th graders with brochures about career pathways and TP/YA programs.
Some schools have their own preparatory services for students. For example, Belvidere High School
(BHS) has a student profile that encourages a career goal in the 9th through 12th grade, along with fu-
ture course suggestions. The school also has an 8th grader technology expo which seems to be an im-
portant way of identifying and recruiting TP/YA students. TP/YA is also described in the school’s
course catalog and career planning guide. Hononegah HS requires all junior students to take career
exploration/awareness for one semester and provides a career day in the freshman year. Over eighty
speakers participated for two days and freshmen are exposed to six major career areas. When inter-
viewed, several teachers wanted more students to know about the TP/YA program, and more mar-
teting is needed. They acknowledged that many students do not know about the TP/YA program, so
informing students about TP/YA programs remains a challenge. Teachers felt that the information
and approach to career guidance was "very spotty," because some students know about the program
while others do not. Other faculty members mentioned that there is a need to inform parents, because
they are not aware of career opportunities for their children.

While interviewing students, many interesting opinions were gathered. Most students in TP/YA men-
tioned that family members had a major influence on their decision to be involved in TP/YA. Several
students said that they got information in the orientation session or from faculty members. Interest-
ingly, students did not acknowledge receiving assistance from counselors. One student commented
that counselors do not know much about the program, and she received information from a consumer
education teacher. When asked about their friends, students indicated that most of their friends did not know about the program but they would be interested if they did.

In terms of career guidance and development for Tech Prep, students have a variety of career exploration experiences. In most schools, some form of career guidance and development occurs. Schools use career guidance software such as "Discover" when guiding students. BHS uses a student profile that encourages a Career Goal in the 9th grade through 12th grade. Harlem HS requires all sophomores to take career exploration/awareness for one semester and career development as juniors, including resume writing, SCANS skills, and mock job interviews. This school also requires that all freshmen complete an ICP. At Hononegah HS, homeroom teachers administer the COPS interest inventory to provide students with an opportunity to explore their potential careers. However, across the consortium, when asked who helped most in making their decisions about education and careers, students were more likely to mention parents, friends, and teachers (especially of career-related classes) than counselors. Some mentioned that the career guidance software was not much help because it was based on national employment trends, resulting in insufficient information to make specific decisions at their level.

Work-Based Learning Experience

Work-based learning (WBL) is being done exceptionally well in this consortium. In fact, WBL is the hallmark of the Tech Prep initiative, having won numerous awards and serving as a model for several other award-winning WBL-centered Tech Prep initiatives such as the East Central Illinois Education-To-Careers Partnership in Danville, IL and the Tech Prep consortium in Greensboro, NC. The TPESI team frequently referred to the TP/YA programs in Rockford as the "Cadillac" model for combining Tech Prep and WBL. Students in TP/YA program experience extensive WBL opportunities because WBL is so fully integrated into the curriculum. One concern about such intensive WBL, however, is that students have limited exposure to different careers because they tend to be concentrated in one area. For example, students in Manufacturing TP/YA program had an opportunity to job shadow in manufacturing companies only. A notable exception is Hononegah HS where all juniors participate in job-shadowing experiences. The school also has its own youth apprenticeship programs in four areas and is now implementing a new career academy.

Harlem HS also setting up two academies in "business" and "technology", and students indicated they had WBL experiences in these academies. Teachers saw WBL as providing valuable learning experiences that the classroom could not provide. TP/YA students indicated that their friends were engaged in job shadowing, but they did not know much about other WBL experiences.

Supporting Elements of Tech Prep

This section describes the TPESI team’s assessment of the supporting elements of Tech Prep.

Administrative Support

Administrators are knowledgeable about Tech Prep and see value in it for students, though many teachers felt that more administrative support was needed for Tech Prep, especially with regard to professional development. The teachers felt that they needed more ideas and examples of specific skills and knowledge, and that they needed to convince the "upper people" of the need for Tech Prep. Staff at RVC considered administrative support and parental support needed improvement, even though they mentioned that superintendents were very open to participating in TP/YA programs. The
CEANCI director reported that Tech Prep is very labor intensive in the schools, meaning that, to entice faculty members' voluntary participation, more leadership is needed from school administrators.

