

**Case Study Report
St. Louis Community College
College and Careers Transition Initiative
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Introduction

The College and Careers Transition Initiative (CCTI) in St. Louis has targeted the Project Lead the Way (PTLW) curriculum as the centerpiece of curricular reform in the SMET career pathway area. Drawing upon previous work between St. Louis Community College, regional high schools, and vocational districts and schools educators are committed to the implementing PTLW and administering and sustaining the effort through a new Academy of Engineering Technology.

St. Louis Community College

In the state of Missouri, St. Louis Community College (SLCC) is one of two urban, multi-campus districts and a total of 13 community colleges. SLCC is the largest community college system in Missouri and one of the largest in the United States. The College serves an area of approximately 700 square miles including the City of St. Louis, St. Louis County and portions of Jefferson and Franklin counties, with a population totaling about 2 million. The District was established on April 3, 1962 as the Junior College District of St. Louis-St. Louis County with a name change to St. Louis Community College in 1976. At the time a \$47.2 million bond issue was approved in 1965, it was the largest in the history of junior colleges nationally.

The mission of St. Louis Community College is

St. Louis Community College is an institution of teaching and learning that provides its constituents and community comprehensive postsecondary programs and services that are academically, geographically and financially accessible. To this end, the College assumes responsibility and leadership in responding to the multiple educational and training needs of its diverse community and is committed to delivery of high quality instruction and support programs to the broad range of students who are qualified and who can benefit from the instruction. The College will seek to achieve this mission within the limits of its legal and fiscal capabilities.

St. Louis Community College (SLCC) has three campuses, Florissant Valley, Forest Park and Meramec, reflecting their urban and suburban communities. Each campus offers a comprehensive curriculum for freshman and sophomore level college students, including transfer, career, and developmental education. The District also offers credit and non-credit continuing education and workforce development programs on the main campuses and at over 50 sites in the community, including four strategically located education centers. A newly relocated South County Education Center opened in fall 2004 as a state-of-the-art education site and a University Center.

SLCC enrolls more than 135,000 credit and non-credit students annually with a fall semester 2002 enrollment of about 28,000. Students can enroll in a college-transfer program with 10 options and over 90 career degrees or certificates encompassing virtually all career clusters. Approximately 2,000 Associate degrees and certificates are awarded annually. In fact, SLCC ranks in the top 15 districts in the United States in the number of graduates and in the top 10 associate degree-producing institutions.

The current Chancellor is Dr. Henry Shannon, was appointed in January, 2000. His commitment to students is apparent in his career-long commitment to students and student services. His staff described him as keenly interested in students, and his enthusiasm for what CCTI could do for students was highly visible. He noted that CCTI would enable SLCC to enhance its programs, offering “a long term solution to help remediate students and offer advice and support to high school partners”. Viewing CCTI as a tool in a student services toolbox, Dr. Shannon talked about CCTI has another way to meet student’s needs, along side programs such as Upward Bound, Talent Search, and Gear Up. He added, “CCTI will expand the pool to touch more students.”

The CCTI Partners

Primary leadership for the CCTI project comes from the Florissant Valley campus that serves about 10,000 students annually. President Marcia Pfeiffer, SMET Dean Sarah Perkins, Steve Long, and Ashok Agrawal form a cohesive leadership team at SLCC, Florissant Valley for the CCTI project. The campus is recognized within SLCC for its leadership in engineering and technology, chemical technology, and bio-technology, with mechanical and electronics technology programs accredited by ABET. Several NSF grants are associated with the technical curricula, recognizing the campus’ quality offerings and bring visibility the curricula. The campus houses an Advanced Manufacturing Center, one of three Centers of Excellence designated in the District by the Regional Technical Education Council established under Missouri’s Plan for Post-Secondary Technical Education. In February 2003, the campus broke ground on a \$5.0 million facility to house the Advanced Manufacturing Center. As the project brings on high schools in the South St. Louis County area, the Meramec campus will be involved in the CCTI project.

