



Designing Pathway Programs of Study That Join Rigorous Career/Technical Studies With a College-Ready Core

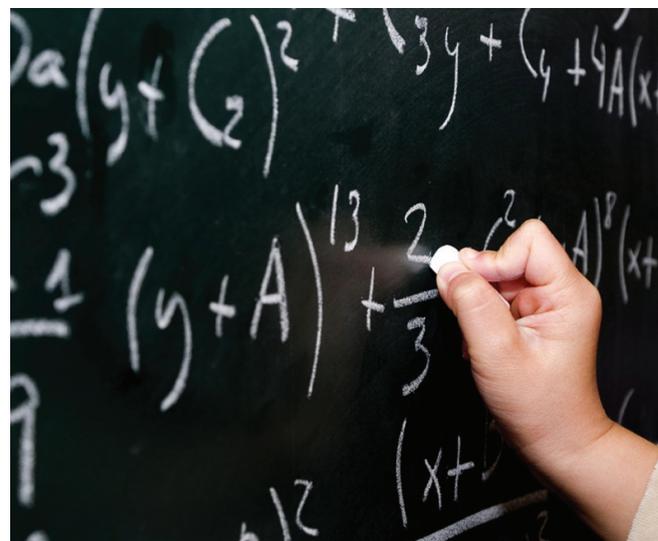
SREB

Conscientious, informed school leaders and teachers are increasingly focused on the need to prepare all students for postsecondary education and careers. They are paying heed to worldwide economic trends, to students' interests and learning styles, and to the needs of local business and industry for qualified employees. Many high schools are restructuring around career academies that require students to know reading, writing and mathematics as well as career/technical (CT) content. Home schools are joining hands with CT centers to provide students a sequence of rigorous academic courses in their chosen career fields of study.

Improve the Quality of Career/Technical Instruction and Design Courses to Raise Student Achievement and Readiness for Postsecondary Studies and Careers

Preparing for the 21st Century: Making High School Matter

High schools can become more meaningful by changing the focus from “college for all” to “careers for all,” according to **James Stone**, professor and director of the **National Research Center for Career and Technical Education** at the University of Louisville in Kentucky. He is co-author of a new book, *College and Career Ready in the 21st Century: Making High School Matter*, describing how schools can prepare young people for both the workplace and postsecondary education.



A P R I L
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The Labor Market Is Changing

“The rhetoric says that the United States is losing its long-term global economic leadership,” Stone said. “The evidence points to other countries producing more engineers than our nation. Others refer to the low performance of American students in math and science, compared with young people in other industrialized countries. Authorities tell us that we need to double the number of bachelor’s degrees awarded by 2015 and make STEM (science, technology, engineering and math) education a priority.”

However, Stone suggested the United States is at a break-even point in the number of STEM bachelor’s, master’s and doctoral degrees awarded and the demand for jobs. “Science and engineering occupations will make up about 5.3 percent of all workers by 2018, according to a 2007 Urban Institute study, and will make up 6 percent of jobs in 2018, based on the 2010 Carnevale study,” Stone said.

The Real World of Work

Stone discussed three major assumptions about the emerging work world and gave his responses:

Assumption 1: More postsecondary degrees are needed. “The percentages can be high in certain occupations, but the numbers may actually be small,” Stone said.

Assumption 2: More education equals higher salaries. Stone points out that 43 percent of individuals with licenses and certificates earn more than those with associate’s degrees; 27 percent earn more than those with bachelor’s degrees, and 31 percent of individuals with associate’s degrees earn more than those with bachelor’s degrees. “Middle-skill credentials

pay off,” Stone said. “Many high-paying jobs require only a modest investment.” In *The 300 Best Jobs That Don’t Require a Four-Year Degree*, the Bureau of Labor Statistics identifies many jobs in health care, sales, construction and the service industry that pay more than \$50,000 annually and require less than a baccalaureate degree to enter. Given the rising cost of higher education and growing student debt, the opportunities in the middle-skill labor market argue for rethinking our assumptions about these jobs and the foundation we provide to students, he added.

Assumption 3: Technology is changing the workplace in ways we do not fully understand. Computers perform complex communication and other tasks that are transforming employment and the economy. Examples include voice recognition tools, automated call centers, self-driving cars (“Google cars”), linguistic translators and text readers. On the other hand, Stone referred to the “human advantage” of having workers with soft skills, entrepreneurial skills, problem-solving skills and creativity. “This human advantage needs to be enhanced by preparing students to be college and career ready,” Stone said.