The TPESI team felt that employers and staff in the TP/YA programs took pride in the program. They described RVC as a "convener" and "driver" in implementing Tech Prep, and there appeared to be a lot of pride and energy generated by the program. The engagement of new people appeared to build ownership and commitment. All employers mentioned that they started TP/YA programs as a way to deal with internal labor force issues, but also to contribute to the community. Teachers mentioned that Tech Prep is a "sparking point" for everyone to build commonalities through monthly meetings and such. An area where Tech Prep seemed to be losing ground was in the diminished role of Tech Prep teams in the high schools. One teacher mentioned that when Tech Prep first started, the local Tech Prep teams were formed, consisting of English, math, science, and industrial teachers, an administrator, and counselors; but now this school does not have a meeting on a regular basis. The individual interviewed felt having a Tech Prep team was beneficial, and they encouraged such teams to form again.

Teachers seemed to see TP/YA as a district program rather than a building-level program, and this is a significant observation. Without strong commitment to building-wide Tech Prep in the schools, it could be difficult to sustain TP/YA programs over time. Because the CEANCI/RVC Tech Prep Consortium office, together with local employers, supports Tech Prep, teachers in schools felt that there is not much they need to do about the TP/YA programs, which seems to hinder local ownership for Tech Prep.

Parental Support

Many teachers and administrators mentioned that parental support is a major factor that influences Tech Prep implementation, but they felt the pressure to send students to 4-year colleges and worried about parental support. As one instructor mentioned, "Tech Prep was received negatively at first in the community." High schools tried various ways to inform parents about the TP/YA programs, such as encouraging parents to participate in business tours. After they learned about Tech Prep, parents were reported to be more interested in the programs. Many students interviewed mentioned that they chose TP/YA programs because their parents urged them to participate. The students said they were involved in making decisions and were informed of the daily program happenings. Once parents understood that Tech Prep was not "closing options for their children," they were very positive. Of course, it is doubtful that all parents in the region have this understanding of Tech Prep, offering one explanation for limited enrollments thus far.

Secondary/Postsecondary Collaboration

Collaboration between the high schools, CEANCI and RVC is being done in various ways. Sharing information and facilities is most frequently cited as a key collaboration activity. RVC is deemed to function as the "driver" or "convener" of the Tech Prep program in the sense that RVC keeps TP/YA students together, provides team leadership, leads councils, and orchestrates various efforts. One example is seen in the creation of the Graphic Arts/Printing Technology program. In this case, college personnel worked closely with CEANCI and area employers by surveying them about the needs for the program. The college purchased a new Career Development Center building and provided for the new program (Tech Prep Newsletter, Spring 1999). Another example is seen in the efforts of the Math Department at RVC. According to the Dean of Academic Affairs, college math faculty gathered math teachers from area high schools and shared concerns about math education, including applied math curriculum.
Still, some aspects of collaboration between secondary and postsecondary institutions seem to be limited. One secondary administrator indicated that there have been very few opportunities for RVC faculty to interact with secondary teachers because the TP/YA program is considered to be a part of the high school program. This mindset seems to limit collaboration between RVC and the high schools. To help students make a smooth transition from secondary to postsecondary schools, more collaboration between secondary and postsecondary administrators, faculty and counselors, is needed.

Business/Labor/Community Involvement

The RVC/CEANCI Tech Prep consortium is located in an urban, manufacturing center. The director of the consortium credited business commitment to the TP/YA program as a major success. The partnership has made a financial commitment to developing and sustaining the program. The majority of administrators and teachers mentioned that one of the major achievements of the TP/YA programs is having strong ties with local employers, since before the TP/YA programs there was more limited connection between schools and business and industry. Recall that the TP/YA programs started a decade ago with the assistance of six manufacturing companies in the Rockford area. Many employers take pride in participating in the program, and their commitment has been sustained over time. Local employers view themselves as contributing to the community by providing students with WBL opportunities and employment. One manufacturing company began reluctantly, at first, to participate in 1993, according to the representative of the company, because it already had a well-established work-study program. However, he said the company participated in the program as a way to contribute to the community.

