Sparks fly as Grant Stephens, Welding 10 Instructor, demonstrates SMAW for Yuba College welding students.

CAREER TECHNICAL EDUCATION PATHWAYS INITIATIVE ANNUAL REPORT

2014

California Community Colleges Chancellor's Office
Brice W. Harris, Chancellor

CONNECT WITH US

CaliforniaCommunityColleges.cccco.edu

scorecard.cccco.edu

salarysurfer.cccco.edu

adegreewithaguarantee.com

stepforward.cccco.edu

doingwhatmatters.cccco.edu

icanaffordcollege.com

facebook.com/CACommColleges
facebook.com/icanaffordcollege

twitter.com/CalCommColleges
twitter.com/DrBriceWHarris
twitter.com/WorkforceVan
twitter.com/ICANAFRDCOLLEGE

youtube.com/CACommunityColleges
youtube.com/user/ICANAFFORDCOLLEGE

instagram.com/CaliforniaCommunityColleges

CALIFORNIA COMMUNITY COLLEGES
CHANCELLOR'S OFFICE
1102 Q STREET
SACRAMENTO, CA 95811
(916) 322-4005
http://www.cccco.edu

October 28, 2014

The Honorable Edmund G. Brown, Jr.
Governor of California
State Capitol
Sacramento, CA 95814

Dear Governor Brown:

I am pleased to present the final California Community Colleges Chancellor's Office report on the Career Technical Education Pathways Initiative, otherwise known as SB 70.

The legislation that created the Career Technical Education Pathways Initiative was authored by former state Senator and California Community Colleges Chancellor Jack Scott, and signed into law in 2005. The initiative sunsets this November and was a partnership between the California Community Colleges and California Department of Education to provide community college and K-12 students with technical training, mentorships, STEM academies, internships, and high-wage employment opportunities. I would like to commend Chancellor Scott for his vision in authoring SB 70 and all of those who supported this transformative program from its inception.

This report highlights the initiative's activities in the 2013-14 fiscal year. These include increasing the number and quality of career pathways and career technical education courses, increasing enrollment in career technical education programs of students in underserved groups, and engaging business and industry groups to collaborate with schools to provide internships.

If you have any questions regarding this report, please contact Workforce and Economic Development Division Vice Chancellor Van Ton-Quinlivan at (916) 327-5492 or vtquinlivan@cccco.edu.

Thank you for your interest in this program.

Sincerely,

Brice W. Harris
Chancellor

Career Technical Education Pathways Initiative Annual Report

The mission of career technical education is to provide industry-linked programs and services that enable all individuals to reach their career goals, in order to achieve economic self-sufficiency, compete in the global marketplace, and contribute to California's economic prosperity.

— California State Plan for Career Technical Education 2008–2012

Table of Contents

EXECUTIVE SUMMARY

California's education system — the largest in the United States — is an essential resource for ensuring strong economic growth in the state. The California Community Colleges reaches more than 2.1 million students a year in 112 colleges. The California Department of Education (CDE) serves 6.2 million students in 1,043 school districts. These two segments of the educational pipeline are working together to better prepare students for college and 21st century careers.

The Career Technical Education Pathways Initiative (the Initiative) became law in 2005 with Senate Bills 70 and 1133 and provided more than $380 million over eight years to improve career technical education (CTE) in California. The Initiative brought together community colleges, K–12 school districts, adult schools, Regional Occupational Centers and Programs (ROCP), employers, workforce investment boards, economic agencies, organized labor, and community partners to strengthen the connection between school and careers.

The overarching goal of the Initiative was to better prepare California students to seek and succeed in jobs that require high-level skills and pay high wages, with a particular emphasis on meeting the needs of students in underserved groups. In support of that goal, the Initiative enabled educational institutions to integrate core academic coursework with classes in technical and occupational knowledge and skills. This double skill set makes students competitive for college and for careers that provide a living wage.

THE SCOPE OF THE CAREER TECHNICAL EDUCATION PATHWAYS INITIATIVE

To achieve the larger goal of improving preparation for living-wage jobs, the Initiative supported a broad range of activities.

1. **Career Pathways and Articulation for Career Technical Education Students.** Increase the number and quality of career pathways and CTE courses, as well as student enrollments in CTE; align K–12 career technical education — including ROCP and adult education — and California community colleges and universities.

2. **Career Planning and Development.** Strengthen the capacity of secondary and postsecondary institutions to provide career awareness, exploration, and guidance activities and services; develop individual college and career plans; and engage with industries and businesses to offer internships, apprenticeships, and work-based learning opportunities.

3. **Programs for Underserved Students.** Increase enrollment of students from underserved groups in CTE programs.

4. **Business and Industry Engagement in Career Technical Education.** Expand opportunities in work experience, work-based learning, job shadowing, community classrooms, and internships/apprenticeships; and build a statewide system to link business and economic development with CTE.

5. **Career Technical Education Teacher Recruitment and Professional Development.** Increase the number of students enrolled in CTE teacher preparation programs, develop in-service training strategies for new teachers, and offer CTE professional development activities.

6. **Capacity Building, Research, and Evaluation.** Provide strategic leadership in CTE system development.

Funding was distributed through two complementary grant categories:

- Coordinated regional or local implementation grants that support linkages between middle schools, high schools, ROCPs, community colleges, industry, and other organizations to develop coordinated programs directly serving students, faculty, and/ or other stakeholders; and

- Statewide infrastructure grants that strengthen California's CTE infrastructure and support capacity building, including research and development.

A brief description of each of the 27 funded projects, by grant category, appears on pages 9 and 10.

SUMMARY OF INITIATIVE ACTIVITIES AND OUTCOMES

In 2007, the Chancellor's Office and CDE commissioned WestEd, a nonprofit education and human development research and service agency, to conduct an ongoing statewide evaluation of the Initiative and its grant-funded projects. As part of its evaluation and technical assistance services, WestEd examined data from Initiative grantee accountability reports

annually and conducted site visits and telephone interviews. Initiative funding supported more than 25 grant categories between 2005 and 2013. A detailed table specifying the programs that were funded, by year, begins on page 30.

Over the time period of 2005-06 to 2012-13, the Career Technical Education Pathways Initiative resulted in significant changes to the way K–12 and community college courses were taught, as well as building new linkages among teachers, educational institutions, and employers. Overall, the Initiative:

- Served more than 2.2 million K–12 and community college students, including:

- 42,949 students to participate in internships/apprenticeships and other work-based learning programs;

- 53,075 high school students to participate in Initiative-funded California Partnership Academies;

- 20,659 high school students served by Health Science Capacity Building; and

- 8,700 adult students served by Career Advancement Academies.

- Built 8,100 partnerships between education and industry.

- Developed or revised close to 1,900 secondary and postsecondary courses.

- Created 2,403 course articulation agreements between K–12 institutions and community colleges.

- Provided trainings or externships to over 87,000 faculty and staff of high schools and community colleges – including 7,814 trained through the Teacher Preparation Pipeline and 4,806 teachers trained through the University of California Office of the President's UC Curriculum Integration (UCCI) Institutes to develop UC-approved CTE courses, increasing that number from 5,600 courses to over 11,000 in the past six years.

INITIATIVE - FUNDED LOCAL AND REGIONAL IMPLEMENTATION GRANTS 2005-06 TO 2012-13

CTE Community Collaborative and Supplemental — combines the four grant categories from 2005 — Quick Start, Career Exploration, Faculty & Counselor Work Experience and Strengthening CTE.

Workforce Innovation Partnerships (WIP) — develop projects such as the early college high school and middle college and create career pathways aligned with selected Economic Development Strategic areas to prepare the future workforce in California.

Construction — increase, expand, and/or improve career pathways programs for the construction industry sector by developing model programs, articulating coursework, aligning curriculum, and developing advisory groups to link education with business, industry, and labor.

Career Advancement Academies — first year was a planning grant. Model projects in major population centers to help most-in-need 18–30 year olds return to school and combine learning with career opportunities in partnership with industry.