In 2012 the Pew Research Center reported in *Coming of Age, Slowly, in a Tough Economy* that only 54.3 percent of those ages 18 to 24 were employed in 2011, compared with 62.4 percent in 2007 — a large decrease. “The employment-to-population ratio for young adults is the lowest since 1948,” Stone said. “This issue is critical because of lower lifetime earnings, the increasing risk that this age group will never engage in full-time employment and the social and emotional costs and potential for societal conflicts, such as the demonstrations in Spain in June 2012.”

Thirty Years of School Reform

“Since the mid-1980s, states have added a full year of core academics to high school graduation requirements,” Stone said. “However, NAEP reading, science and mathematics scores are relatively unchanged.¹ Harvard data in 2008 showed that only 40 percent of 27-year-olds had earned an associate’s degree or higher. Thus, for the sake of the 60 percent, high school graduation must be something of value, not just the next middle grades school or simply a stop on the way to the next education level.”

College and Career Readiness

As college and career readiness has become the focus of education reform, there are many definitions, most of which focus on college readiness with little attention paid to career readiness, Stone said. Also, diverging opinions exist on whether the nation has too many or too few college graduates. The cost of college with resulting student debt should give thoughtful pause to students, their parents and policy-makers, Stone argued. He suggests two key questions that should drive thinking about what college and career readiness actually means.

Question 1: What is the appropriate mix of academic, occupational and technical skills required for the emerging labor market? “The appropriate mix includes academic skills such as mathematics, science and communication; job-specific technical skills valued by employers; and occupational or employability skills such as soft skills and 21st-century skills,” Stone said.

Question 2: How can schools help students develop those skills? “Career/technical education offers three critical pedagogies,” Stone said. “They are the application of academic knowledge to solve work-based problems in the classroom, robust work-based learning opportunities and engaging all career/tech students in career/tech student organizations. **Not only will these three things build the skills needed by all young people to be college and career ready; they will also increase the odds of high school completion — a necessary first condition to achieving college and career readiness.** In addition, research shows that career/technical education helps boys, in particular, to ‘survive’ high school. Given that boys are less likely to finish high school, go to college, complete college or move on to graduate school, this is an enormous problem.”

Future High-Quality CTE

Stone envisions future high-quality career/technical education (CTE) in which world-class teachers deliver a world-class curriculum. “Classroom instruction will be contextualized, filled with project-based learning and containing a variety of work-based learning experiences,” he said. “Students will have access to student organizations that provide leadership development as well as service and social engagement opportunities. Career/tech teachers will be supported by professional development, and career/tech programs will provide all students with links to industry credentials and dual enrollment and will incorporate entrepreneurship.”

Stone named *High Schools That Work (HSTW)* as an example of a school improvement initiative containing critical components required for rigorous CTE. Specifically, he identified components of SREB’s *Preparation for Tomorrow* initiative that support his vision for CTE: a focused curriculum that includes four career/technical courses; pedagogies that include project-based learning; authentic projects; and a focus on high-demand, high-wage fields that incorporate college- and career-readiness standards.

“The high school experience is our last publicly funded opportunity to prepare young people to become successful adults,” Stone concluded. “After this, it costs students, their parents and society to provide the skills so easily incorporated into high school — and the costs are increasing dramatically. CTE is a smart investment for local school boards so more students have access to rigorous programs of study.”

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¹ National Assessment of Educational Progress (NAEP) reading and science scores declined significantly if you restrict the comparison to 1990 and 2004, the period during which the greatest increase in graduation requirements was seen.

Career Pathways for Success: Redesigning Career/Technical Programs With ‘Signature Features’

The lessons learned in *HSTW* over two and-a-half decades have helped school leaders and teachers to create programs of career/technical (CT) studies that are intellectually engaging and linked to broader high school reform. “*High Schools That Work* has experience with thousands of career/tech programs nationwide,” said **Gene Bottoms**, SREB senior vice president. “In doing so, we have identified key conditions for successful, rigorous career/tech education.”

What are the signature features of a redesigned high school CT program? Students in such programs are given well-developed assignments that require completion of eight tasks:

1. Develop a logical argument for a solution to a problem or project.
2. Make inferences from information provided to develop a solution for a problem or project.
3. Use mathematics to solve complex problems related to completing an authentic project.
4. Apply academic knowledge and skills to CT areas.
5. Apply technical knowledge and skills to complete real-world assignments.
6. Develop and test hypotheses in seeking options for solving problems.
7. Complete an extended project that requires planning, developing a solution or product, and presenting the results orally and in writing.
8. Predict outcomes based on observations or information provided.