Noting these successes, the TPESI team found some differences between manufacturing and financial services/health occupation employers. The manufacturing companies tended to see the program as an opportunity to screen students and hire appropriate employees from a pool of students, while financial services and health occupation employers seemed to be satisfied with providing students with workplace experiences and without guaranteeing students' employment. Now business and industry provides many opportunities to students and also provides feedback about curriculum. Certainly local personnel want more employers to participate in the program so that more students have opportunities to participate in Tech Prep.

Identification and Accurate Reporting of Tech Prep Students

Since Tech Prep in this consortium was identified so strongly with TP/YA programs, Tech Prep students are relatively easy to identify. The consortium director keeps a list of these students and uses the information to follow-up on their activities after high school. At the same time administrators and teachers have different definitions of Tech Prep, creating enormous discrepancies between the number of Tech Prep students counted by local consortium leadership and the number reported in ISIS by the schools. Specifically, many schools believe that Tech Prep is to expose all students to the career world; therefore, they identify all students as Tech Prep students. This position appears to be reinforced by the CEANCI guidelines for reporting Tech Prep students, aligning them with CTE course takers. Clearly, the consortium needs to reach consensus on a common, consistently used definition, or it will be impossible to produce valid Tech Prep student enrollment figures.

Evaluation and Program Improvement

The RVC/CEANCI Tech Prep consortium thinks very highly of evaluation and program improvement, and has done so for years. The consortium has conducted surveys of employer and student satisfaction regarding the TP/YA program each year, and more careful implementation of evaluation is being initiated through this pilot TPESI evaluation. The consortium follows Tech Prep students' tran-
sitions from high school to college and/or employment. The survey provides information about how students select the program, how they progress in academic and employment, and how the TP/YA program helps them. The survey of employer satisfaction reveals that employers are satisfied with the program as evidenced by the fact that many employers who had youth apprentices wanted to hire them as permanent employees. Our interviews suggested employers desired to retain from 40% to 60% of Tech Prep students after graduation.

Still, recognizing these long-term evaluation activities as important, personnel in the consortium were concerned about appropriate evaluation procedures and feedback. They noted that most evaluation is directed toward students who are in employment. They wanted more information about students who were in TP/YA programs but not in employment after high school graduation. They also wanted to know more about how the Tech Prep programs helped students improve their academic achievement. One notable development in this area is that RVC is planning a data collection system, called "Data Tell," to provide feedback about students' performance in RVC to students' home high schools.

**Transition of Students to Postsecondary Education**

TP/YA students follow different paths after high school graduation but most students go to colleges (4-year colleges and community colleges), formal adult apprenticeships, and employment. The TP/YA programs are focused at the secondary level, and there seems to be much variation in the post-secondary pathways taken by students following high school graduation. For example, there is a difference in how manufacturing, financial services and health occupation students choose their careers. The majority of manufacturing students are more likely concerned about employment, while students in financial services and health occupations are more likely to go to 4-year colleges (*Tech Prep Alumni Survey*, 1998). Even for these college-going students, the TP/YA program helps them to choose their majors.

Manufacturing students tend to choose RVC when they go to college and these students are clearer about their careers than most other students. The TP/YA programs help students gain employment even before high school graduation. The majority of manufacturing students indicated that the major benefit of the program is to help them get hired in high-paying jobs and become financially independent of their parents. The students also mentioned with enthusiasm that they could get a college education at the same time. Most students indicated that the program provided them with an initial start in college life and that the financial benefits employers provide encourage students to pursue college. Most graduates from manufacturing the TP/YA program are now enrolling in RVC with the financial support of their employers, as employers tend to reimburse students' college costs as an incentive to retain them in the program. Some manufacturing students also went on to formal apprenticeships. RVC has a formal agreement with Rockford Tool and Machining Association (RTMA), and the college provides apprenticeships in two areas: precision machinist and tool and die maker. Students who go through the apprenticeships receive a Journeyman's card after they finish their designated education and on-the-job training. The certificates can also be counted toward college requirements (*Tech Prep Newsletter*, Fall 1998). After finishing their education at RVC or formal apprenticeship, some manufacturing students went on to 4-year colleges. In fact, the consortium's phone survey of manufacturing grads from 1994 to 1999 showed that 20 students out of 60 (one-third) were enrolled in 4-year colleges (*Manufacturing Youth Apprenticeship Survey*, 2000).
Summary of Tech Prep Enrollments

Figure 4 shows that, according to ISIS figures, enrollments in Tech Prep rose between 1995-96 to 1997-98. They remained stable between 1997-98 and 1998-99.