The SLCC service area encompasses 26 secondary school districts with a total of 52 high schools serving about 55,000 students in grades 9-12. The 26 districts are comprised of the St. Louis Public School District, 24 school districts in St. Louis County (36 high schools serving about 45,500 students), and one school district in an outlying county with one high school serving about 1000 students. Most of these comprehensive high schools offer career-technical programs, but the Special School District of St. Louis County also operates two vocational high schools offering special education services. Students from throughout the district can attend these vocational schools on a half-day or full-day basis, with about 700 students electing to do so on an annual basis.

In 1999 the 24 school districts in St. Louis County reached a settlement agreement with the federal government and the plaintiffs to establish the St. Louis Metropolitan Vocational Technical Cooperative (MVTC) to oversee delivery of technical education in St. Louis City and

County. The MVTC plans, coordinates and monitors secondary career-technical programs and promotes systemic change in the curriculum and delivery of instruction, and various transition initiatives involving SLCC and secondary schools. The MVTC was instrumental in decision to adopt the Project Lead the Way (PLTW) curriculum, which led to the Academy of Engineering Technology (AET). MVTC's Executive Director, Paul MacKay, serves as the primary liaison to the participating secondary schools.

The St. Louis Area Tech Prep Consortium, administered by the SLCC, is another partner and member of the Academy for Technology Education advisory committee. The Consortium includes 23 school districts that sign a consortium agreement, each having a Tech Prep Coordinator. SLCC has released a full time faculty member to serve as the College Tech Prep Coordinator and lead the Consortium. Over 300 separate course articulation agreements offering deferred credit have been approved between participating high schools and SLCC. Students must enroll at SLCC and complete six semester hours, reduced from 15 credits when tech prep began, to have their high school articulated credits transcribed, therefore this tech prep initiative is not dual credit. For the Spring semester of 2002 there were approximately 5800 students who successfully completed an articulated course at the high school level and submitted an articulation "contract" to the College. In Spring 2003 540 students attending the College had completed articulated courses. Tech prep activities include career fairs, counselor workshops, applied academic training, career and technical education. Twenty-three of twenty-six secondary schools in the region are members of the St. Louis Tech Prep Consortium. Since the goals of CCTI, the AET and the SL Tech Prep Consortium are fairly well aligned, there is much overlap in the membership and activities of these initiatives. Meetings of the TP consortium are held on a regular basis to plan curriculum, instruction and staff development activities, with the College having responsibility for reporting to the state. awareness, academic- technical integration and staff development. SLCC also serves as the administrator for the St. Louis Area Construction Tech Prep Consortium that links registered apprenticeship programs to education.

Five St. Louis County School Districts, including seven comprehensive high schools, are partners in the Academy of Engineering Technology. Five high schools are located predominantly in north St. Louis county: Hazelwood East, Hazelwood West, Hazelwood Central, Pattonville and Riverview Gardens; one high school is in the central county corridor (Clayton) and one is in the south (Lindbergh).

The primary business partner is the St. Louis County Economic Development Council whose mission is job creation, business growth, industry diversification, and strategic redevelopment for 36,000 businesses. The Assistant Vice-President for Business Development represents the Council on the Academy advisory committee and the CCTI partnership team. Another key business partner is the Society of Manufacturing Engineers (SME), a long-time partner to SLCC. Business supporters include Mallinckrodt/Tyco Inc., Boeing, Engineered Support Systems, and GKN Industries.

The PLTW Industry Advisory Council has moved aggressively during the first year of the project to establish a work plan and goals including adding a week of training to the required PLTW training to address business issues beyond the scope of the PLTW curriculum. A focus

group of industry representatives and teachers is scheduled to meet in May 2004 to outline this training. Mentorships between schools and employers are being formed. Several additional members have been added to the council in the past few months. Since CCTI and PLTW are so closely related in St. Louis, this group functionally serves as advisory to CCTI as well as PLTW.

The CCTI Project

A few years ago, in response to local school districts' requests for greater access to career-technical education in home high schools, career academies were introduced. Envisioned for three different clusters of schools, information technology (IT) was introduced in the southern corridor, engineering technology (ET) was associated with the northern corridor, and life sciences was planned for the central corridor. Although targeted to different regions of the district, the career academies were envisioned to be open to any high school.