Bottoms outlined six conditions for redesigning existing CT programs to provide a rigorous framework for learning:

1. A rigorous CT program should be linked to the labor demands of high-skill, high-wage jobs. Bottoms gave examples of such programs, including automated joining technologies, renewable energy technologies and aerospace engineering.
2. A rigorous CT program represents a pathway to several postsecondary options, including employer certification and a recognized credential and/or advanced training that leads to an associate’s or a baccalaureate degree. “Employers and higher education leaders should be part of the team that redesigns courses,” Bottoms said.
3. Courses should be built around authentic projects that require students to use common core literacy and mathematics, National Science Education standards, technical standards, and 21st-century skills to complete.
4. The program should be aligned with a college-ready academic core that includes English/language arts, mathematics, science and in some cases social studies.
5. The program should include strong guidance and advisement with support for all students. Students should review a four-year education plan at least annually with their parents, school counselors and/or advisers. Teachers should strongly encourage students to take challenging academic courses.
6. All courses, including CT courses, should provide rich literacy experiences based on common core literacy standards. Students should experience a balanced instructional approach in mastering essential common core mathematics standards that result in students using the procedures, understanding and reasoning skills through applications that will enable them to succeed in careers and/or further study.

“Career/tech teachers in redesigned programs need to be open to change and perceived as leaders by other teachers,” Bottoms said. “They should be experienced, with a solid base of academic and technical skills. They should be recognized as exceptional teachers.”

Bottoms outlined seven steps for redesigning career/technical programs:

Step 1 — Establish the broad scope and sequence of the four courses. Identify the career area’s broad technical strands. Include big ideas and major content topics.

Step 2 — Write project descriptions focused on the broad technical content strands. Include technical prompts, reading and writing prompts, science prompts, and mathematics prompts.

Step 3 — Identify enduring technical and academic learning concepts. What do you want students to leave this project understanding?



A rigorous CT program represents a pathway to several postsecondary options, including employer certification and a recognized credential and/or advanced training leading to an associate’s or a baccalaureate degree.

Step 4 — Identify the essential academic standards from the Common Core State Standards for literacy in technical studies, mathematics and science. Seek opportunities in projects for students to read, write, listen and speak about related content; to create and analyze mathematics models in which students collect data; and to engage in scientific inquiry and/or investigation.

Step 5 — Write enabling learning activities, which are instructional activities designed to ensure students are able to complete project requirements successfully. Enabling learning activities provide focus, begin with an entry event, include a formal beginning of the inquiry process with a project launch, and are directed at the essential academic and technical standards.

Step 6 — Develop a program of study linked to postsecondary success. The program of study should join a college-ready academic core with quality CT courses. Linking to postsecondary success involves postsecondary institutions providing dual credit opportunities, end-of-program exams for employer certification and private industry participation to ensure the program of study meets industry standards.

Step 7 — Successful implementation of the courses will require an academy framework. Structure common planning time where academic and CT teachers work together to create assignments that require use of academic and technical content to complete and that motivate and engage students. Look at student work and use rubrics for scoring student work.

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Understanding the Why and How of Pathway Implementation: Two Schools Tell How to Get Started

Two high schools in adjoining states — Alabama and Georgia — both had visions and plans to raise student achievement. Using the *HSTW* blueprint for implementing career-themed small learning communities, the schools have created structures that best fit their students' needs in preparing for postsecondary education and careers.

B. C. Rain High School in Mobile, Alabama, where **Marlon Firle** is principal, developed an aviation and aerospace academy in partnership with local employers and community service partners. A communication and arts technology academy and a business management academy will correlate activities directly related to aviation and aerospace.

Paulding County High School in Dallas, Georgia, chose to establish a science, research and medicine magnet academy to prepare students for further study in these technology-intensive professions. The magnet academy is open to students in grade nine in all five high schools in the district. "Students and teachers are eager to see what comes next in the magnet program and are contributing great ideas and offering valuable feedback to help ensure the success of the program," said **Robin Davis**, assistant principal and academy leader.

Failures in Grade Nine

The two schools discussed change and examined data to determine the areas that needed modification. The data showed that many students were failing grade nine and were not experiencing success in high school. Both schools began working with SREB's *HSTW* school improvement consultants to examine what the schools offered and how they approached their students. It became evident that a "team approach" was needed.

Working with *HSTW* consultants, the schools hosted a site development workshop and began focusing on the *HSTW* 10 Key Practices for school improvement. First, the schools explored career clusters. "The staff discovered that **career clusters** represent a seamless educational system that blends

rigorous academic and technical preparation, provides career development, offers options for students to experience all aspects of a business or an industry, and facilitates and assists students and teachers with ongoing transition," said SREB school improvement coach **Sandy Culotta**.