CA Partnership Academies — structured as a school within a school, academies create a close, family-like atmosphere in which academic and career and technical education are integrated, and viable business and postsecondary partnerships are established. (CDE)

Health Occupations Preparation and Education — support community colleges to create a learning center focused on careers in a variety of allied health programs, provide ongoing support services for students currently enrolled in allied health programs, and identify and engage partner high school students to explore careers in healthcare.

Health Science Capacity Building — build quality programs statewide that will prepare students for jobs or for postsecondary options in the health science arena, with the end goal of ensuring that the state has an adequate number of qualified workers to meet the critical worker shortages in the healthcare industry. (CDE)

Youth Entrepreneurship Program — economic and workforce development, Small Business Development, and International Trade Development Centers will provide statewide information/education to high school and community college young adults to help them understand entrepreneurship in the global environment as a viable career pathway.

Teacher Preparation Pipeline — align career and technical education curriculum and student support services so as to establish pipelines for students interested in teaching in today's CTE fields.

Middle Grades Career Technical Education and Career Pathways — provide middle grade students with career technical education and career exploration learning experiences. (CDE)

Quick Start — enhance linkages in CTE pathways between high schools and community colleges to increase new enrollments and student exploration in CTE and create a pipeline of students entering career pathways in emerging industries.

Career Exploration — create, improve, and/or expand middle school career exploration and awareness activities (e.g., programs, curriculum, events).

Faculty and Counselor Work Experience — support community college, high school, and Regional Occupational Centers and Programs faculty and counselors to gain business and industry-based work experience so they can improve their work with students by incorporating new skill sets, methods, information, and lessons learned.

Strengthening CTE — strengthen and improve the quality of existing CTE programs.

INITIATIVE - FUNDED STATEWIDE INFRASTRUCTURE GRANTS
2005-06 TO 2012-13

Statewide Career Pathways — established an infrastructure and processes for the articulation of secondary (high schools and Regional Occupational Centers and Programs) CTE classes with community college courses.

Technical Assistance Center — provided technical assistance to faculty and counselors statewide, both at the secondary and postsecondary level, and also made its resources available to other career technical education providers and workforce development organizations.

Articulation With Four-Year Institutions — CTE articulation between two- and four-year institutions of higher education and related issues, such as transferability of CTE coursework, portability of credits recognized by four-year institutions, and relative degree of consistency in prerequisite requirements and credits recognized for community college coursework.

Evaluation — provide information about the ongoing achievement of objectives and activities (formative); gather information about the final outcomes or products of the projects (summative); determine ongoing technical assistance needs; and identify promising practices.

CTE Liaison, Initiative Hubs — to build a statewide system to link businesses and economic development work with career technical education efforts. One center in eight of the 10 initiatives will connect ongoing work on new certificates, enrollments, and enhancements to career technical education.

CTE Online — expand computerized, web-based systems for CTE teachers in all 15 sectors to improve course content and lesson plan information, including integrating academic and CTE curriculum, into the menu-driven system. (CDE)

"a–g" Guide Projects — develop industry- specific model courses for statewide use that meet "a–g" requirements for all 15 sectors and 58 pathways. (CDE)

CTE Student Organizations — subject-based intra-curricular activities for secondary/ postsecondary CTE students to reinforce leadership and technical skills, deepen understanding of related industries, and facilitate internships and subsequent employment. (CDE)

Distance Learning — develop, implement, distribute, and support participation in CTE courses at a distance for residents in areas of rural California. (CDE)

New Teacher Workshop — provide early orientation requirements for CTE credential and instruction and support—particularly for those secondary and community college teachers without formal teacher training — on classroom management, instructional strategies, etc. (CDE)

Career Development and Work-Based Learning Linkages to Professional Organizations — expand, identify, and provide strong career development and work-based learning opportunities.

Leadership Development Institute — professional development modules delivered through classroom instruction based on effective leadership models to develop future CTE leaders at the community college and secondary systems. (CDE)

Curriculum Planning for Emerging Industries — build on four recent future-looking studies about the emerging industries of nanotechnologies, biotechnologies, digital manufacturing, and intelligent transportation, and focuses on developing model curricula for instruction in those industries.

California Career Center (Virtual Counselor) — portal developed to help middle school and high school students explore their career options and plan their next steps toward productive careers. (CDE)

A summary of outcomes for each activity area is provided in the Career Technical Education Pathways Initiative Cumulative Data Overview chart on page 10.

As these figures showcase, the Career Technical Education Pathways Initiative enabled K–12 school districts, community colleges, employers, and community partners to align educational offerings with employer needs, and clarified which types of efforts lead to effective CTE reform. The Initiative provided the foundation for many of the state's current workforce innovations, including Linked Learning, regional and sector-based strategies, and improved systems for measuring workforce education outcomes. It resulted in a score of discrete programs and structural improvements, several of which are detailed in the next section. Additional examples of programs that improved student performance and persistence in CTE programs, including detailed reports created as part of the Initiative evaluation, are available at http://www.ctecentral.org. Condensed summaries of Initiative-funded successes will also be available in fall 2014 on "Practices with Promise" section of the Chancellor's Office Doing What Matters for Jobs and the Economy website: http://dwmpracticeswithpromise.com.

HIGHLIGHTS OF INITIATIVE ACTIVITIES

The eight-year duration of Career Technical Education Pathways Initiative funding offered career technical education (CTE) stakeholders a rare opportunity to tackle challenging structural issues that stand in the way of CTE program innovation and improvement. The steady flow of Initiative resources over multiple years also enabled educators and employers to build deeper, more strategic relationships with one another and collaborate to develop course content and curriculum responsive to local and regional workforce training needs. Grantees were able to take risks and create innovative CTE curricula and instructional approaches to better serve all students, particularly those from underserved populations. There were also sufficient time and resources to develop and deliver these new products and services, then step back to assess their impact and make needed changes based on data and other feedback. The following selected Initiative highlights bring to life several recommendations for sustaining and strengthening CTE improvement efforts.

HIGHLIGHT: Building productive and sustainable partnerships among K–12 and postsecondary institutions, community stakeholders, and employers, at county and regional levels

"Programs funded under California's CTE Pathways Initiative were the first to form a true collaborative effort between K–12 and community college CTE programs. This type of collaboration spawned a spirit of cooperation between partners and served as a model for utilizing a variety of resources to provide high-quality career technical education responsive to employer needs," according to College of the Sequoias Dean of Career Technical Education, Larry Dutto.

Initiative funding for **CTE Community Collaborative** grants offered incentives for partnerships among community colleges and K–12, ROCP, adult education, labor organizations, employment agencies, employers, and community organizations within a region, resulting in coordinated efforts to deliver CTE programs. This was often the first time neighboring community colleges and K–12 districts had been asked to work together and share resources. In some communities, institutions that had historically competed for funding had to set aside institutional memory and work collaboratively to address workforce-training needs.

Supported by several years of consistent and reliable funding, CTE Community Collaborative grantees were able to build new kinds of relationships with their education, employer, and community partners and were able to create stronger, more employer-responsive CTE programs. For example, the Sierra College Science, Technology, Engineering, and Math (STEM) Collaborative (http://www.sierraschool-works.com) was created in 2008 by Sierra College and local employers to develop relevant, applied, and integrated curriculum to prepare students for careers in STEM. The program provides hands-on, project-based learning by integrating technical education and projects with academic courses. The Program's goal is to pilot new methods that will prepare students for technical careers that meet the workforce needs of the region.