Figure 4

Rock Valley College/CEANCI Consortium
Tech Prep Enrollment from 1995-96 to 1998-99

Table 3 shows enrollment for three TP/YA programs. The manufacturing program remains the largest, although the financial services and health occupations programs have experienced enrollment growth. Local records show a relatively small enrollment of Tech Prep students (i.e., 14 students) continuing from the high schools to RVC. Though the number is small, it is important to point out that all of these students received articulated credit and the vast majority did not have to take remedial course work (Table 4).
Table 3
Rock Valley College/CEANCI Consortium
Secondary Tech Prep/Youth Apprenticeship Enrollment from 1996 to 2000

<table>
<thead>
<tr>
<th>Year</th>
<th>Manufacturing</th>
<th>Financial Services</th>
<th>Health Occupations</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 1996</td>
<td>91 (graduates)</td>
<td></td>
<td></td>
<td>91</td>
</tr>
<tr>
<td>1997</td>
<td>26</td>
<td>15</td>
<td>21</td>
<td>62</td>
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<td>1998</td>
<td>30</td>
<td>19</td>
<td>13</td>
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<td>1999</td>
<td>41</td>
<td>19</td>
<td>22</td>
<td>82</td>
</tr>
<tr>
<td>2000</td>
<td>42</td>
<td>20</td>
<td>39</td>
<td>101</td>
</tr>
</tbody>
</table>

Note: For years 1996, the number of graduates is reported for the manufacturing TP/YA program is given. For 1997, 98 and 99, junior and senior enrollments are presented. For year 2000, the number of sophomore-level applicants is presented.


Table 4
Postsecondary Tech Prep Enrollments in 1999

<table>
<thead>
<tr>
<th>First-year students from High School Tech Prep sequences</th>
<th>Tech Prep Students taking remedial courses</th>
<th>Tech Prep Students with dual credits</th>
<th>Second year Tech Prep Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>3</td>
<td>14</td>
<td>4</td>
</tr>
</tbody>
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Source: 1999 Tech Prep Annual Report

Student Outcomes Associated with Tech Prep

A majority of all local students go to some type of college right after high school graduation. Counselors in one school indicated that about 40% of all graduates go to 4-year colleges and 30% to 2-year colleges. In another high school, about 25% of all graduates were estimated to go to college. TP/YA
students move from high school graduation into various paths. Several students want employment right after high school graduation and plan to go to college in the undetermined future. Other graduates were employed in manufacturing companies and not enrolled in any college. Three seniors mentioned that they planned to enter military service. The Navy had already recruited one student who wanted to explore the world and the Navy offered him the opportunity to obtain knowledge and skills needed for future high-paying jobs. He indicated that after the military he would enter a private company.

Among the manufacturing TP/YA students, many wanted full time employment in the same company where they apprenticed they planned to enroll in RVC with the support of their companies. The companies reimbursed the costs of college education based on the students' achievement as follows: 100% for an "A" degree, 90% for a "B" degree, etc. Several students wanted to enter adult apprenticeships organized by RVC and RTMA to get a Journeyman's Card (apprenticeship certificate). One graduate moved from one company to another because of a difference in salary. Another was now enrolled in correspondence college courses. He selected this avenue because it would take less time than getting an Associate degree from RVC. Most students in financial services and health occupations wanted to go to college, either RVC or 4-year college, right after high school graduation. Most students who wanted to go to RVC also wanted to transfer to a four-year college eventually.

