

RAMPING UP Career *and* Technical Studies

Five district programs that address the demands of the modern workplace by equipping students for career and college

BY SARAH E. CARR

In Sacramento, Calif., school officials hope that college and career readiness will no longer be seen as an either/or proposition.

To fulfill this mission, their academic and technical programs have been blended over the last four years. The schools are integrating the curricula of career education with core academic subjects, asking some instructors to teach courses in both areas and encouraging students to enroll in a career pathway — even if they are college-bound.

Students in the Cisco networking class at Stadium High School in Tacoma, Wash., can receive certification in computer networking.

“We are trying to overcome the mind-set that career and technical education is ‘just shop,’” says Olivine Roberts, chief academic officer at the Sacramento City Unified School District, who adds that even top academic performers can benefit from the workplace skills they learn through career and technical education.

The district’s goal is ambitious. Roberts and other Sacramento leaders hope that by 2017, more than 60 percent of their high school students will be enrolled in an up-to-date, extended version of vocational education. Sacramento Unified has received \$500,000 each of the past four years from a California-based foundation to bolster its career and technical programs.

PHOTO COURTESY OF CASEY MADSEN, TACOMA PUBLIC SCHOOLS, TACOMA, WASH.

Five Situations

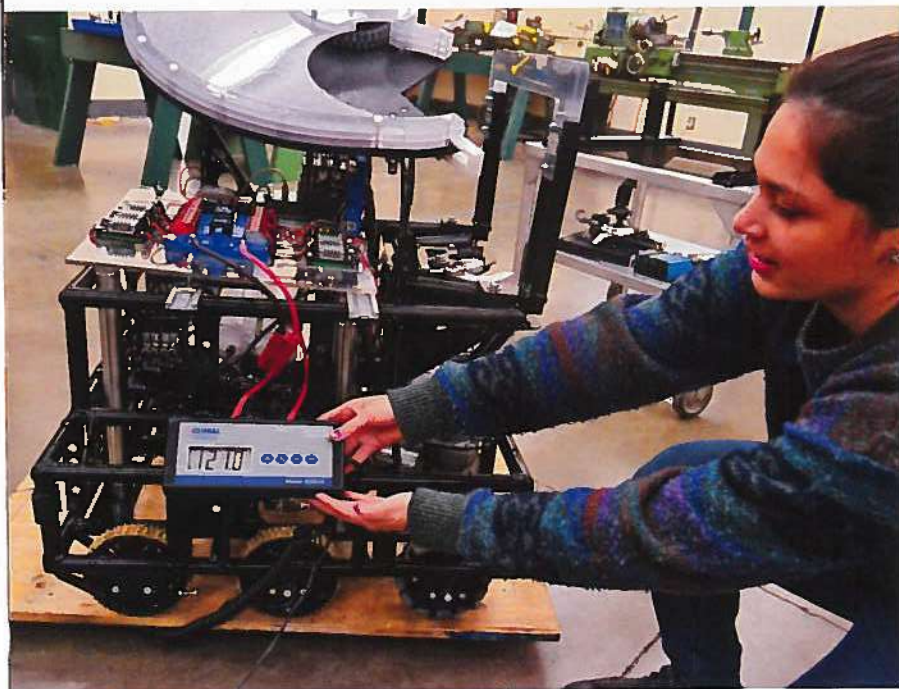
Across the country, school districts are putting a new face on the long-stigmatized field of vocational education. They are modernizing the curricula, creating and expanding programs that lead directly to trade certifications. They are collaborating, often to cut down on costs.

The tandem effects of a sputtering economy overall and the growth of new job opportunities in technical fields are fueling these efforts. A 2011 report issued by the Harvard Graduate School of Education called "Pathways to Prosperity" found exploding demand for workers in "middle-skill" occupations such as electricians, construction managers and dental hygienists. Such fields typically require an associate degree or occupational certificate, but not a four-year bachelor's degree.

"The implication of this work is that a focus on college readiness alone does not equip young people with all of the skills and abilities they will need in the workplace," the report concludes.

Five school districts or consortiums of school districts — based in Tacoma, Wash., southeastern South Dakota, Kendallville, Ind., Sacramento and Bullitt County, Ky. — are representative of public schools with diverse strategies for revitalizing a field many experts believe to be more important than ever.