This collaborative approach, in turn, fostered greater student engagement and deeper industry partnerships,

CAREER TECHNICAL EDUCATION PATHWAYS INITIATIVE CUMULATIVE DATA OVERVIEW

Career Pathways and Articulation	Career Planning and Development	Programs for Underserved Students	Business and Industry Engagement in CTE	CTE Teacher Recruitment and Professional Development
Community Collaborative and Supplemental •176,058 students in 7,412 course •42,949 students internships/ apprenticeships	•65,399 staff in trainings, externships and professional development	•1,690,769 in other CTE activities •3,279 partnerships		**Teacher Preparation Pipeline** •7,814 students •311 partnerships
Workforce Innovation Partnerships •16,020 students •228 partnerships	•337 staff participated in trainings and professional development			**Statewide Career Pathways** •2,403 articulation agreements
	Health Science Capacity Building •20,659 students •222 partnerships **CTE Student Organizations** •Membership increased by over 20,000 (20 percent) **Youth Entrepreneurship Program** •75,758 students •1,435 partners	**California Partnership Academies** •53,075 students •Over 1,500 partnerships **Career Advancement Academies** •8,700 students •Over 270 partnerships	**Career Development and Work-Based Learning Linkages to Professional Organizations (CA Career Cafe)** •3,265 counselors and staff participated in trainings	**CTE Online** •1,058 staff participated in workshops and trainings **"a–g" Guide Project** •4,806 teachers trained •Doubled the number of UC-approved CTE courses in past 6 years, from 5,600 to almost 11,000

GRANTS FOCUSING ON STAFF ONLY

Career Pathways and Articulation	Career Planning and Development	Programs for Underserved Students	Business and Industry Engagement in CTE	CTE Teacher Recruitment and Professional Development
	Leadership Development Institute •79 participants		**CTE Liaison Hubs** •Over 3,700 staff served	**New Teacher Workshops (CTE TEACH)** •3,764 teachers trained

GRANTS THAT HAVE ALREADY ENDED

Career Pathways and Articulation	Career Planning and Development	Programs for Underserved Students	Business and Industry Engagement in CTE	CTE Teacher Recruitment and Professional Development
Construction • 9,166 students	• 569 students in internships/apprenticeships	• 223 staff in trainings or externships • 125 partnerships		
Quick Start •72,963 students •412 partnerships **Career Exploration*** •17,450 students	**Strengthening CTE** •8,903 students •213 partnerships **Health Occupations Preparation and Education** •Over 10,000 students •79 partnerships **Middle Grades** •13,674 students	**Distance Learning** •850 students •Over 25 online courses developed or revised	**Faculty/Counselor Work Experience** •109 staff	**Curriculum Planning for Emerging Industries** •6 courses in new technologies developed

Note: Summary cumulative data for Initiative grants through the 2012/13 academic year were collected from various data collection tools, as were available as of May 2014. In most cases, data are cumulative through the duration of the grant and may include duplicates.

*This program was integrated into Community Collaborative grants.

which led to more effective and resilient CTE programs. Such programs can survive budget ups and downs, and their successes can be leveraged to form future collaborations to secure funding from other sources. The examples that follow show different ways communities or leaders with vision were able to create more sustainable CTE programs.

Countywide College and Career Readiness Vision

Through the eight years of Initiative funding, Cabrillo College and its education partners received several grants that supported the region's vision to create, implement, and refine the Santa Cruz County College Commitment (S4C) project. S4C is a countywide education collaborative comprising all K–12 school districts in Santa Cruz County, Cabrillo College, California State University Monterey Bay (CSUMB), and the University of California Santa Cruz (UCSC). The partnership's vision is to prepare every Santa Cruz County student to be college and career ready.

Research suggests that students are more likely to attend and complete college when adults signal their expectations for college attendance by taking them on a tour of a college campus before sixth grade. The S4C approach offers county students an opportunity to visit a college campus, beginning with a fourth-grade tour of Cabrillo College. Each year, about 4,000 students visit Cabrillo where they receive a guided walk-through of the campus and interact with college faculty during hands-on mini workshops and other activities related to college and careers. The event was created to help cultivate a college-going culture among attendees. Students were introduced to

four-year postsecondary institutions through visits to CSUMB and UCSC campuses[1] during middle school and high school.

UCSC/S4C Middle School Summit

The UCSC/S4C Middle School Summit was pilot tested in May of 2013. As they toured college classrooms, students were introduced by college instructors to career options such as crime prevention, game design, robotics and engineering, social justice, and astronomy. The dual goals for the pilot were to provide students an opportunity to explore college majors most relevant to their interests, and to see first-hand what their future studies might look like.

The pilot was implemented by selecting 350 seventh-grade students to attend the day-long experience on the UCSC campus. Students worked on an engaging pre- and post-event curriculum that enhanced their experience of the event and provided data on its impact. Results from a 2013 pre- and post-event survey of Middle School Summit participants showed: An 8.3 percent increase in students who hope to achieve a four-year degree or higher; a 19 percent increase in student expectation to achieve a four-year degree or higher; and improvement in students' perceptions about college, specifically that: "College is cool," "college is important," and "college is useful." Based on its highly successful outcomes, the event was continued and expanded. In spring of 2014, all seventh-grade students in Santa Cruz County visited either UCSC or CSUMB.

California Career Café

Early assessments of statewide efforts highlighted the need to create a system that allows students to explore, evaluate, select, and prepare for specific careers. Therefore, Initiative funds were directed toward creating a virtual career center called the California Career Café (http://www.cacareercafe. com). The website helps community college students identify their strengths, talents, interests, and educational options; explore career opportunities that suit them; and connect with employers looking for qualified

employees. Regardless of the industry sector, online lessons guide students through a sequential college/career planning process as well as introduce them to the soft skills such as positive attitude, strong work ethic, time management, problem solving, ability to work in teams, self-confidence, flexibility/adaptability, working under pressure, and other skills that today's employers expect in their new hires. California Career Café provides:

- 50-plus online college/career lessons for CCC students to help them identify their career/education direction.

- Complete set of employment tools via CAL-JOBS to help students find jobs.

- Connections to an extensive Professional Association Data Base.

- Soft skill lessons on skills employers seek when looking for new hires and selecting employees to promote.

In 2012-13, facilitated by the California Career Café, over 500 counselors and career professionals participated in statewide conferences, local workshops, and webinars to help them better prepare their students for 21st century careers. In addition, the website had more than 2 million views since it launched with Initiative funds in 2009.

California Career Center (Virtual Counselor)

State Superintendent of Public Instruction Tom Torlakson unveiled the new California Career Center

(CalCC) Web portal (https://www.calcareercenter.org/) on May 23, 2012. The portal was developed to help middle school and high school students explore their career options and plan their next steps toward productive careers.

In 2012–13 the CalCC was promoted via social media, email lists, and conference workshops. There were 24,439 unique visitors, with 196,173 page views.

This year's contract deliverables were focused on creating tools that facilitate the use of the CalCC as well as new complementary tools:

Lesson Plan Creator: The Lesson Plan Creator enables educators to create lessons using the full range of CalCC content. Users follow a step-by-step process to develop worksheets; they can then send the lesson URL that contains these worksheets to students so they can complete the lessons via their My Stuff accounts.

Classroom-Ready Curriculum: Seventeen complete lesson plans have been added to the CalCC. These lessons help educators engage students in using all California Career Resource Network (CalCRN) resources, with a focus on the CalCC.

Career Surfer: The Career Surfer mobile application encourages students to begin the career exploration process on their mobile devices. Students can explore the 900 O*Net occupations and are directed to the CalCC and other CalCRN resources for additional in-depth exploration and career planning.

SPARC Online: In 2012, the CDE took over responsibility of the Support Personnel Accountability Report Card (SPARC) process. The SPARC enables school-site student support teams to report on the impact they are having in helping to develop career- and college-ready students. Forty-one schools participated in SPARC 2013. The development of the SPARC Online tool should promote the participation and information sharing of more schools in the future. Teams are prompted to use and report on the impact of using CalCRN resources including the CalCC.

Project leadership for the CalCC Web portal was provided by the CalCRN working under a contract

between the California Department of Education and the San Joaquin County Office of Education.

HIGHLIGHT: Building stronger pathways to careers

"[CTE Community Collaborative grants] helped bring industry and colleges closer together. It also provided a solid bridge, or pathway, for [helping] graduates find work in industry. Without the funding provided by this Initiative, the program would have never been able to get established." [Anonymous Industry Partner, Survey Respondent]

A key focus of the Career Technical Education Pathways Initiative is defining, developing, and streamlining specific programs of study or sequences of related courses, often across secondary and postsecondary programs, to prepare students for a career or further education. These program pathways enable students to make informed decisions about which courses are required to reach their goals. They can also lead to improvement of course content by laying out a logical sequence of curricula and bolstering students' abilities to learn college-level subject matter. For example, clearly defined CTE pathways enable middle schools and high schools to address the course requirements and standards necessary for students to make a successful transition from high school to college. The pathways also inform students about how coursework relates to the current workplace context. Initiative-funded efforts have helped institutions establish career pathways that lead to jobs that provide a family-sustaining wage.