Both schools reviewed their current course offerings to determine what career pathways they were providing to students. **Career pathways** are sub-groupings of occupations and career specialties used as an organizing tool for curriculum design and instruction. Similar to career clusters, they are grouped based on their requirements for a set of common knowledge and skills for career success.

Restructure Into Academies

From this point, the schools determined that they should restructure into **career academies**. Academies are organized around such themes as health sciences, law, business and finance, and pre-engineering. Sixteen career clusters have been identified nationally as those best serving the needs of high school students.

"Both schools developed academies in keeping with the schools' individual needs," Culotta said. "B.C. Rain High School makes it possible for all students to move into a chosen academy while Paulding County High School decided to open one magnet academy."

Students in academies are scheduled according to their interests and aptitudes. They take classes together and remain with the same group of teachers over time. They follow a curriculum that includes rigorous academic courses as well as career-oriented courses and participate in work-based learning activities.

Programs of Study

Administrators and staff at the two high schools met with parents, community representatives and the middle grades schools to discuss transitions. Students would complete career interest

inventories and develop four- to six-year **programs of study**. The U.S. Department of Education defines a program of study as a comprehensive, structured approach to deliver academic and career/technical education to prepare students for postsecondary education and careers.

Changes at the two high schools were dramatic. Students were being connected to their interests and to high-skill, high-demand opportunities for college and careers. Teachers were collaborating and working in teams. The frustrated demeanor of teachers and students was transformed into satisfaction and connectivity.

Both schools will track data to determine increases in student achievement, attendance and behavior as a result of providing a more challenging instructional environment.

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High School Develops Career Academies as a “Signature Feature” to Raise Student Achievement

Leaders and teachers at **Citronelle High School** (CHS) in Citronelle, Alabama, developed a plan to move from a traditional high school to a school with “signature features” of manufacturing, industry and technology studies. The reason for the action was to address barriers preventing CHS from becoming a student-centered school with high-achieving students. The obstacles included high absenteeism, an unsatisfactory dropout rate, student apathy, lack of relevant course work to students’ goals, lack of rigor and the school’s failure to make Adequate Yearly Progress (AYP).

The signature features were developed and implemented to accomplish several key goals:

- Provide a personalized learning environment for students.
- Increase parent and community involvement.
- Prepare students for college and high-demand, high-wage careers.
- Offer an engaging curriculum with successful teaching strategies.
- Provide practical work experiences for students.
- Develop a highly educated workforce to meet the region’s employment needs.

The first steps included training the leadership team, bringing all staff members on board, providing professional development on key concepts and creating faculty focus teams with meeting agendas. The plan involved the guidance department, all staff and all focus teams.

- The guidance department focused on using Career Cruising (an interactive career guide system), identifying academies, developing career choices for incoming freshmen, and developing additional courses to increase the number of electives and Advanced Placement (AP) courses.
- The staff worked to maximize a limited staff to enhance course offerings. Online courses have freed teachers to teach more business and technology classes. Faculty members teach more elective courses to support academies. Among these courses are speech, communications, psychology and sociology.
- The focus teams concentrated on high expectations; rigor and use of data; public relations and school pride; discipline, attendance and school uniforms; literacy across the curriculum; and guidance and advisement.

As a result of this preparation, CHS developed six career academies that became available to students for the 2012-2013 school year:

- Construction — general construction
- Manufacturing — welding and fabrication
- Transportation and Distribution — electric and electronic systems, automotive engines
- Human Services — food, wellness and dietetics, early childhood education, family studies, interior design
- Health Services — diagnostic services, therapeutic services
- Business, Management and Administration — information technology, multimedia, marketing, agribusiness



After two years of failing to make AYP, the school made AYP for 2011-2012. The graduation rate rose from 55 percent in 2011 to 76 percent in 2012.

CHS is in the early planning stages of offering four additional focus areas:

- Manufacturing — instrumentation
- Construction — carpentry, drafting and architecture
- Science — pre-med and biotechnology
- Multimedia — broadcasting

“In meeting these goals, CHS has identified the need for highly qualified personnel, adequate facilities and equipment, and the involvement of community and business leaders,” said counselor **Jaclyn Snow-Weaver**. After two years of failing to make AYP, the school made AYP for 2011-2012. The graduation rate rose from 55 percent in 2011 to 76 percent in 2012.