Students design, build and test a robot capable of shooting Frisbees as part of the manufacturing and design pathway at John F. Kennedy High School in Sacramento, Calif.



► **MODERNIZING CURRICULA.** In the career and technical education division of Tacoma, Wash., Public Schools, forestry has become Advanced Placement environmental science, the animal science program now emphasizes pre-veterinary skills, and marine engineering has shifted its emphasis from small pleasure boats to larger commercial vessels.

All of these programs are taught within comprehensive high schools. Some programs, including marine engineering, attract the same caliber of student (in terms of grades and test scores) they always have. But others, including an honors version of pre-veterinary sciences, are drawing more high-performing students, says John Page, Tacoma's director of career and technical education.

The changes are part of an effort to stay relevant as employer and workforce needs evolve, Page says. The animal science program once focused on husbandry and traditional agricultural skills, for instance. But because farming has declined so rapidly, it now strives to prepare students for work in small-animal veterinary clinics. "There's high demand and good wages for those who can work with cats and dogs," he says.

Likewise, until recently, the maritime education program taught students about outboard engines and the electrical systems of small boats. But when Page and others realized graduates made a starting salary of \$60,000 maintaining and operating commercial vessels — and upward of \$100,000 within a few years — they reorganized the curriculum.

The changes would not have been possible without greater state funding for students enrolled in career and technical education programs. School districts get slightly more money for high school students enrolled in CTE programs, a bonus the state legislature extended to 7th- and 8th-grade students three years ago.

"It's a daily challenge for us not to be cast as an alternative to a comprehensive, quality education," Page says. "But if you've got relevant, rigorous programs, families might not even see it as career and technical education. They might just say, 'That's a program that's got it going on.'"

► **KEEPING VOCATIONAL EDUCATION ALIVE, VIRTUALLY.** Faced with tight budgets and declining enrollment, dozens of rural school districts in South Dakota have reluctantly cut back vocational education programs. Fortunately, a statewide virtual school has stepped in to fill some of the void. Since its creation 10 years ago, the Dakota Interactive Academic Link has focused on career and technical education, offering online courses in hospitality and tourism management, graphic design, and automotive repair to students across the state.

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A teacher in the career and technical education program leads an environmental biology class at Lincoln High School in Tacoma, Wash.

“The implication of this work is that a focus on COLLEGE READINESS ALONE DOES NOT EQUIP YOUNG PEOPLE with all of the skills and abilities they will need in the workplace.”

participate in career and technical education otherwise,” says Sandy Stukel, director of the virtual school, which is part of the Mid-Central Educational Cooperative, a collaborative of 14 schools in southeastern South Dakota that pool their resources to offer joint programs and services.

Stukel and other staff at the cooperative survey the school districts to find out what vocational courses students want and need. During 2011-12, more than 300 students across the state took online career and technical education courses, paying anywhere from \$290 to \$325 per semester for them. Sometimes the district picks up the cost, and other times the families do, depending on the school’s policy regarding online course work.

In the automotive technician class, students spend one semester studying online with instructor David Reuland and a second semester doing hands-on work alongside technicians in a local car repair

shop. Reuland visits them on-site at least once during the second semester to check on their progress learning such skills as replacing spark plugs and changing tires.

That means he spends most of the fall in front of a computer and much of the spring driving around South Dakota because the virtual school enrolls students statewide. Students from 12 districts have participated in the course since it started in 2009. While some students in South Dakota still have access to hands-on vocational programming through their districts, that number has dwindled, leaving the online course to fill a void in many communities.

Reuland knows firsthand how motivational the exposure to career education can be for secondary school students. His daughter became interested in medicine while taking an online high school course in health careers offered through the state’s virtual program. She’s now in medical school at the University of South Dakota.

Without the virtual class, most of the state’s high school students would not have access to training in automotive repair. The repair shops are reluctant to take them on as interns unless they have some background knowledge (which they receive in the first half of the course), and only 13 percent of the state’s students have certified automotive programs available at their high schools.

Reuland says not enough parents and guidance counselors realize how many well-paying jobs are

available for students who are skilled with their hands and know how to use high-tech machinery.

"The money is good," he says. "But too many people think kids who study auto will never become anything more than a grease monkey."