HIGHLIGHT: Supporting Career Pathways redesign in high-demand disciplines

"We're excited about interweaving [health sciences content] throughout our other curricula, for example, in language arts classes. Even in Greek and Latin classes the students are studying and making connections to health-related terminology." [Leah Jager, English/CTE Teacher, Del Norte High School, San Diego]

Interim reports on the Initiative highlighted the importance of providing incentives for secondary schools and colleges to create more flexible offerings and systems so that new CTE instructional approaches can be implemented. In order for reforms to be effective, sufficient funding had to be secured to support development of high-quality curricula and to offer incentives for existing teachers to deliver the new curricula. As an example, Grossmont-Cuyamaca Community College District in San Diego County leveraged Initiative funds over eight years to address a challenge common to community colleges across the state: while there is a growing demand for graduates in healthcare fields, secondary students and their teachers are not aware of the full range of health and medical career options available to students; and many students cannot pass prerequisite core courses, such as biology, chemistry, anatomy, and physiology when they enroll in a community college.

The Project Director for the CTE Pathways Initiative at Grossmont-Cuyamaca Community College District, called the Health and Science Pipeline Initiative (HASPI), led a collaborative effort to design innovative strategies to support local area high school science teachers in professional development. The HASPI model of contextualized, standards-based curricula in the science courses allowed instructors to provide meaningful content in biology, chemistry, and anatomy and physiology classes within the framework of healthcare, and to offer high-impact career exploration opportunities. Students who completed the HASPI course sequence were better prepared to enter health professions training programs, and participate in work-based learning opportunities.

Starting in the spring of 2006, the Initiative invited local high school science teachers to tour community

HEALTH AND SCIENCE PIPELINE INITIATIVE (HASPI) STUDENTS EXCEED STATE MEAN ACHIEVEMENT SCORES IN SCIENCES

The HASPI career pathway provides students with instruction related to systems of the human body through medical biology (or life sciences), medical chemistry, and medical anatomy and physiology. The pathways may also include a variety of other courses such as sports medicine, biotech, and medical English. HASPI courses are Common Core aligned, meet the Next Generation Science Standards, and are "a–g" approved.

HASPI leadership designed the coursework within the core academic science courses because these courses are the gatekeepers to success in health professions training programs at the college level. Students interested in healthcare careers must be prepared for the rigor and complexity of the sciences. Infusing medical themes into the core science courses adds meaning and anchors the content into real-world scenarios.

HASPI collected data over the years for how students performed on the California Standards Tests, which measures students' progress toward achieving the state's academic content standards. In 2009-10, 86 percent of San Diego County HASPI sites teaching medical chemistry outperformed state mean scores for chemistry, and 93 percent of San Diego County HASPI sites teaching medical biology outperformed state mean scores for biology. Overall, HASPI medical chemistry students averaged 353, compared to the county mean of 344 and the state average of 342. Improvements were even better for biology — all HASPI San Diego County sites teaching medical biology outperformed state mean scores for biology. Average biology scores for HASPI sites, the county, and the state in 2011-12 were 393, 362, and 355, respectively.

college health professions classrooms and learn about the various allied health training programs available on the campuses. The Initiative engaged local high school teachers in a collaborative effort to develop a contextualized, standards-based medical biology curriculum. The curriculum featured hands-on laboratory lessons and accompanying ready-to- use classroom lab supply kits.

Over the eight years of Initiative funding, the HASPI curriculum developers created a complete curricula for medical biology, medical chemistry, and medical anatomy and physiology courses, all aligned to California state science standards. The curricula have been modified to ensure alignment to Common Core State Standards and Next Generation Science Standards. Courses were carefully designed to meet University of California (UC) and California State University (CSU) admission requirements (also referred to as "a–g" approved).

In the later years of Initiative funding, HASPI developed a middle school science curriculum featuring life sciences and a STEM physical science course, contextualized within the health science framework. During this time, the HASPI curriculum developers were available to teachers by phone or email to answer questions about

implementing particular lessons or hands-on labs. Based on their level of confidence with the curriculum, teachers could integrate single lessons into their traditional curriculum or teach an entire HASPI course. Annual professional development curriculum workshops were offered to teachers in all phases of implementation of the HASPI curriculum.

The workshops featured hands-on lab demonstrations, question-and-answer sessions, industry panels, and opportunities for collaboration among subject areas. The widespread adoption of the HASPI model has grown organically through a grassroots effort based on a solid curriculum package, flexibility within the pathway, access to resources via a website, and a responsive support network for participants. As a result, individual schools could offer students a sequence of contextualized science courses because teachers chose to teach these curricula and encouraged colleagues to implement the HASPI model, thus creating health pathways for students.

During the years the Initiative was funded, many career exploration opportunities were created for the HASPI health pathways students. An Industry

Connections Coordinator (ICC) served as a liaison between high schools and industry partners to engage students in job shadows, internships, guest speakers, and job readiness training. A survey of the HASPI industry partners revealed their preference for working with a single point of contact to manage the career exploration component of the Initiative. The teachers found the ICC resource valuable, as it created opportunities for many students that might not have had career exposure.

"The work that HASPI has done related to medical biology and chemistry is remarkable and helps districts develop pathways that increase middle and high school students' awareness of health-related occupations and careers, improve students' performance in science courses, and improve transition and retention rates in college programs." [Coordinator, Curriculum & Instruction]

California Department of Education projects focused on educator development

To support educators who are implementing CTE courses and pathways, the California Department of Education (CDE) has initiated several projects to enhance teacher knowledge and instructional skills related to CTE content. Along with continued educator development for CTE, the CDE has also made building the capacity for CTE leadership at both the administration and classroom level a priority.

CTE Online is the one-stop shop for quality CTE curriculum that has been integrated with academics. In 2012–13, CTE Online continued to add to its repository of CTE curriculum—having fully developed 406 CTE and academic standards-aligned instructional lesson plans. Focused on the Arts, Media, & Entertainment and the Engineering and Design sectors for the year, the CTE Online teams fully developed 100 project-based learning modules for eight different CTE courses. To date, the CTE Online website tracked its annual unique visitors to a new all-time high of 361,835. Within its structure, CTE Online hosts CTE Teach, California's training center for new CTE teachers. CTE Online also hosts the Leadership Development Institute (LDI) portal for new and aspiring CTE administrators.

CTE Teach provided teacher trainings and support, such as teacher orientation, mentor assistance, and train-the-trainer workshops to 986 participants in 2013. Of the 986 participants, 398 new CTE teachers completed CTE Teacher's Early Orientation Module, fulfilling one of their requirements to earn a preliminary CTE credential. CTE Teach expanded its training initiatives during 2012–13 to include the Career Technical Educators Using a Data Driven Improvement Model (CTEDDI). In partnership with the National Research Center for Career Technical Education and NOCTI, a third party CTE assessment provider, CTE Teach provided training to 30 teachers and 13 mentor teachers using the CTEDDI process. Using classroom- and student-level data combined with the NOCTI pre-test assessment results, CTE instructors adjusted their curriculum and made improvements to their instructional methods. The CTE teachers then tested their 532 respective students using a NOCTI post-test at the end of the year and realized several impacts of using a data-driven process. For instance, teachers:

- Evaluated their current assessments more often.

- Collaborated more between individual school sites.

- Varied their teaching strategies to impact student learning.

- Identified curriculum gaps.

- Felt the CTEDDI project impacted how they teach, plan instruction, and monitor student progress (90 percent of teachers reported this).

- Validated CTE programs with site administration.

- Helped to increase CTE course offerings at some sites.

- Created professional learning communities focused on data use.

- Secured additional funding for some programs.

