

coursework, streamlined articulation processes and advanced learning summer bridge programs.

- In collaboration with Cleveland Scholarship Program, Inc., Gear Up and WVIZ/PBS, a consortium communication strategy was designed to reach potential Tech Prep students and their families. Targeted to urban 9th and 10th graders, web-based, print and video resources focus on career awareness in biotechnology, health and engineering. The enterprise has also connected the Consortium to a range of opportunities to interact with pre-school to middle school children.
- Professional development for high school and middle school counselors focused on pathway and industry information. School counselors offered positive evaluations and the program met a strategic plan milestone as well as grant goals.
- College faculty and high school mathematics teachers established an ongoing collaboration to align and enrich math instruction while providing the opportunity for Tech Prep high school students to earn college math credit.

Evaluation

Measurable gains in student enrollment, retention and achievement have been noted as a result of 35 completed grant activities.

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Increasing Awareness and Preparing Students for STEM Careers Using Data-Driven Systems Workforce Development Council

To increase awareness of the academic and technical preparation needed for careers in engineering, the Workforce Development Council created a multi-faceted system targeting students in grades 5-9. Engineering awareness activities such as Project REACH, Robotics Contests and Tech Camps create interest in STEM careers. Student data related to activity participation is linked with Tech Prep program enrollment, ACT COMPASS testing information and performance outcomes. The goal is to develop a data-driven system to prepare and encourage younger students to enroll in STEM careers.

Components

- Introduced students in grades 6-9 to the academic and technical preparation needed for careers in engineering.
- Implemented age-specific enhancement programs such as Project REACH, Tech Camps, Saturday Enrichment Programs and LEGO® Robotics Contests.
- Shared resources between middle, high school and college industrial arts and engineering programs.
- Used ACT COMPASS Placement testing as a basis for intervention strategies.
- Collected long-range data related to impact on student recruiting, enrollment, retention, transition and achievement in engineering fields.

Evaluation

- For 2005-2006, 2,965 sixth, seventh, eighth and ninth graders participated in a Tech Prep Awareness activity.
- Project REACH has expanded from four to 14 classrooms and will expand again next year.
- Tech Camps enrollment continues to grow each year. 2006 enrollment exceeds 100 6th, 7th and 8th graders.
- Saturday enrichment programs were held in February 2006.

- Nineteen teams with 95 6th, 7th and 8th students participated in an April 2006 LEGO® Robotics Contest.
- All entering Tech Prep sophomores take ACT COMPASS tests. Data is analyzed in relation to student success and professional development.
- Continue to collect data on all students who participate in awareness activities. Program enrollment data and success won't be available for several years when younger students are ready to enroll in Tech Prep.

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Engineering and Emerging Technologies West Central Ohio

Rural northwest Ohio students using two newly implemented instructional models in grades 8-12 have increased exposure and access to engineering pathways. Project Lead the Way (PLTW) and Ford Partnership for Advance Studies (PAS) provide curricula crosswalked to national standards as well as to the Ohio Graduation Test. Student college access has increased through a Memorandum of Understanding between Rhodes State College and Miller City High School. Students may earn up to 40 credits.

Components

- With close collaboration of high school and college faculty, PLTW curriculum is delivered by Rhodes State faculty in grades 11 and 12 at Miller City High School. PLTW enrollment has more than doubled for 2006-07 at Miller City High School.
- The Ford Partnership for Advanced Studies (PAS) program was piloted in 10th grade at Bath High School. Student projects will be featured at the National Ford PAS conference in June 2006 in Scottsdale, Arizona.
- Through this project, the Ford PAS curriculum was introduced to the Ohio Dept. of Career & Technical Education (CTAE) and has been incorporated into the manufacturing pathway document.
- In July 2006, Ohio will offer workshops on the first two Ford PAS curriculum modules, supported by the Ford Foundation and CTAE.
- Through a 2+2+2 partnership with Miami University, students who complete their associate's degree at Rhodes State can earn a bachelor's degree in electro-mechanical engineering by studying via interactive video/online courses at Rhodes State campus.
- Procter & Gamble female engineers participated in middle school summer camp career awareness programs.
- The "Jaguar Design Challenge" international competition was initiated to strengthen project-based learning and workplace skills. First year Ohio High Point students won state competition and advanced to national competition.
- Partnered with the Rhodes State College Knowledge Works Foundation Grant to initiate the West Central Ohio Advanced Manufacturing Consortium, expanding the number of employers involved with Tech Prep.
- Tech prep students are able to earn basic, intermediate and advanced manufacturing certifications for college credit