The goals for 2012-2013 are to increase average ACT scores and reach a graduation rate of 80 percent. An advisory panel of educators, community leaders and business liaisons is being established to guide the career/technical course offerings to prepare students to be college and career ready.

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Designing Rigorous Career/Technical Instruction for Career Pathways: Using Assessment Effectively

Both formative and summative assessment can be used in career/technical (CT) programs to improve student engagement, motivation and learning. Formative assessment helps teachers and students make decisions during the learning process. Summative assessment measures whether students have retained the content being taught. “Formative assessment is assessment *for* learning, while summative assessment is assessment *of* learning,” said **Heather Sass**, manager of school improvement at Great Oaks Career Campuses in Cincinnati, Ohio.

Sass gave examples of formative and summative assessments in CT studies:

- The automotive teacher expects students to use good safety practices in the auto shop. He provides ongoing feedback by observing students while they are working in the lab and marking on a safety checklist the practices he sees being used. Each student gets a checklist with the teacher’s observations at least once a week. The checklist notes strengths and areas for improvement. The teacher continues to complete the checklists during the first quarter of the year until he or she notices that all students are consistently using the safety practices (formative assessment).
- During a unit on the respiratory system, a health sciences teacher needs to help students master a long list of complicated terms. Each day during the unit, the teacher gives students a quick quiz on randomly selected terms at the beginning of the class period. Students score their own quizzes and keep track of words they have added to their vocabulary. The teacher keeps a progress chart where students can record how many terms they have mastered (formative assessment).
- In a pre-engineering class, students are expected to apply mathematics. The teacher places at least one mathematics word problem related to the content on the exam at the end of each unit of study (summative assessment).

Students are assigned word problems approximately twice a week to practice their mathematics problem-solving ability (formative assessment).

- Cosmetology students take an end-of-unit assessment that includes multiple choice items similar to those found on the state cosmetology licensing exam. In addition to the multiple choice items, the teacher adds several essay questions in which students are given a scenario or real-world situation. They are asked to describe how they would respond to the situation and to give the rationale for their proposed actions. The teacher uses a rubric to consistently score students’ responses (summative assessment).

“Teachers can use a number of tools in formative and summative assessment,” Sass noted. These include:

Formative Assessment Tools — journals or learning logs; written plans such as goals, timelines and checklists; checklists or observations of performance or work completed; homework; classroom questions and other checks for understanding such as exit slips and one-minute papers that describe what was learned and which questions remain; and peer review and feedback

Summative Assessment Tools — paper-and-pencil exams with items such as multiple choice and open-response questions; a performance such as an oral presentation, an interview or the completion of a task or skill; and a product, a written paper or a brochure

“Formative assessment tools can measure self-assessment of progress and what is being learned; characteristics such as goal setting, time management and accountability; progress in learning knowledge and skills or in completing work; and understanding of what was taught or directions to be followed,” Sass said. “Summative assessment tools measure knowledge and understanding of technical skills, academic skills and 21st-century skills.”

Teachers may use student learning logs or student weekly planning sheets as formative assessments, Sass pointed out. They may also use project plans that require students to give the overall goal of the project and tell what will be done, how it will be done, resources and support needed, and ways to demonstrate what has been learned.

“Rubrics are available on the Internet, from textbook teaching resources and from career/technical student organization skill events to assess students’ learning as they work on a project and at the end of the project,” Sass said.

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Relationship Building 101: Tech Centers and Sending Schools Work Together

How does a technical center promote its career/technical (CT) programs to a wide audience of school counselors, parents and students? **Mercer County Technical Schools** (MCTS) in Trenton, New Jersey, built strong and lasting relationships with sending schools by informing them continuously and in a variety of ways about what is available for students at the tech schools.

Mercer County Technical School District is a shared-time technical education delivery system serving 630 shared-time students in grades 11 and 12 from all secondary public school districts and non-public schools in the county — a total of 25 sending schools. The secondary program and the performing arts program are organized on a shared-time basis.

“Being able to attract such a large number of students from several educational settings requires effort and a strong communications plan that showcases what the district aims to do and the programs of study available in preparing students for further education and careers,” said Superintendent **Kimberly Schneider**.



“Students are receiving the message that studying at the career center extends the scope of their high school experiences...They have a greater concept of the role of academics in college and career readiness.”

Kimberly Schneider, Mercer County Technical Schools

The student survey portion of the 2010 *HSTW* Assessment revealed that many MCTS students lacked confidence in CT programs. The survey showed that too many students had a low perception of the importance of high school, had limited faith in a CT education and saw minimal emphasis on guidance and advisement in career planning. “If the students were less than enthusiastic, it could be expected that the high schools would lack feeling for sending students to MCTS,” Schneider said.