California Department of Education projects focused on capacity building

To continue to increase the state's CTE Leadership capacity, the CDE sponsored another LDI cohort. Designed for new and aspiring CTE Administrators, the 2012–13 LDI cohort participated in 12 days of classroom training sessions focused on 24 professional development modules related to leadership and the administration of quality CTE programs. New elements of this year's training included visits to both the CDE and the California Community Colleges Chancellor's Office, where participants met with CTE program offices and were provided presentations from state-level staff. Twenty-five participants completed the program, earning their certificate from the CDE. One LDI graduate, Dr. Cliff Adams-Hart, stated, "They're giving us the tools that we will need to be able to do our job more effectively and to be all about the student."

Increasing CTE leadership capacity at the classroom level involves both CTE teacher and student participation through intracurricular Career Technical Student Organizations. California has six recognized career technical student organizations: Cal-HOSA (Health Careers), DECA (Marketing), FBLA (Business & Finance), FFA (Future Farmers of America), FHA-HERO (Home Economics), and SkillsUSA (all sectors). Founded and supported by federal law, these six statewide organizations enhance both academic and career technical education course work by providing essential leadership skills needed by businesses and industry. During the 2012–13 school year, five of the six Career Technical Student Organizations established new membership records—reaching 101,880 members statewide. Since the investment of SB 70

funds from 2008–13, membership has increased by 20,789 members or 20.4 percent statewide.

CTE course alignment with "a–g" requirements

Since 2010, the University of California Office of the President's UC Curriculum Integration (UCCI) institutes have brought together more than 400 high school and postsecondary educators and industry representatives, organized into teams led by skilled facilitators, to create innovative high school core academic courses that integrate the rigor of UC/CSU admissions criteria with the real-world relevance of career technical education.

There were 9,954 CTE courses in California public high schools that were approved to meet University of California (UC) "a–g" admission requirements out of 42,610 CTE courses statewide— an 8.5 percent increase from the year before. In addition, there were 1,890 CTE courses that met UC "a–g" admission requirements in private schools in California as well. Over the last seven years, utilizing SB 70 & 1070 funds for this project, the number of UC-approved CTE courses has grown from 4,705 to the present number, which represents an increase of 105 percent.

Doing What Matters: Statewide CTE Initiative for Community Colleges

The SB 70 work has proved vital for statewide efforts, such as Doing What Matters. An initiative of the California Community Colleges Chancellor's Office Workforce and Economic Development Division, Doing What Matters is realigning funding streams and aiming for student outcomes that close the skills gap between what employers need and the skills that students have.

In the past year, the state was divided into seven regions and 10 priority and emerging sectors. This structure was designed to deploy key talent across the state with expertise in their region or sector. Each region has a Regional Consortia Chair who organizes efforts in the entire region. Within each region there are Deputy Sector Navigators, who manage the

activities relating to the Doing What Matters initiative in the priority or emerging sector identified in their region. There are also 10 Sector Navigators who oversee the sector activities statewide. This structure has served to provide resources where a need has been identified.

The Regional Chairs, Sector Navigators, and Deputy Sector Navigators work with colleges to improve career readiness in Information and Communication Technology (ICT). For example, Sector Navigator Steve Wright is responsible for statewide coordination in the ICT-Digital Media sector. He collaborates with the regional Deputy Sector Navigators on projects in this sector.

Wright credits his team of Deputy Security Navigators and their Regional Consortia Chair partners as the best source of information about statewide synergy opportunities. On weekly ICT-Digital Media Team conference calls, regional needs are shared and compared for synergistic elements. For example, the team identified a statewide shortage of computer network lab simulation equipment, and came up with several possible solutions that are currently in practice but not well communicated. The ICT-Digital Media Team has since conducted various activities, including initiating a user group among computer network lab faculty, developing a shared website for best practices, obtaining $200K seed fund to pilot virtual hubs of equipment to be shared among colleges, and identified statewide experts to mentor other faculty. Similar examples all combine problem/opportunity identification, shared solution discussion, and an effective and scaleable implementation plan that provides advantages to all 112 California Community Colleges campus locations.

Another example of the work of Sector Navigators involves Sector Navigator Linda Zorn, who coordinated a statewide effort with the Healthcare Deputy Sector Navigators, Regional Consortia Chairs, and the Centers of Excellence that provide important research related to employment to improve funding structures for this sector.

The health sector collaborated with the Centers of Excellence and each region on a statewide labor market survey, which surveyed three health industry groups: acute care, ambulatory care, and long term care. Results will be available statewide and by region. This survey was completed in partnership with several industry groups, including the California Hospital Association. With the new collaborative structure, a blending of Sector Navigator, Deputy Sector Navigator, and Regional Consortium funds was used. The labor market data generated by this health sector survey can be used by each region as decision-makers discuss and validate sector selections, as well as for the CTE Enhancement Funds that require labor market data to justify the funding requests.

HIGHLIGHT: Promoting greater access and equitable outcomes

Both K–12 schools and community colleges initiated opportunities through Initiative funding for their academic, vocational, and support services personnel to improve efforts to engage and serve underserved student populations. Having flexible structures and processes that work for both students and employer partners helped to ensure sustainable programs, especially when those programs had student-outcome data as evidence of return on investments.

Like K–12 public schools with open access to students, community colleges are the great democratizers of higher education, enabling students to participate in a wide range of academic, workforce training, and personal development endeavors — regardless of economic background or the knowledge and skill they bring to college-level study. Students who are the first in their family to attend college, who come from a low-income household, or who are members of ethnic groups underrepresented in higher education are much less likely to succeed than students with more academic resources, knowledge, and skills. Access without success undermines the promise of public institutions.

In order to improve outcomes for more vulnerable student populations, research points to the importance of instructional approaches such as: creating cohorts of students who study together and support one another over time; shifting teaching from an emphasis on lecturing to a more hands-on and project-based approach; and providing support for all aspects of a student's learning and development — whether through personal

counseling, building study skills, helping secure financial aid, connecting to tutors and/or mentors, or teaching 21st century employability skills.

Because the programs funded by the Initiative support access and equity, important lessons can be learned from their experiences, particularly from large-scale efforts such as the Career Advancement Academies and California Partnership Academies.

Career Advancement Academies

The Career Advancement Academy (CAA) was designed in partnership with community colleges, workforce investment boards, and community-based organizations to support young adults, ages 18–30, whose lack of skills in reading, writing, and mathematics shut them out of well-paying jobs in high-demand fields. Under the Initiative, CAAs expanded rapidly, operating in nearly one third of California community colleges (32 out of 112) across three regions — East Bay (near San Francisco), Central Valley, and El Camino (in Southern California) — from 2007–10. In 2011, as a

result of the state's budget crisis, CAA funding was reduced, and the number of campuses with CAAs declined to just 15.

The CAAs combine technical training with basic mathematics and English instruction so that students can master academic skills within the context of the workplace. Students are grouped into learning cohorts, provided with intensive support services (such as college and career counseling) while enrolled, and receive additional help in securing a job. By coordinating the efforts of several groups of instructional and student services staff who have historically operated in isolation from one another, community colleges are building pathways from CAA programs to careers or further education. This model has enabled some CAAs to secure additional funding.

For example, the East Bay Career Advancement Academy's objective was to increase foundational skills in reading, writing, and mathematics while ensuring that students enrolled in career technical training programs that would lead to well-paid employment or further higher education. The ultimate goal of the Academy was

---

SIGNS OF SUCCES FOR CAA STUDENTS

Career Advancement Academy (CAA) programs, most of which last between a semester and a year, have been implemented in high-demand pathways such as:

- Health
- Education
- Transportation
- Manufacturing
- Energy
- Construction
- Finance and Business
- Information Technology

Between 2007 and 2013, CAAs enrolled nearly 9,000 students across 30 colleges. In that period, 48 percent of CAA students were Latino and 16 percent were

African American, compared to 33 percent and 7 percent, respectively, for the California community college system. CAA students also were somewhat older than their community college system peers. Overall, 45 percent of CAA students were under 25 years of age, compared to 53 percent for the entire community college system. The median age for CAA students was 26. Forty-two percent of CAA students received educational financial supports as Pell Grant recipients. Seventy-six percent of CAA students persisted either in the CAA college or in any other California community college, and 24 percent attained an associate degree or a community college system-recognized certificate.*

* OMG Center for Collaborative Learning. (March 2014). Career Advancement Academies: Summative evaluation report (2007–13). Prepared for the CAA Regional Directors and the Career Ladders Project.

to provide multiple career pathways for undereducated and/or underemployed young adults (ages 18–30) in the East Bay region near San Francisco. The approach focused on linking these students to living-wage jobs, either during their course of study or after completing a certificate or degree program in a targeted industry area.