Project Lead the Way (PLTW), a not for profit corporation, was identified as a way to begin the ET career academy especially quickly. PLTW is a national network of over 500 educational institutions all offering the PLTW curriculum according to established standards. Purdue University and Rochester Institute of Technology offer articulated credit under a national agreement with PLTW Inc. so that high school students can acquire college credits for their high-school level PLTW courses. For additional information on PLTW, see www.ptlw.org.

PLTW was selected for the St. Louis high schools because of its 4-year high school course of study including an emphasis on college prep math and science that fits well with the area's desire to increase access to career-technical education (CTE) and offer a more academically rigorous option in the CTE curriculum. Parents were expected to appreciate this program because of its emphasis on articulation and transfer to college, and school leaders who were not strong advocates of CTE because of its terminal focus were thought to more readily support the career academy concept. To initiate the PLTW project, the MVTC met with high schools that were interested, and SLCC was involved through a proposed articulation agreement that recognized the potential of having students take junior and senior level PLTW courses on campus using equipment and connecting with SLCC faculty.

In February 2003 SLCC hosted a counselor's workshop for PLTW; in June 2003 SLCC signed the master agreement with PLTW to begin offering courses on campus in fall 2003. The St. Louis Metropolitan Vocational Technical Cooperative is the governing body over the AET sites. The board and its duties were established by the Missouri legislature as written and passed through the Revised Statutes of the State of Missouri, section 178.490. The board consists of three St. Louis County School District Superintendents, the superintendent of the special School District, the superintendent of the St. Louis Public Schools, a vocational technical educator specialist appointed by the St. Louis Public School Board, and a representative of the Desegregation plaintiffs/NAACP. The board employs an executive director as the chief operating officer of the Cooperative. The MVTC is invited to be part of the St. Louis Tech Prep Consortium advisory board. The County superintendents serve three year rotating terms, providing a link between the secondary schools and the MVTC. The Special School District Governing Council, made up of school board members from the 23 county school districts, appoints the board.

By signing the PLTW agreements, either as individual schools or through a joinder agreement with the community college, schools agree to conduct the programs and deliver the curriculum according to the PLTW standards and requirements. Secondary schools offer five PLTW course work (12 credit hours) articulated with SLCC. These articulation agreements are scheduled to be finalized by December 31, 2004 so they can be effective for the first cohort of students graduating in the Spring of 2005. Instruction will be provided either at the SLCC Florissant Valley campus or in the high schools. Articulation agreements with the local schools will also be completed by December 31, 2004. Dual credit agreements will be executed on an individual school basis. Although a firm schedule has not been established for dual credit agreements, it is anticipated that they will follow closely behind the articulation agreements. There is a brief Memorandum of Understanding (MOU) that participating schools sign that indicates their willingness to cooperate. For the 2003-2004 school year districts and SLCC have agreements with PLTW that address the use of curriculum, adherence to standards, use of the PLTW name and other related issues. For the 2004-2005 school year SLCC intends to sign a master agreement with PLTW and the local secondary districts will become “joinders” under the master agreement.

Early in 2003, the Missouri Department of Education signed on to PLTW, with the state supervisor of Industrial Technology being named the state liaison to PLTW. Accordingly, PLTW may become one option in the state’s re-design of Industrial Technology, and the state supervisor is on the AET advisory committee. PLTW has been well received and discussions are continuing about AET’s eligibility as a vocational program under the current state plan and flexible teacher certification requirements for teachers. The PLTW curriculum is aligned with the Missouri Show Me standards (insert website), and with standards of the National Council of Teachers of Mathematics (NCTM) and the National Council of Teachers of Science (NCTS). The Academy is also supported by the Society of Manufacturing Engineers (SME).

Each PLTW course requires a specific two-week teacher training event, usually held during the summer. The joint secondary/post-secondary sessions feature curriculum development, academic-technical integration, and intervention strategies designed around the CCTI outcomes. A network of recognized state and national consultants will be used primarily relying on the technical assistance network created by the League office. Since Missouri has recently become a “High School that Works” state it will incorporate technical assistance available through HSTW. Additional staff development complimentary to PLTW is supported by institutional staff development funds and Perkins staff development funding. PLTW instructors are encouraged to participate in applied academics training and other staff development opportunities through the Tech Prep consortium.