**Summary of Strengths and Concerns**

Without doubt the Tech Prep initiative in this consortium has unique features. Most people consider Tech Prep to be a TP/YA program, and many educators also believe that Tech Prep is for every student, a belief that guides educational reform in some of the high schools. One of the most prominent strengths of Tech Prep is that the consortium has some distinct 2+2 programs associated with TP/YA that employers, teachers, administrators, students, and parents consider to be high quality. Teachers perceived that TP/YA programs provide students with a head start on their careers. They also felt that career exploration was a major achievement of TP/YA. Another strength is that system-wide articulation agreements exist between RVC/RTMA and CEANCI, which help students, teachers and counselors gain a clearer picture of the requirements for college, including course sequences and dual credit granting procedures. Unfortunately, these agreements were not widely understood by students, potentially limiting their utility and applicability to the majority of students in consortium schools.

Collaboration among CEANCI, RVC and employers is another important strength of this initiative. Most administrators and teachers perceived that CEANCI, RVC and employers had shown a great deal of coordination and collaboration. Employers felt that administrative support had played a pivotal role in program success. Students appreciated that through the apprenticeship program they could get both employment and college education through the collaborative arrangements made by those concerned.

Finally, the TP/YA program required advanced academic skills so that most students in the program took advanced math, science and English classes. In addition, through technical classes provided by RVC, students better understood the subject matter and its application to the workplace.

Conversely, significant concerns include the somewhat narrow focus of the TP/YA programs. Students were only exposed to jobs in the area related to their apprenticeship program. There was limited exposure to other opportunities, and our evaluation team felt students needed to be exposed to a variety of career options before making a career choice.
In addition, students felt that non-Tech Prep students had limited information about the program. Administrators and teachers felt that career awareness and exploration was the major element of Tech Prep; however, students did not perceive administrators and teachers' efforts to be at the same level. Another concern was a lack of appropriate counseling and guidance. Most students felt that they did not receive adequate counseling, but rather they received information about the program from family members, teachers and friends. Many teachers perceived that counselors did not provide adequate information related to articulated courses and career options. A third concern was focused on the curriculum. Teachers perceived a great pressure for curriculum change and development and they tried to adopt applied methods, but students did not perceive a close connection between what they learned in the classroom and what they were doing in the workplace. A majority of students mentioned that examples from the job-site context and hands-on experiences were not provided in the classroom, especially in academic courses.

**Recommended Next Steps**

The following recommendations are suggested as possible strategies for improving the local Tech Prep initiative.

- **Expand Tech Prep through several strategies.** First, research and adopt alternative models of Tech Prep to the TP/YA approach. Seek information about models that retain an emphasis on rigorous curriculum that is accessible to more secondary students, such as the Integrated Tech Prep and College Tech Prep approaches, both of which are more school-based. If feasible and consistent with shifting labor market needs, offer TP/YA programs in areas that capture the interest of high school students, such as business applications (other than financial services), computer technologies, criminal justice, etc. A quick review of the USDE Career Clusters might reveal potential occupational areas that offer promise for new Tech Prep programs.

- **Strengthen counseling and guidance.** To better serve the needs of students, more information related to educational and career options needs to be provided. Students need to see a closer connection between their educational experiences and future planning related to college and careers. Tech Prep should help to make this linkage clearer in students’ minds.

- **Increase opportunities for local personnel to participate in professional development.** The consortium has a long history of offering an excellent professional development program in “Learn N Earn”, but it is perceived to be available to a small number of people. Similar and related professional development activities are needed to ensure more education personnel and other key stakeholders (such as business) learn more about Tech Prep and how to contribute to it. Also, to discover the needs of administrators, teachers and counselors at all levels, needs assessment for professional development is essential.

- **Enhance curriculum development.** Students see little connection between classroom instruction and what they do in the workplace. More curriculum integration needs to be done on both the secondary and postsecondary levels. WBL provides excellent opportunities for integration of academic and technical instruction, but integration strategies are also needed within the schools and community college.

- **Ensure on-going program evaluation and student outcomes assessment.** The consortium has conducted follow-up surveys of graduates and employers. Results from these data collection activities have been useful to program improvement, and they should be continued. At the same
time more systemic approaches are needed that can be used on a routine basis, including methods to monitor student competency attainment in academic and technical areas. Emphasis should be placed on getting evaluation results into routine feedback loops, so that program improvement can continue.
Suggested References