Before Initiative funding expired, savvy East Bay CAA staff were able to leverage CAA success, as documented in student outcomes, to acquire new federal funding to continue their services. In 2012, the U.S. Department of Labor Trade Adjustment Assistance Community College Career Training Initiative awarded a $14.9 million federal grant to Design It – Build It – Ship It (DBS). The regional grant consortium includes five college districts: Contra Costa, Solano, Peralta, Chabot/Las Positas, and Ohlone; five regional workforce boards; University of California Berkeley; CSU East Bay; the Bay Area Manufacturing Renaissance Council; Career Ladders Project; Ports of Oakland and Richmond; and was supported by over 20 major regional employers.

DBS was funded to strengthen career pathway training in advanced manufacturing, transportation and logistics, and industrial engineering, and to forge a stronger regional workforce system to help East Bay residents access training in these industries. As part of this, DBS created and expanded access to technical training programs for low-income adults and offered training similar to that offered by the regional Career Advancement Academies, which promoted wage and career advancement for all residents. DBS funded new training and regional workforce systems to help industry, colleges, and the regional workforce system accelerate new training so that jobseekers are trained

for employment that provides a living wage, and industry can meet its needs for highly qualified workers.

According to Randy Tillery, Dean of Economic and Workforce Development for the Contra Costa Community College District and Project Director of DBS, "This includes the successful East Bay Career Advancement Academy initiative, which is a regional career path training system operated jointly by the Contra Costa and Peralta College Districts, targeting low-income adults entering career training programs who assess one to three levels below college readiness in math and English. By working collectively, we are able to realize systemic change that allows us to build stronger regional partnerships and better serve both our students and regional industry."

California Partnership Academies

California Partnership Academies (CPA) exemplify the career academy model for preparing high school students to succeed in both college and careers. Career academies are small learning communities within larger high schools, usually enrolling students in grades 10–12. Each year, students take classes together, including core academic subjects and at least one career-technical course related to the academy's career theme. A team of teachers works with the same group of students over several years, linking instruction across disciplines and over time. Employers provide internships and other opportunities for students to learn outside the classroom. By law, each CPA is required to receive financial or in-kind support from the host school district in an amount at least equal to the CPA grant from the state. The CPA

law also requires each academy to receive financial or in-kind contributions from employers that equal or exceed the amount of the state grant.

By law, at least 50 percent of the students in each incoming class of CPA sophomores must meet three of the following six "at-risk" criteria (defined more specifically in the law): (1) having a poor attendance record, (2) being significantly behind in credits, (3) demonstrating low motivation for the regular school program, (4) being economically disadvantaged, (5) having low state test scores, and (6) having a low grade point average. Student demographic data suggest that the academies are generally diverse and gender-balanced. Academy students slightly outperform statewide averages on CAHSEE pass rates; they substantially outperform them in meeting "a–g" course requirements for UC and CSU; and they have much higher graduation rates for seniors, especially among students of color. These results are encouraging since CPA students must choose voluntarily to attend a CPA and must meet the "at-risk" criteria, and because most CPAs are in low-performing high schools.[2]

In 2012-13, 161 SB 70-funded California Partnership Academies served 14,728 students across 26 counties.[3]

Assembly Bill 790 Linked Learning Pilot Program

Assembly Bill (AB) 790, by former Assembly Member Warren Furutani and approved in 2011, called for the establishment of Linked Learning pilot programs. The participants selected by the California Department of Education in conjunction with outside partners include school districts, county offices of education, and several regional consortia of education agencies. Linked Learning programs use an integrated "a–g"-approved academic curriculum, an integrated-CTE standards-based curriculum, a series of work-based learning experiences, and a full range of academic and social-emotional student support services to forge real connections between high school and college and career.[4] As part of this pilot program, and in line with policymakers wanting data on student-level outcomes, AB 790 legislation specifies that pilot participants will be required to gather informa-

tion about the costs and merits of the pilot program, including pupil outcome data such as graduation rates, UC eligibility, and workforce status.[5]

HIGHLIGHT: Aligning CTE course offerings within and among secondary and postsecondary education institutions so that students can accumulate course credits in a predictable and efficient way

Through Initiative funding and other efforts, articulation of CTE course offerings between secondary and postsecondary institutions has improved. Currently, such course articulation agreements, as well as dual/concurrent enrollment programs, are helping high school students gain college credit and exposure to college-level CTE courses. But for students to be able to fully and consistently reap the benefits of articulation or concurrent enrollment opportunities, a coordinated statewide system that aligns CTE course content and credits must be implemented.

Students' academic and career goals may require them to navigate a number of education systems, including K–12, adult schools, ROCPs, community colleges, and four-year institutions. In California, these segments work largely independently, both in determining what content should be offered and in defining the standards of success. For example, content learned in adult school may not align with community college programs of study, and community college coursework may not meet requirements for transfer to a four-year institution. As a result, students frequently experience disheartening gaps or repetition in coursework as they pursue postsecondary or career goals, especially if they move from one part of the state to another. The lack of alignment and differing standards result in wasted resources for colleges and students.

As one well-publicized example of this, large numbers of students require English and mathematics remediation upon enrollment at two- and four-year colleges, partly because of the differing competency expectations, first between secondary and postsecondary institutions, and then between the two-year and four-year institutions. As a consequence, many students may spend more than two years in community colleges to take the number of courses necessary to meet academic proficiency requirements.

The Career and Technology Education Management Application for tracking student progress

An explicit goal for California's Career Technical Education Pathways Initiative is to engage the various education segments in developing articulated CTE pathways between and among themselves. As one example of such efforts, several grantees used Initiative funds to ensure that students receive appropriate college credit for articulated CTE courses they take in high school. For example, Kern Community College District, San Diego Community College District, and Ventura Community College District used Initiative funds to purchase the Career and Technology Education Management Application (CATEMA), a computerized tracking system in which users (i.e., secondary teachers and counselors, students, and college registrars) enter, update, and report on the progress of students taking CTE coursework. High school and community college teachers and faculty were trained to use the system.

The primary objectives for CATEMA are to facilitate the management of career preparation programs, make this information available to everyone in education, provide accessible and printable data in detail and as summary reports, and ensure that the data are accurate and secure. The web-based interface allows users to establish and maintain their own accounts. It provides users a seamless record of a student's accomplishments from secondary to postsecondary education and beyond. High school students can use the CATEMA system to petition for articulated credit; community college faculty can use it to approve such requests; and college registrars can append the credit to a student's transcript. The system also allows for coordinated tracking and reporting among users.

To build on CATEMA's potential for enabling high school students who participate in articulated courses or dual/concurrent enrollment to have evidence of college credits, WestEd will conduct further analysis to determine what happens to these students over time. For this study, CATEMA records will be linked with Cal-PASS Plus data and then connected to Employment Development Department unemployment insurance wage data. In addition, WestEd will further study how many of the 1,700 CATEMA participants and 50,000 California Partnership Academy participants enrolled in community colleges and, for those that did, determine

the average number of units they completed, the average number of units they completed in the first term, their average completion rate, their average course success rate, and their post-college earnings, compared to other similar students who were not participants in either CATEMA or a CPA. This analysis will be available in the Career Technical Education Pathways Initiative 2013-14 evaluation technical report, available to those interested at http://www.CTECentral.org in late fall 2014.

HIGHLIGHT: Building capacity for evidence-based decision making

Conventional success metrics may not tell the full story of the impact of career technical programs, particularly those that retrain incumbent workers, enable professionals to retain their employment certifications, and lead to industry credentials. With data becoming such a critical factor in decision making — ranging from local control funding at K–12 school districts and program decisions at individual colleges, to compliance with grant funding at the state level — it is vital that appropriate measures of program- and student-level success be identified and consistently deployed across institutions.