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OhioCollegeTechPrep

New Visions Demonstration Projects

College Tech Prep prepares students for high skill, high-demand technical careers required for an increasingly competitive global economy. Math, science and technology for Ohio are emphasized.

To increase student enrollment and support Ohio technology workforce development, competitive grants totaling \$1.5 million were awarded to Tech Prep consortia in 2004. Ten demonstration projects, fostering innovation and transformation of secondary and postsecondary education, have been implemented.

For more information about Ohio College Tech Prep: www.techprephio.org

Funding for the Tech Prep New Visions Demonstration Projects was supported by a FY04 grant (GRF 545) from the Ohio Department of Education, Office of Career-Technical and Adult Education

Making Achievement a Priority (MAP): A Middle School Intervention Program Akron Area College Tech Prep Consortium Stark County College Tech Prep Consortium

After-school learning activities and summer camps expose urban seventh and eighth grade students in 12 Stark and Summit Counties middle schools to Third Frontier/STEM careers and College Tech Prep. Students are motivated to develop a challenging academic plan to achieve success and reach their career goals.

Components

- Developed after-school curricula focused on career exploration, employability skills, and life skills. Programs run from October through April.
- Using Career Cruising software, students create personal portfolios to share with their parents.
- Career exploration is the focus of five-day summer camps held at Stark State College and the University of Akron.
- Students explore technical careers and education majors during field trips to area colleges and businesses.
- Parents actively participate at meetings held in each school district and summer camp.
- Presentations by area business professionals encourage students to Make Achievement a Priority.

Evaluation

This program has been very successful based upon:

- 100% matriculation into high school
- 90% bi-weekly attendance rate
- Final evaluation given at camp
- Attendance records from all MAP activities, including Parent Nights
- Career portfolios completed by all students
- Pre and post program surveys demonstrating significant change in student understanding about the connection of school to career choices
- Qualitative evaluations completed by student teachers and school liaisons

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Expanding Pathways to Accommodate Adults Clark State Tech Prep Consortium

The College Tech Prep Pathway model was expanded to accommodate students transitioning from adult and high school health programs to postsecondary options. It targets low-wage, under-employed, unemployed adults and secondary students at risk of not continuing their education. College Tech Prep curricula, articulation and scholarship opportunities are extended to all adult and secondary students through a modified pathway with multiple entrance/exit points and self-paced academic components. Sustainable regional partnerships among community and educational institutions have been created with a replicable model for recruiting and retaining adult students in this area.

Components

- Partnerships have formed with three career center adult education programs implementing the high school Tech Prep model.
- Articulation agreements enable adult students to earn college credits during the adult education portion of the pathway.

- Students can articulate to college programs in nursing, licensed practical nursing, physical therapy assisting, medical office and office technology.
- Clark State scholarships are earmarked for adult pathway students.
- Mentoring supports adult students in college transition steps.
- PLATO™ is used for remediation.
- Bridge to Poverty training is offered to teachers.

Evaluation

Three articulation agreements have been signed. Approximately eight-10 students are ready to begin the college portion of the pathway. Eight scholarship applications are being reviewed.

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Building A College Tech Prep Biotech Pathway Greater Cincinnati Tech Prep Consortium

Targeting under-represented and under-served students of the Greater Cincinnati area, the consortium developed a bioscience pathway to increase access to postsecondary programs in bioscience research and medical careers. A 2+2+3 pathway, leading to associate, baccalaureate and post-graduate degrees enables students to transition with advanced standing and/or credits to one of five southwestern Ohio colleges.