► **GUIDING STUDENTS TO JOBS.** In Indiana, a group of school districts has two main strategies for keeping vocational education programs robust: pooling resources and imitating real work environments.

The Four County Area Vocational Cooperative, headquartered in Kendallville in the northeastern corner of the state, allows a dozen school districts to expand and upgrade their programs to meet changing economic needs while keeping costs down. Over the years, the cooperative's mission has shifted from training students for entry-level jobs — most of which no longer exist — to preparing them for well-paid careers that typically require specialized and technical skills, says Ann Linson, superintendent of the 3,800-student East Noble School Corporation in Kendallville, a member district.

The job titles haven't necessarily changed, but the job descriptions and required skills have. Forty years ago, drafters used pencil and paper; today they must understand 3-D modeling and know how to use computer software to design buildings and parts, Linson says.

Learning how to measure vital signs is part of the health careers program at DIAL Virtual School in Platte, S.D.



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The cooperative, which was formed in the 1960s, buys the same equipment and machinery that students will encounter in the workplace. The marine mechanics program has full-size boats, culinary arts students cook in commercial ovens, and students in the drafting program use a three-dimensional modeling machine.

The cooperative hires instructors who come from industry, not traditional education backgrounds. Current and former police officers teach the criminal justice classes, for instance. The state of Indiana requires 4,000 hours of on-the-job work experience to secure a teaching license in a vocational area, but it does not require a bachelor's degree. Vocational teachers must complete a one-year teacher preparation program designed specifically for career and technical education.

Linson says her school district spends upward of \$400,000 each year to participate in the cooperative, including between \$2,500 and \$5,000 for each of the 110 participating students, depending on the program. "We would be hard-pressed to offer some of these programs on our own," she adds.

Partly because the cooperative employs so many professionals from area industries, the business community has embraced the effort. Each vocational program has an advisory committee comprising representatives from local businesses who offer feedback on how to connect programming to area employment needs.

"We have a hand on the pulse of what's going on out there in industry," says Jeff Cauhorn, general sales manager for the industrial manufacturer Praxair, who has been on the welding advisory board for 20 years. He says the board recently recommended all welding instructors obtain American Welding Society certification so they can teach a more advanced curriculum to prepare students to enter the workforce immediately. "We look at what direction we should point the kids in so they can prosper," Cauhorn says.

Although families have grown more supportive lately, winning their buy-in for specific vocational programs has been difficult at times. For instance, the cooperative had to drop its industrial mechanics program recently because so few students signed up.



Culinary arts students at Four County Area Vocational Cooperative in Kendallville, Ind., use commercial-grade equipment in their training.

“Kids think they will be janitors if they do it,” Linson says. That might have been true in the 1970s. But in more recent years, students learned how to operate robotic and hydraulic systems — skills that open the door to well-paying careers at companies like Caterpillar or the local Guardian Automotive.

That said, other vocational programs are oversubscribed, including interactive media and health care. “We’re very selective about who we let do these programs,” the Kendallville superintendent Linson says. “All of them are very high tech because that’s where the jobs are.”

▶ ENDING THE SILOS. While many schools are retooling career and technical education to emphasize explicit job training, a network of districts in California is taking a different approach. Through what’s known as the “Linked Learning” alliance, nine school districts, including Sacramento, have agreed to expand their career and technical education courses as well as integrate them with academic classes. The new programs will expose students to the habits of mind and behavior they will need to succeed in any workplace, not a particular one.

“They aren’t job training programs,” says Christopher Cabaldon, executive director of the Linked Learning Alliance in Sacramento. “The graduates are not necessarily going to go into careers in those fields.”

Instead, the nine districts all agree to a set of principles and practices in exchange for financial

support through a \$37.4 million gift from the James Irvine Foundation, which promotes arts and cultural organizations and expanded economic opportunities for youth throughout California. The school districts over time must make what’s known as “Linked Learning” pathways (or their version of career and technical education) accessible to all high school students and enroll at least half of them in a pathway. The students must receive some real work experience, such as an internship or employment at a school-based business, and employers are required to perform periodic and rigorous evaluations of the students’ performance.

Ultimately, program sponsors are pushing the idea that career and technical education cannot be treated like a realm unto itself, its classes and teachers distinct from the regular education program.