In 2005, when the California Career Technical Education Pathways Initiative was first authorized, data to support decision making were considered a "nice-to-have." For example, it was expected that grantees document the number of students and faculty served and the number of industry and community partnerships created. Currently, however, decision-makers want grantees to document measurable individual student outcomes that result from participation in CTE programs. Both the state leaders and interim Initiative progress reports highlighted concerns about the lack of student and program outcome data so that CTE successes could be more accurately documented. However, because systems and procedures for collecting and analyzing student outcome data were not in place during much of the Initiative funding period, Initiative-wide data on such outcomes as the number of students who earned a college credential or secured earnings gains proved difficult to gather.

Few K–12 districts and colleges tracked student-level information for the Initiative, and in some cases when data were tracked, the information gathered was

insufficient to follow students from one segment of the education system to the next or from school to employment.[6] Furthermore, isolating individual students who directly benefited or received services from Initiative-funded programs was challenging because grant dollars supported many activities designed to improve education systems, such as providing teacher education or utilizing course articulation agreements and career pathways to forge connections between segments of the K–12 and community college systems.

A further challenge was that, even when institutions have timely and convenient access to data, they may not use this information to inform decision making and planning. Often this is because the data are not reported in ways that are meaningful or useful to those who need them. To address this issue, a broad range of CTE practitioners and stakeholders met in June of 2012 to discuss ways that decision-makers could be encouraged to use data for decision making. They recommended that various CTE metrics be aggregated and displayed in formats designed to inform local, regional, and sector conversations about improving student outcomes. The group also identified data that need to be captured more systematically and regularly, such as CTE students' wage gains, employment in the field of study, and attainment of industry or state certifications.

LaunchBoard: Bringing the right data together in a meaningful format

In response to recommendations generated at the meeting, a data-based tool called the LaunchBoard was collaboratively developed by several stakeholders — including the RP Group, Cal-PASS Plus, Centers of Excellence, and WestEd — beginning in 2012. In 2014, the LaunchBoard, which features data related to CTE program effectiveness, was made available to all California community colleges and feeder K–12 school districts. Supported by the California Community Colleges Chancellor's Office and hosted by Cal-PASS.

Plus, the LaunchBoard aggregates program-level data, including:

- **Student characteristics,** progress, and completion data from the Chancellor's Office Management Information System database.

- **Wage data** from the Employment Development Department.

- **Employment outcomes** from the CTE Employment Outcomes Survey.

- **Labor market information** from Economic Modeling Specialists International (EMSI).

- **Student outcomes at the college level**, such as the number of low-unit certificates and industry certifications earned.

In addition, the LaunchBoard offers several features that allow education leaders and teachers to get important displays of information quickly to inform decision making and planning:

- **Program Snapshot** includes information about specific programs and related student outcomes that are grouped into categories (such as enrollments, milestones, credentials, employment), as well as about related regional labor market demand.

- **Common Metrics** enables colleges to upload and view information on 34 indicators used to track progress on the California Community Colleges Chancellor's Office's Doing What Matters framework.

- **Additional Tracking** allows colleges to gather information on learners who participate outside the college application-and-enrollment process, such as through contract education or career fairs.[7]

Identifying new, more accurate measures of CTE student and program success

In addition to aggregating information, the Launch-Board is improving access to information on wage gains, employment in the field of study, and attainment of industry or state certifications. Earnings and job retention outcomes are drawn from California's unemployment

Launch B**o**ard 1.0
Data-Backed Decisions

insurance database, and a statewide survey of former students addresses employment in their field of study. To improve systematic access to third-party certification data, the Chancellor's Office established the Workforce Credentials Coalition, a national effort to make certification data available to workforce training programs through the National Student Clearinghouse. Additional improvements are scheduled for the coming year, such as integrating information on articulated courses, dual enrollment, and credit by exam from CATEMA.

The LaunchBoard is now being used to measure the progress of all Chancellor's Office Workforce and Economic Development Division grantees, to ensure that efforts are resulting in improved student outcomes. The Chancellor's Office has also initiated several research studies to better understand the outcomes of career and technical education students and is considering the addition of new metrics to the CTE Scorecard that reflect employment outcomes.

MOVING FORWARD: TACKLING STUBBORN CHALLENGES

CHALLENGE: Traditional success metrics may be inadequate to capture broad workforce needs and related CTE accomplishments.

While completion of community college certificates and associate degrees and transfers to a four-year institution are important success metrics, they do not fully account for successful student outcomes. There is growing evidence that, even when they do not earn a community college credential, CTE students reap benefits related to job retention and earnings gains.

In the national conversation about successful community college programs, a disconnect exists between the importance attached to completion of a certificate or credential and the reality of how workforce training programs are offered. For example, two-thirds of California community college CTE programs lead to short-term (earned in a year or less) certificates, but many of these programs are not included in official success metrics because they are not approved by the Chancellor's Office. However, success rates — whether they take the form of public documents like the Chancellor's Office Scorecard

or the new accreditation reporting requirements — will increasingly be used to leverage funding. And community colleges are less likely to offer course content that does not move students toward these certificate- and credential-focused goals, even if a course contributes to developing needed workforce skills.

The problem of equating community college completion with success becomes even more apparent when examining employment outcomes. An analysis of wage gains for California community college CTE students, conducted by Peter Riley Bahr, an associate professor in the University of Michigan's College of Education, in conjunction with the WestEd evaluation, found that completion of a community college-issued credential had little impact on earnings. In many fields, wage gains for students who completed a community college credential were the same as or lower than those for students who earned the same number of units but did not complete a certificate or credential.

In some cases, wage gains for non-completers may be the result of attaining a third-party or industry-recognized credential. For example, many colleges offer short sequences of courses to prepare students to become state-licensed childcare workers or wastewater treatment plant operators, to pass a certification exam offered by Microsoft or the National Association of Manufacturers, or to qualify for apprenticeships in steel-working or carpentry. Recent research by the U.S. Census Bureau found that holding a third-party credential had a significant impact on the income of workers who had some college or an associate degree. However, unless external industry-recognized credential attainment is counted as part of community college success metrics, CTE programs that are aligned with these credentials, and are, therefore, valued by industry, may become a low funding priority or be cut.

CHALLENGE: State policies create barriers to hiring effective CTE faculty.

In the selection of instructors, CTE programs often give preference to people with industry experience who can provide students with a real-world context for their coursework. However, many schools have difficulty recruiting these professionals to be full-time faculty, leaving many programs with mostly adjunct or

part-time CTE teachers. In addition, professional development programs to strengthen the teaching skills of new CTE faculty are few and far between.

Strengthening teacher education programs and professional development, especially for those teaching CTE courses, was a key goal of the Initiative. CTE faculty at the secondary level who are knowledgeable about particular industries or have relevant workplace experience frequently come to education directly from industry, often taking a cut in pay to do so. Some may elect to teach only part-time, in addition to their industry job. In addition, new high school CTE faculty may be required to meet credentialing requirements, adding a time-consuming hurdle that may discourage qualified industry professionals from teaching at this level.

The challenges associated with qualified industry personnel wishing to teach at the community college level are similar. Hiring industry professionals with at least five years of relevant work experience may be expensive, and colleges sometimes can afford only part-time adjunct CTE faculty. Like their secondary counterparts, these CTE faculty members may also hold on to their day jobs and teach at night or part-time. And too often, newly hired faculty are not given support or professional development to build their teaching skills.

Current policies and practices may also result in CTE programs that are skewed toward the status quo, meaning that innovation in course offerings and curriculum may lag behind emerging workforce training needs. In many institutions, even though adjunct CTE faculty outnumber tenured faculty, tenured faculty have greater influence in CTE course and program development and scheduling. This is partly because tenured faculty can use paid time to attend institutional meetings where decisions are made regarding curriculum approval, faculty development, planning, and budgets, whereas adjunct faculty are not paid to attend meetings and/or may be working at another job when college meetings are scheduled. This can result in college offerings that are biased toward topics and courses taught by full-time CTE faculty, rather than toward CTE courses needed to prepare students for high-demand workforce fields.

Furthermore, adjuncts are less likely to be involved in powerful statewide organizations like the Academic Senate for California Community Colleges and the faculty unions. As a result, CTE concerns are often not fully represented in the many task forces and committees that help to drive statewide policies and norms.