Lori Perlow, district communications officer, worked with Schneider to design an approach that includes community outreach, communication, coordination of services and adherence to the *Technology Centers That Work (TCTW)* Key Practices. “The information we provide to sending schools emphasizes the 21st-century skills in career/tech education,” Perlow said. “We host open house events and information sessions, issue regular mass mailings, share pertinent occupational outlook data and send e-newsletters to the sending schools.”

Each sending school has named a designated liaison counselor. Perlow hosts meetings and makes presentations to liaison counselors on programs of study available at MCTS and the benefits to students of enrolling in the programs.

The counselors work with students at their schools to develop education and career plans for the future.

Realizing the need to increase students’ literacy, MCTS invited an *HSTW* school improvement consultant to provide training and coaching for teachers in how to use the Literacy Design Collaborative (LDC) model to improve students’ reading and writing skills. “We devoted one of the liaison counselor luncheons to the importance of literacy in career/tech education,” Perlow said. “It is important to prepare students for the job market by incorporating reading and writing into students’ career choices.”

Content area teachers at MCTS are realigning their curricula with the state content standards in CT education. In addition, MCTS is phasing in its first four-year program (health careers) that is marking its third year in 2012-2013.

“Students are receiving the message that studying at the career center extends the scope of their high school experiences,” Schneider said. “They have a greater concept of the role of academics in college and career readiness.”

Responses to student survey questions in the 2012 *HSTW* Assessment demonstrate a dramatic increase in students’ perceptions of the importance of education, the quality of CT experiences and the impact of timely guidance. (See Table 1.)

| Indicator | Moderate or Intensive Emphasis 2010 | Moderate or Intensive Emphasis 2012 | Percentage Point Increase in Two Years |
|---------------------------------------|-------------------------------------|-------------------------------------|--|
| Perceived Importance of High School | 53% | 85% | +32 |
| Quality CT Studies | 58 | 75 | +17 |
| Work-Based Learning Emphasis | 63 | 73 | +10 |
| Emphasis on Providing Timely Guidance | 67 | 73 | +6 |

MCTS has developed stronger relationships with sending schools while strengthening the quality of 21 shared-time programs, a new full-time program and 17 professional certification programs. MCTS offers college credit in 22 of 29 offerings. Making literacy a focus of every program has raised students' academic skills through real-world reading and writing.

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Let's Communicate! Tech Centers Build Relationships With Sending Schools

Shared-time career/technical (CT) centers report that communication is a big challenge in building relationships with sending high schools. Four leaders shared what their centers have done to keep the lines of communication open at all times.

David Hughes is director of **National Park Technology Center** in Hot Springs, Arkansas. The center enrolls 500 students from eight sending schools who have access to seven career programs. The center is 75 percent white with a growing Hispanic population. Seventy-five percent of students are from low-income families.

Hughes listed four ways the center increases communication with its sending schools:

- Invite the sending schools to schedule in-service days at the center.
- Show up often at the sending schools to recruit new students.
- Invite teachers of students in grades eight through 12 to tour the center and interact with center teachers.
- Encourage tech center teachers to attend sports and other student events at the sending schools.

National Park Technology Center was named by SREB as a *TCTW* Platinum High-Achieving Center in 2012.

Rich Payne, director of **Cape Girardeau Career and Technology Center** in Cape Girardeau, Missouri, points to 21 programs at the rapidly expanding center. The 12 sending schools are both public and private schools. The center has increased effective communication with the sending schools by hosting an annual orientation for newly enrolled students and their parents.

The center offers week-long professional development for 60 teachers from the sending schools each year. "We introduce teachers to our career pathways such as automotive, robotics and radio/television," Payne said. "The teachers then become advocates for the center."

"Bring Your Parents to School" is a nighttime event for students to show off the center to their parents. "Most sending school parents have never been to the center," Payne said. "The event makes it possible for parents of students to become ambassadors for the center in their communities."

The center has worked hand-in-hand with academic instructors at the sending schools to create embedded mathematics and communication arts programs. "Academic instructors are invested in what goes on at the center," Payne said.

Rachelle Romoda is supervisor of instruction for **St. Lawrence-Lewis BOCES**, a CT center in Canton, New York. This large educational area consists of three shared-time centers serving 1,000 juniors and seniors from 18 sending schools. The tech centers use a number of strategies to strengthen communication with the sending schools:

- They conduct meetings on individual education plans (IEPs).
- Principals from the high schools are invited to meetings at the center during which they visit classrooms.
- The centers recruit students at the sending schools.
- They host a regular State University of New York (SUNY) road show of tech centers. The road show makes it possible for students from the tech centers as well as the neighboring sending schools to interact with admissions and financial aid counselors from SUNY schools. Students learn about

admissions and registration timelines, how to be proactive to seek help in visiting and applying to colleges, and the many resources available in the process.