“Prior to Linked Learning, CTE was a silo,” says Roberts, Sacramento’s chief academic officer.

Traditionally, college-prep teachers worked in the front portion of the high school with CTE in the rear, says Theresa McEwen, interim director of Sacramento’s high school reform initiatives. That’s no longer possible. Now, the same instructor might teach both physics and robotics, and students might study algebra and computer-aided design in the same class. In other cases, teachers of academic and career courses are given the same planning period and encouraged to work on joint projects.

Sacramento joined Linked Learning in 2009, so it will graduate its first cohort of students this

spring and begin to gather data on where they head postgraduation.

"This is our signature approach to high school redesign," McEwen says. "We don't want it to be something on the side or an add-on. This is the way we do high school now."

► **BECOMING MORE PRESCRIPTIVE.** School leaders in Kentucky's Bullitt County are becoming more prescriptive about students' course selections to ensure all students graduate ready for college or a career. This includes pushing some students to pursue a curriculum that includes CTE courses who otherwise might not consider it, says Keith Davis, district superintendent in Bullitt County, a suburban community south of Louisville.

"Students who are 12 and 13 need to start making decisions about their lives," Davis says. "We don't need to extend childhood into the mid-20s. ... We're trying to be more data-driven and sometimes use the data to say, 'This is what you are going to take.'" All students now must take a career seminar class that covers financial literacy and prepares students for the ACT WorkKeys assessment.

The school district hopes to have 100 percent of graduating seniors ready for college or career by 2015 as defined by the ACT and ACT WorkKeys.

Last school year, 46 percent of graduating seniors met that standard; in 2010, only 29 percent did. All 11th graders in Kentucky take the ACT, and by 2014 all Bullitt County high school students also will take the ACT WorkKeys.

To achieve this, the district has been trying to expand its CTE programming. It started a new career-readiness magnet program so that students can begin vocational education in 9th grade (instead of 11th) and added a CTE teacher and college/career readiness coach position at each of its three high schools.

In mid-2014, the 13,000-student Bullitt County district will open a career center at each of its high schools. It will offer a space with movable walls and floor trenches that might house equipment for pre-engineering, agricultural science or culinary arts classes. The district also is funding a new computer science instructor at a state-run vocational center that serves multiple districts. All told, these changes will allow hundreds of additional Bullitt County students to participate in CTE classes.

"We are constantly working to get kids on the right path," says Davis. ■

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Additional Resources

Contributors suggested these informational sources on career and technical education. (Special thanks to Halyna Bialczyk, of the Wayne County Regional Education Service Agency in Wayne, Mich.)

Reports/Books

- "Career and Technical Education, Five Ways That Pay Along the Way to the B.A.," Center on Education and the Workforce, Georgetown University, <http://bit.ly/ZbleXt>
- "Pathways to Prosperity," Harvard University, Graduate School of Education, <http://bit.ly/PathwaysProsperity>
- Three reports by Michael Fitzpatrick, superintendent of Blackstone Valley Vocational Regional School District in Upton, Mass.: "The Changing Face of Career and Technical Education" (Parts I and II) and "Presenting a Practitioner's Response to the 21st Century Skills Debate." Request copies from chaningt@valleytech.k12.ma.us.
- *21st Century Skills: Learning for Life in Our Times* by Bernie Trilling and Charles Fadel, Jossey-Bass
- *Schooling in the Workplace: How Six of the World's Best Vocational Education Systems Prepare Young*

People for Jobs and Life by Nancy Hoffman, Harvard Education Press

Electronic

- **ASSOCIATION OF CAREER AND TECHNICAL EDUCATION** (www.acteonline.org). Resources on education for careers.
- **THE NATIONAL ASSOCIATION OF STATE DIRECTORS OF CAREER TECHNICAL EDUCATION CONSORTIUM** (www.careertech.org). Career cluster standards and "The Career Ready Practices of the Common Career Technical Core."
- **NATIONAL RESEARCH CENTER FOR CAREER TECHNICAL EDUCATION** (www.nrccte.org). Professional development and technical assistance for educators.
- **GEORGETOWN UNIVERSITY CENTER ON EDUCATION AND THE WORKFORCE** (<http://cew.georgetown.edu>). Studies links between education, career qualifications and workforce demands.