Components

- Eighteen college and high school instructors formed a community of learners to develop a College Tech Prep biotechnology pathway. This team has created the high school component, developed articulation agreements, identified essential materials, equipment and resources and infused college transition activities.
- This biotechnology curriculum has been aligned to the Ohio Academic Science Standards. At a February 2006, Bioscience Business Summit, employers assessed the model and shared guidance.
- Grades 11 and 12 biotechnology curriculum is aligned to the Ohio Academic Science Standards.
- A required materials and equipment list for this course has been developed.
- An articulation agreement from grade 12 to 13 is available for entrance into the University of Cincinnati.
- A web-based discussion board facilitates partner communication.
- A volunteer form was created to document and assess business commitment to this project.
- Employers convened for a February 2006 Biotechnology Business Summit to share employment trends and requirements. Omeris, Ohio's Bioscience Accelerator and Bio-Start, its regional agent, collaborated.
- A statewide meeting to share the biotechnology model was held in Columbus, June 2005

Evaluation

At the summit, business partners assessed this program and validated its content and skill sets. The curriculum has been implemented in four consortium schools.

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Expanding Support for Adult Learners in Nursing Kent Tech Prep Consortium

The LPN to RN career pathway offers opportunities to students in high school health technology programs, adult education programs and low-wage health care workers. The goal is to increase the number of licensed practical nurse graduates who pursue a registered nurse degree using the Tech Prep pathway model. LPNs complete RN programs at a rate of 90% compared to generic RN students with completion rates of 40-50%. Two successful national models were used to prepare disadvantaged students for the rigors of nursing education: Bridges Out of Poverty and Supplemental Instruction. Implementation has expanded access, retention, and graduation within nursing programs, increased the numbers of LPNs preparing for and intending to enroll in RN degree programs. A regional network of partners included Northeast Ohio (NEO) Health Force, Knowledge Works, The Hill Group, Inc., Kent State, Trumbull (TCTC) and Columbiana County Career Centers (CCCTC), Department of Job and Family Services and Adult Basic Literacy.

Components

- Bridges Out of Poverty curriculum is now integrated into the LPN curriculum.
- More than 122 secondary and postsecondary educators received Bridges Out of Poverty training. Students participated in weekly, guided group sessions throughout the school year.
- Supplemental Instruction™-- linked to college level chemistry provided structured peer support, intensive instruction and application of study strategies.
- Medication Math: provided math remediation prior to the start of the program.
- Personalized Career Guidance: Multiple points of entry and learning paths designed for individual success were developed based on relevant student assessment data.
- Postsecondary articulation agreements expanded through the Ohio Nursing Articulation Model (LPN to RN) and high school Tech Prep to LPN program at CCCTC.

Evaluation

- 80 new Adult Tech Prep students enrolled.
- 81 More LPN students are prepared to enroll in RN programs with less remediation.
- 100% of LPN students passed a college level Chemistry course taught by KSU professor with Supplemental Instruction™.
- Retention of LPN students increased. According to the Ohio Board of Nursing LPN program, retention rates average 61.44%.
- TCTC enrolled 52 LPN candidates in Sept 2005. 73% are preparing to graduate.
- CCCTC graduated 28 out of 32 LPN candidates for an 87.5% retention. Attrition due to academic issues and performance is extremely low due to supplemental instruction and tutoring.
- 25 of 28, or 89%, passed the NCLEX test.
- 18 of 28, or 64% had a GPA above 3.0.

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Systemic Change to Prepare Urban Students in Grades 7-10 for College Tech Prep Mahoning Area College Tech Prep Consortium

To attract and retain qualified urban students in College Tech Prep programs, the consortium and its partners created a

system to enhance academic skills essential for success in any College Tech Prep pathway. Integrated learning and counseling activities, uniquely suited to the needs of urban middle school students, shape a pipeline to College Tech Prep pathways in biotechnology, information technology, engineering and health technologies.