- They offer the Gateways to Careers workshop for 1,200 students from sending schools. The annual college- and career-readiness skills workshop provides opportunities for students from sending school districts to learn and practice critical college- and career-readiness skills. Students participate in mock interviews with area professionals who volunteer their time to meet with students and provide feedback on communication and presentation skills, résumés, portfolios, and overall readiness skills.
- Through the annual “Bring Your Parents to School,” the centers provide opportunities for parents to “try out” various careers. Parents shadow their students in tech center classes where they roll up their sleeves to bake or wear protective gear to weld, for example.

Nancy England is assistant director at **Hamilton Career Center** in Seneca, South Carolina. The center enrolls more than 1,000 students from four sending schools in 22 programs.

- Coordination of scheduling between the center and the sending schools means that all follow an A/B block schedule. Also, the high schools are *HSTW* sites and the tech center is a *TCTW* site.
- Communication is further enhanced in that the director and assistant director of the center attend district-level (principals, assistant principals) monthly meetings with the four sending schools.
- Each year the center hosts tours for students in grades eight and nine as a recruitment tool just before students register for the next school year. Students in grade eight from four middle grades schools tour the center with career center students as guides. Students in grade nine pre-select three classes to visit. They spend 20 to 30 minutes in each program for a more in-depth look at a career choice.

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High School and Career Center Make Progress in Serving All Students

Holmes High School is in Covington, Kentucky, just across the Ohio River from Cincinnati. As the state’s fifth largest city, Covington is faced by many of the same challenges that plague other American inner cities — a prolonged decline in population, resources and economic vitality.

Covington Independent Public Schools (CIPS) is the largest independent school district in Kentucky. Holmes High School serves 880 students in grades nine through 12. Eighty-nine percent of Covington students are identified as at-risk because they qualify for the free and reduced-price school lunch program. Twenty-two percent of students, compared with a state average of 13 percent, qualify for and receive special education services. In the student population, 15 percent are identified as homeless and 42 percent as minority; 12 percent live in public housing.

Doors are frequently closed for Holmes students because they fail to meet benchmark scores for admission to higher education programs. “All Kentucky juniors take the ACT, yet Holmes students persistently perform below the state average,” said Superintendent **Lynda Jackson**.

Data in 2011 revealed that students at Holmes High School were unprepared for postsecondary education and careers. The average ACT score was 15.8, the school graduation rate was 60.7 percent and the overall GPA was 2.5.

District and school leaders and teachers identified six major actions to raise student achievement:

- Request a Technical Assistance Visit (TAV) from SREB for Chapman Career and Tech Center, located on the grounds of Holmes High School.
- Create an advisory council for the career/technical (CT) center.
- Focus on developing an individual learning plan (ILP) for each high school student.
- Organize the high school into clusters.
- Create strong connections to college and career preparation.
- Increase academic advisement for students.

The high school adopted a new initiative known as *Holmes 180: A catalyst for community and school change; destination graduation*. The initiative contains performance goals designed to ensure students develop the knowledge and skills necessary to be successful in further study and careers.

- Increase the graduation rate: 85 percent of ninth-graders will graduate four years later.
- Increase ACT scores: 85 percent of graduates will meet the benchmarks for college readiness.
- Increase postsecondary enrollment: 75 percent of graduates will enter a postsecondary program leading to a degree or certification.
- Increase the number of students eligible for early college programs: 85 percent of juniors and seniors will meet the benchmarks for Advanced Placement (AP), International Baccalaureate (IB), dual credit or other options for college credit-bearing courses.
- Increase the college retention rate: 85 percent of students who begin a postsecondary program will return for the second year and/or complete a shorter certification program.

“We knew we had to develop a plan of operation to meet the goals,” Jackson said. The leadership team outlined how the plan unfolds:

- **Plan** — Eighth-graders will develop ILPs that create roadmaps for high school and postsecondary education.
- **Explore** — Freshmen will rotate through four career clusters to research careers, develop beginning skills and plan postsecondary goals.
- **Decide** — At the end of grade nine, students will identify a career cluster. They will receive guidance from advisers to ensure that they are on track.
- **Learn** — Sophomores will take an introductory course that addresses basic skills and career opportunities for each pathway in a career cluster.
- **Apply** — Juniors and seniors will take a series of courses to build skills progressively in career pathways. The courses may be AP, IB or dual credit.
- **Graduate** — Students will graduate with 15 hours of college credit; many will have earned industry certifications.