The CCTI project is intended to gain greater depth in the development of a coherent sequence of academic and technical courses. Those courses combined with joint secondary and postsecondary collaboration insures that students progress both technically and academically. The College and MVTC strive to transfer what has been learned about strategies and organizational models piloted under CCTI to other career academy initiatives.

A number of existing Tech Prep articulation agreements already exist that support the AET and more will be developed as the project progresses. SLCC has not historically been heavily involved in dual credit. However, dual credit guidelines have recently been established – can we get a copy of these? and it is anticipated that it will be a key component of the AET curriculum.

Organization and Governance

The Executive Director of the MVTC chairs an implementation committee for the Academy comprised of representatives of all the schools. The Academy schools that participate in CCTI also participate in a CCTI implementation group chaired by the CCTI Project Director. There is 100% overlap in the membership of these two committees although they have not formally been merged because schools may be added to the Academy in the future, and it is unclear as to whether they will be added to CCTI. The St. Louis Area Tech Prep Consortium is represented on both the Academy and CCTI implementation teams by the Tech Prep Director, but there are no formal institutional agreements between Tech Prep, CCTI or the Academy. There are two high school representatives, as well as the MVTC Executive Director, who serve on the Academy and CCTI implementation committees and the CCTI Site Partnership Team. Some members of the AET and CCTI committees are also on the Tech Prep Advisory Committee.

The CCTI is organized and managed on several levels. Local districts operate programs and these programs are represented in the Academy for Engineering Technology (AET), which provides the governing body for the CCTI. The AET partners meet monthly to discuss issues and plans for future progress. Representatives to the AET steering committee include secondary school leaders (superintendents, assistant superintendents, principals) as well as representatives of SLCC and MVTC. Business partners are also included in the AET. As a result of the CCTI grant, meetings are planned between senior SLCC and school district leadership to discuss an enhanced level of interaction, with regular meetings of the entire group planned to discuss a variety of implementation issues. This group currently meets monthly with special meetings (example: a joint meeting with the Tech Prep consortium) as needed.

Leadership and Partnerships

College officials and faculty play a key leadership role in this CCTI partnership, starting with Chancellor Henry Shannon. President Marcia Pfeiffer and SMET Dean Sarah Perkins on the SLCC-Florissant Valley campus have committed support and resources to ensure their people have what is needed to carry out the project. Steve Long and Ashok Agrawal co-direct the project, working together closely to shape the college's involvement with the secondary school and industry partners. Exemplary of the top level support for CCTI in St. Louis, at the time of my visit members of the SLCC team had just presented information about the project to the college's board of trustees and a group of business leaders. Also, the *St. Louis Business Journal* had published information about the project, and featured it in a recent issue. Steve Long characterized leadership support for the project as outstanding, commenting "there's a lot of commitment from upper leadership. Involvement from top leaders brings integration of the project because of their 'big picture' view."

Leaders involved in the project were quite clear about their desire to contrast CCTI with vocational education or career-technical education that is closely affiliated with special education in the region, and also with tech prep. Steve Long described CCTI as “tech prep on steroids”, noting many local educators may see tech prep as “too far gone here”. In contrast, he sees CCTI as “a lot of what tech rep was originally supposed to be, but didn’t come to fruition”. For local leaders, CCTI represents the opportunity to establish solid relationships between high schools and SLCC by setting high expectations for rigorous course work. CCTI would no longer be for “those kids” or a way to “pigeonhole students who can’t perform in school.” Part of the plan is to create dual credit agreements where articulation agreements existed previously to offer deferred credit for up to six hours only. By starting with small-scale successful programs located in a few schools and expanding to more schools, Steve Long believes CCTI has the “best chance” for any new CTE-related initiative of being successful. He believes that CCTI differs from the traditional CTE model by creating an equal emphasis on academic preparation that supports both the technical program and readiness for college. It differs from the Tech Prep model in creating strong career pathways from grades 9 through 14 and beyond in a coherent sequence of courses emphasizing both academic and technical preparation. This model contrast with Tech Prep that is characterized locally by a menu of course-to-course articulations).