Components

- Grade compatible, project-based learning activities such as Lego Robolabs® and Kaufman Mini-Society were introduced into middle school curricula.
- Counseling and educational systems such as Self-Regulatory Learning (SRL), and Act's Educational Planning and Assessment System (EPAS) support student learning and social development.
- Enriched academic and social services were offered to a cohort of middle school and high school students. After-school, Saturday and summer academic enrichment programs strengthened math and language arts skills.
- Interaction was structured between high school College Tech Prep students and middle school students.
- Middle school, high school and university faculty aligned curriculum to address math and science content.
- Transition services were enhanced through partnerships with GEAR UP and Upward Bound.
- A multi-purpose instruction lab in math, science and technology was created in partnership with Youngstown's Early College Program.
- Professional development for educators emphasizes a train-the-trainer approach to maximize number of impacted educators.
- A College Tech Prep urban teacher preparation pathway for math, science and technology was piloted in the 2005-06 school year.

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MEtaMorph: 9th Grade Career Exploration Miami Valley Tech Prep Consortium

MEtaMorph helps students identify, research and analyze career possibilities related to individual and educational interests, skills and abilities. The program was created by English teachers, career guidance professionals and curriculum specialists. Seven web-based activity areas, developed for delivery in ninth grade English curriculum, include Ohio Graduation Test (OGT) English language arts standards of research, reading/ writing applications and critical thinking skills. Career exploration includes career interest, job opportunities, education and academic options including Tech Prep and planning for high school.

Components

- Comprehensive implementation manual with detailed lesson plans and rubrics for each program activity.
- best practice publication "MEtaMorph Executive Snapshot."
- pilot research report located at www.mvtechprep.org.
- full day professional training seminar.

Evaluation

MEtaMorph was piloted at nine area high schools. Research involving 362 ninth and tenth grade students revealed improved career decision-making and related educational planning skills and significantly higher levels of career awareness and educational planning among ninth graders

receiving the program compared to tenth graders who did not receive the program. The complete study is available at www.mvtechprep.

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College Now Engineering Academy North Central Tech Prep Consortium

The College-NOW Engineering Academy targets underrepresented and nontraditional secondary students for a concurrent program that culminates with high school graduation and attainment of an associate degree. Curriculum is developed and implemented as an integrated part of a problem-based case study experience. A comprehensive series of courses is offered to high school juniors and seniors who receive instruction primarily on the North Central State College campus, earning dual credit in high school and college units. State-wide implementation of the model promotes dual credit options enabling students to simultaneously earn college and high school credit.

Components

- Grades 11-14 integrated curricula with students remaining in a two-year cohort group.
- Curricula based on inquiry/problem based instructional format with embedded academic and technical competencies.
- Academic credit based on standards/competencies as opposed to instructional time. Short cycle assessment process is developed and implemented.
- Partnerships with Business/Industry to implement problem-based instruction grounded in current realities of business/industry. Developed Memorandum of Understanding to guide collaboration.
- Sharing with colleagues through state-wide College-Now Conference and problem-based instructional strategies workshops.
- Awarded grant from the Fund for Innovation in Postsecondary Education (FIPSE).
- Developed trademarked name and logo

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Strengthening Biotechnology, Engineering and Health Technologies Pathways North Coast Tech Prep Consortium

To prepare urban and suburban Cleveland students for careers in biotechnology, engineering and health, the consortium implemented a multi-faceted strategy focused on student enrollment, transition and academic achievement.

Components

- College and high school faculty established highly interactive pathway work teams. Distance learning, dual credit and contextual, project-based learning curricula were embedded into the project design.
- Work group interaction exceeded consortium expectations. Groups disseminated processes and materials, identified professional development priorities and resources and lead pathway development design processes.
- Tech Prep senior students realized expanded opportunities to take college coursework and earn additional college credits through aligned