“We offered extensive professional development to provide staff with the skills to ensure the success of *Holmes 180*,” Jackson said. “Seventy teachers completed more than 2,000 hours of professional development during summer 2011, the first year of implementation.” Professional development topics included curriculum development for new courses, technology integration, guidance and advisement activities, formative assessments and CT instructional strategies.

The curriculum for Holmes High School is stored in “the cloud,” where resources are available on the Internet from many Internet-connected devices. All teachers have access to all unit plans. “Department heads have become instructional advisers and have assumed responsibility for reviewing unit plans and providing feedback to staff,” Jackson said.

Early results indicate that *Holmes 180* is working. Students’ scores on the ACT Plan assessment improved from 14.2 in 2011 to 15.4 in 2012. Juniors’ ACT scores rose from 15.4 in 2011 to 16.1 in 2012. The graduation rate increased to 62.8 percent in 2012. The GPA remained steady.

Career/Technical Center

Chapman Career and Tech Center (CTC) is on the campus of Holmes High School. Instead of operating as a separate school, Chapman operates as a department within the high school. **Linda Foxx**, director of the center, also functions as a school assistant principal. Expectations for unit plans, assessments, vocabulary word walls, standards-based bulletin boards and other activities are the same for Chapman CTC teachers as for regular education teachers. To help the CTC teachers with expectations, *TCTW* consultants schedule in-school coaching visits on topics such as literacy, general instructional strategies and numeracy. Typically, a consultant completes peer walkthroughs with teachers. “Teachers have said they benefit not only from the feedback they get from their peers, but from the experience of watching other teachers in the classroom and gaining ideas from them,” Foxx said. “In addition, the consultants meet in small groups with the teachers to discuss instructional strategies.”

The Kentucky accountability model includes college- and career-readiness. Career readiness is achieved by passing the Kentucky Skills Standards Assessment administered to senior students in CT classes. “We work closely with the high school to move toward our accountability goals, since both entities play a role in the success of our district,” Foxx said.

“We have some CTE courses that we offer to all high school students, even if they are not pursuing a career/tech pathway...This is a winning situation for a high school and a career/tech center that both serve the same diverse population.”

Linda Foxx, Chapman Career and Tech Center

The close relationship between the high school and the career center allows students to be part of both entities. Regular education teachers are involved with CT student organization competitions, CT students build props for theatre productions, mathematics teachers teach Construction Math, and CT teachers certify students in CPR and first aid.

“We have some CTE courses that we offer to all high school students, even if they are not pursuing a career/tech pathway,” Foxx said. “They include basic automobile maintenance, emergency procedures and digital photography. This is a winning situation for a high school and a career/tech center that both serve the same diverse population.”

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Community Colleges, High Schools and Shared-Time Centers Work Together to Benefit Students

Representatives of community colleges, high schools and shared-time centers are finding new ways to communicate and develop stronger relationships to benefit their students.

“We work with the state community college system and 12 high schools to develop career pathways that students can follow from high school to the community college level,” said **Julie Rhodes**, coordinator of information and community relations at **Cossatot Community College** of the University of Arkansas in De Queen. She believes ongoing communication is the key to strengthening relationships. “We also focus on helping students make the transition into the community college system.”

Linda Washburn, director of the Career Education Consortium, a partnership between the **Metropolitan Community College** and six school districts in Kansas City, Missouri, said consortium activities foster effective communication and working relationships. “Assistant superintendents are members of a steering committee to ensure communication,” Washburn said. Counselors attend quarterly meetings, and teachers participate in professional development on the career pathways program of study. The committee has developed a system to work with all of the high schools and their freshmen focus teachers (those who work with incoming freshmen) in the development of a curriculum for students in grade nine on skills necessary for future success.

Hutchinson Career and Technical Education Academy in Hutchinson, Kansas, is associated with **Hutchinson Community College** and adjacent to **Hutchinson High School**. Director **David Patterson** said the career center conducts orientation days with students and parents at the home high schools. Communication with students and parents continues until graduation. The center has helped the high schools develop career pathways. “As a result, we are seeing more alignment between the high schools and the center,” Patterson said. Dual enrollment is another opportunity to build bridges and improve communication. Department heads from the career center and the community college meet weekly. The dual enrollment visiting professors provide common assessments and monitor instruction.

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