Speaking to the issue of strengthening education for all students, President Pfeiffer thought that the CCTI partnership provided a means to enhance student access and student. She said, “I don’t think you can be at a community college and not be committed to access. That’s what we are about. We are the entry point [to college] for most kids who can’t afford it, and many can’t afford it from the perspective of academic preparedness. We have to continue strong relationships with high schools. Our primary focus on success starts with these schools. We won’t survive if we don’t have good relationships. Their students are our future, but so are their parents and younger brothers and sisters.”

CCTI Project Plans

To reduce the need for remediation, SLCC is developing collaborative relationships between and among educators at the secondary and postsecondary levels. Activities associated with this strategy are to identify instructional leaders at each site; establish communications methods for AET participants including regularly-scheduled meetings and electronic media; organize and conduct a joint secondary/post-secondary training session for site leaders focused on CCTI goals and outcomes, remediation issues and intervention strategies; and identify and follow-up faculty on staff development opportunities.

The CCTI initiative also intends to identify specific academic deficiencies that result in the need for postsecondary remediation. This strategy will be addressed by administering either the College’s Accuplacer test or by the districts giving a series of ACT assessment tests culminating with the ACT College placement test in the Junior year. Academy participants at the beginning of the school year to establish baseline skills, and compiling data for each CCTI site/class year. Integrated academic and technical instruction represents another approach to remediating academic deficiencies, including identifying and prioritizing major academic deficiencies, identifying integration strategies to be employed, and implementing instructional plans to schedule specific interventions at each site.

Finally, with respect to remediation, the plan includes measuring the effectiveness of instructional strategies in improving student's skills. This assessment will be accomplished by administering either the Accuplacer or ACT series at the end of the school year to assess improvement in student skills from the beginning to the end of the academic year, conducting faculty and student evaluations of instructional strategies for purposes of modifying instructional plans for the upcoming school year. Once deficiencies are identified, secondary technical and academic teachers at each site will coordinate instructional plans to make sure that similar topics are covered at the same time for maximum reinforcement. Assessments will be developed mutually to provide a continuous feedback loop to both academic and technical instructors concerning the effectiveness of those joint efforts.

To increase enrollment and persistence, collaborative relationships that are being built between and among educators at the secondary and postsecondary levels will provide a foundation for identifying instructional leaders at each site to coordinate CCTI initiatives, establishing communications methods for Academy participants including regularly-scheduled meetings and conducting joint secondary, postsecondary training sessions for identified instructional leaders focused on intervention strategies addressing postsecondary enrollment and persistence.

Looking specifically at the postsecondary Engineering Technology program, SLCC intends to survey site partners as to their knowledge of advising students to transition to postsecondary education, review existing institutional and national research data on barriers to enrollment and persistence, survey existing students in Engineering Technology to identify significant barriers to enrollment and retention, and compile results that identify barriers that need to be addressed. This is a multi-year effort. The first year will be focused on surveying our site partners and reviewing existing research data.

Based upon the identified barriers, design interventions to maximize enrollment and persistence in post-secondary education. These interventions (e.g., small learning communities for support and industry mentorships) will also be based on a review best practices of exemplary high school sites with successful transition strategies and outcomes. A system of intermediate completion certificates leading to an AAS will be associated with successful completion of academic milestones. These certificates are intended to help motivate high school students to enroll and persist at the postsecondary level. The certificates will include a short-term postsecondary certificate program for the Academy curriculum and a series of short-term certificates for the AAS program.

Other strategies to encourage enrollment and persistence include developing articulation/dual credit arrangements for the AET and the postsecondary Engineering Technology programs by developing College courses to mirror Academy courses in anticipation of dual credit offerings, finalizing articulation agreement between Academy sites and the St. Louis Community College, and developing AAS to BS articulation programs in Engineering Technology. The partnership also intends to increase the number of partner schools in the Academy by identifying potential schools likely to participate, and doing presentations of information to school leadership. A last strategy is to increase the number of students enrolling in the Academy by developing marketing strategies and materials targeted to parents, students and teachers, identifying strategies and develop materials to recruit nontraditional students to the Academy, disseminating information at

appropriate school meetings and community activities with particular emphasis on teachers, counselors, and post-secondary advisers, and making joint presentations with business partners.

To improve academic and skill achievement, the SLCC partnership intends to develop collaborative relationships between and among educators at the secondary and postsecondary levels to improve academic and skill achievement. This strategy will be accomplished by identifying instructional leaders at each site to coordinate various CCTI initiatives, establish communications methods for Academy participants including holding regularly scheduled meetings and using electronic media, and conduct a joint secondary/postsecondary training session for instructional leaders on intervention strategies addressing academic and skill achievement.

Another strategy for improving academic and skill achievement is to provide opportunities for academic and technical teachers to integrate instruction and assessment including training teachers on integration strategies and assessment, implementing integrated instructional activities, and assessing learners' academic and skill achievement.

Parents & students are seen as a vital part of the SLCC plan in that they will be engaged in discussions with secondary and postsecondary instructional staff and guidance counselors to monitor learners' academic gain and career plans. To carry out this strategy, the partnership will host a conference focused on guidance activities for teachers, counselors and post-secondary advisers, and develop and conduct sessions for parents.

Lastly with respect to academic and skill achievement, the partnership plans to develop a structured system of extra help to assist students in meeting higher standards. This system will come about by surveying partner schools for availability of extra help, identifying indicators for students who may need extra help, developing individual study plan to remediate student's deficiencies, and sharing plan with students, parents and Academy instructors.

To increase the number of degrees and certificates, the partnership intends to develop collaborative relationships between and among educators at the secondary and postsecondary levels, identifying instructional leaders at each site to coordinate CCTI initiatives and establishing communications methods for Academy participants including regularly scheduled meetings and electronic media.

A second strategy geared toward increasing degrees and certificates is to develop a system of intermediate completion certificates leading to an AAS degree that motivates students to enroll and persist at the college level. This strategy will be accomplished by conducting a joint secondary/postsecondary training session for identified instructional leaders focused on increasing the number of postsecondary degrees, certificates, and licensures. A short-term post-secondary certificate program will be established for the Academy curriculum, and a series of short-term certificates will be created.

To improve entry into work or further education, the CCTI partnership plans to develop collaborative relationships between and among educators at the secondary and postsecondary

levels focused on improving entry into the employment and/or further education. The instructional leaders at each site will establish communications methods for Academy participants including regularly-scheduled meetings and electronic media, and they will be engaged in a joint secondary/postsecondary training session focused on improving entry into the employment and/or further education.

The CCTI partnership will also expand industry buy-in and involvement in the Academy of Engineering Technology by organizing a series of informational meetings for industry, especially emphasizing engineering-related industry and businesses. Further, the Industry Partnership Team for the Academy of Engineering Technology will be expanded, and an industry mentor program will be developed. Each site partner will be connected to at least one industry mentor, and an Industry Day will be planned so students can spend time with their mentors in the workplace. Business and industry-related information will be provided to all students involved in the Academy.

Other goals relative to this outcome include ensuring that students are better informed of employment opportunities and employer expectations, and increase financial support for them to pursue further education. Workshops on financing higher education are planned for Academy for Engineering Technology students and parents. An Academy of Engineering Technology Scholars program is being considered to match exemplary students with Industry sponsors for financial assistance and career development.

Evaluation of the CCTI Project

All secondary students have participated in the Missouri Assessment Program (MAP) that assesses student performance against State standards for a different subject each year during high school. This data is available and will be reviewed. PLTW students have not been subjected to any assessments targeted specifically to them by the Academy. The MAP scores do not serve as a predictor of student success at the post-secondary level (defined as a reduced need for remediation).

Additional assessments are planned to provide more diagnostic data on students to identify the need for extra help. A major impact of CCTI on the Academy project is in the area of assessment and data collection. The issue of student assessment, data collection and the use of data will be one of the first areas of discussion as we move in to the new school year. At the request of several local high schools, the College administered the Accuplacer placement test to their students, usually in the junior year and shared this information with the schools to provide an “early warning” of students potential problems at the post-secondary level.

Currently, schools are planning to implement one of two options to identify students who may need extra help. Schools can give a series of ACT products (“Explore” in the 8th grade, “Plan” in the 10th grade and the ACT placement test in the 11th grade) that will predict ACT scores. Adequate scores on the ACT placement tests are used by the College to “waive” the normal college placement test and move on to college level work. Option 2 is to administer the College placement test (Accuplacer) at each grade level.