The lack of qualified instructors significantly hampers educational institutions' abilities to adopt or scale effective programs. Unless talented faculty can be found to create and share CTE course content and instructional approaches, high-value CTE programs (those that train students for high-priority labor market needs) cannot come to life in the classroom.

CHALLENGE: Procedures for developing and upgrading CTE programs and courses need to be more nimble and responsive to changing employer needs.

Industry partners who confer with an educational institution about how its programs might better address workforce training needs are often frustrated by the difficulty of developing new courses or programs. Because of colleges' lengthy and highly prescribed curriculum development processes, it takes more than a year for colleges to get new classes developed and scheduled, and it is difficult even to adapt courses to meet emerging workforce needs.

Secondary and postsecondary curriculum approval processes were developed with the expectation that course content would remain relatively stable and would benefit from an extended review process. This expectation may be appropriate for such courses as mathematics or history. However, this model is often a bad fit for the development of CTE courses, which must respond to rapidly changing industry needs for skilled labor. To meet the needs of local employers in a timely way — especially those who may be considering relocating — high school and community college CTE programs may need to move swiftly to develop and deploy a program or set of courses to address industry needs. Furthermore, effective development of such classes may benefit from an iterative approach, specifically, a rapid prototype process, in which course objectives are continuously realigned based on feedback on their effectiveness from workforce partners.

Under current structures, however, some changes to course objectives may require that the course undergo the entire approval process again. Because the course development or modification process involves a long series of steps, including reviews by faculty and industry partners, it may take a full year to complete. One suggestion made to shorten the long approval process is to pay faculty a stipend to develop new curriculum over the summer, with the requirement that it be ready for curriculum committee approval in the fall.

CHALLENGE: Education policies ignore and/or negatively impact CTE student progress toward learning goals.

New regulations that govern college credit accumulation, repeating college courses, and limits on financial aid, are having an unintended impact on workforce programs because they are not designed to accommodate common CTE course-taking patterns.

Both secondary and postsecondary institutions have made significant changes to educational policies over the term of the Initiative, which was intended to improve career pathways to provide students with seamless transitions from K–12 to community college and beyond. For example, the Student Success Initiative set out to streamline the work of California community colleges through such practices as limiting the total number of units a student could take and ensuring that students did not repeat courses. Also, many K–12 districts and community colleges worked together under the Initiative to develop articulated course agreements and to establish dual-enrollment programs. These reforms were intended to help students complete community college programs more efficiently, which was a worthwhile goal, given the length of time it takes most students to complete a credential or transfer to a four-year institution, and the large number of students turned away from community colleges because of recent budget cuts.

However, these kinds of policies have had an unintended negative impact on CTE programs. For example, while research shows that giving students credit for college coursework while they are still in high school (dual enrollment) has a positive impact on college enrollment and success rates, it may also limit a student's future access to federal financial aid, depending on which institution of higher education the student attends. By taking a college-level course, high school students may inadvertently start the "clock" on the federal financial aid Satisfactory Academic Progress Policy, which affects how much time they have to earn a credential or degree.

Because CTE programs are linked to industry standards and skills, come community colleges have intentionally designed programs with courses that students must take multiple times in order to attain mastery. In fields that teach complex skills — such as managing GPS systems in agriculture or mastering graphic design software — students may be expected to learn a concept in the classroom, apply it in the workplace, and take the course again later to deepen their understanding of the content. In classes that teach skills in specific technologies, students may need to re-take a course several times to master updated features.

Students may also have to take CTE courses to stay current with industry standards in order to remain in their current career or job — for example, those pursuing food safety certification or qualification as an emergency medical technician or welder. Technically, faculty can create courses that address new iterations of technology or multiple levels of knowledge or skills mastery. However, this process is time-consuming, and there may not be a sufficient number of students who need such courses to warrant the effort.

END NOTES

1 Santa Cruz County College Commitment website http://sccommits.org/who-are-we

2 http://www.cde.ca.gov/ci/gs/hs/cpareport09.asp

3 CDE California Partnership Academies Annual Report (internal CDE document)

4 http://www.cde.ca.gov/nr/ne/yr13/yr13rel2.asp

5 http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201120120AB790&search_keywords=

6 WestEd will release a technical report in late fall 2014 that documents case studies of Initiative grantees with student-level data connected to earnings outcomes along with other findings.

7 California Community Colleges, Doing What Matters for Jobs and the Economy. (n.d.). Understanding the CTE LaunchBoard. Available at http://doingwhatmatters.cccco.edu/portals/6/docs/Launchboard%20Overview.pdf

INITIATIVE GRANT TYPES AND FUNDING BY YEAR

Grant Category	2005/06 (# grantees)	2006/07 (# grantees)	2007/08 (# grantees)	2008/09 (# grantees)	2009/10 (# grantees)	2010/11 (# grantees)	2011/12 (# grantees)	2012/13 (# grantees)
Coordinated Regional/Local Implementation								
Quick Start — enhance linkages in CTE pathways between high schools and community colleges to increase new enrollments and student exploration in CTE and create a pipeline of students entering career pathways in emerging industries.	$10,800,000 (25)		$1,000,000 (25)					
Career Exploration — create, improve, and/or expand middle school career exploration and awareness activities (e.g., programs, curriculum, events).	$1,649,235 (11)	$2,847,787 (19)						
Faculty and Counselor Work Experience — support community college, high school, and Regional Occupational Centers and Programs faculty and counselors to gain business- and industry-based work experience so they can improve their work with students by incorporating new skill sets, methods, information, and lessons learned.	$499,652 (10)	$349,998 (7)						
Strengthening CTE — strengthen and improve the quality of existing CTE programs.	$2,485,204 (10)	$10,229,225 (39)						
CTE Community Collaborative and Supplemental* — combines the four grant categories from 2005 — Quick Start, Career Exploration, Faculty & Counselor Work Experience and Strengthening CTE.			$20,075,000 (48 CC & 21 Supp)	$23,200,000 (52 CC & 21 Supp)	$18,014,205 (52 CC & 24 Supp)	$25,242,243 (51 CC & 8 Supp)	$19,305,731 (52)	$20,059,850 (52)
Workforce Innovation Partnerships (WIP) — develop projects such as the early college high school and middle college and create career pathways aligned with selected Economic Development Strategic areas to prepare the future workforce in California.			$1,650,000 (13 WIP)	$4,500,000 (18 WIP)	$2,699,863 (18 WIP)	$4,500,000 (20 WIP)	$3,500,000 (16)	$3,500,000 (16)
Construction — increase, expand, and/or improve career pathways programs for the construction industry sector by developing model programs, articulating coursework, aligning curriculum, and developing advisory groups to link education with business, industry, and labor.			$1,500,000 (3)					
Career Advancement Academies — first year was a planning grant. Model projects in major population centers to help most-in-need 18–30 years olds return to school and combine learning with career opportunities in partnership with industry.		$150,000 (3)	$5,000,000 (3)	$5,000,000 (3)	$4,137,931 (3)	$5,000,000 (4)	$2,300,000 (4)	$2,300,000 (4)

Note: Unless CDE is included in parentheses in the first column (denoting that the California Department of Education is the grant administrator), grant categories are administered by the California Community Colleges Chancellor's Office.

*Starting in the 2011/12 funding year, supplemental grants were no longer separately offered. Instead, applicants could apply for additional funding when applying for a Community Collaborative grant.

Grant Category	2005/06 (# grantees)	2006/07 (# grantees)	2007/08 (# grantees)	2008/09 (# grantees)	2009/10 (# grantees)	2010/11 (# grantees)	2011/12 (# grantees)	2012/13 (# grantees)
Coordinated Regional/Local Implementation								
CA Partnerships Academies — structured as a school within a school, academies create a close, family-like atmosphere in which academic and career and technical education are integrated, and viable business and postsecondary partnerships are established. (CDE)			$3,766,000 (49)	$5,064,000 (87)	$7,706,667 (147)	$11,316,000 (184)	$8,977,838 (181)	$8,977,838 (172)
Health Occupations Preparation and Education — support community colleges to create a learning center focused on careers in a variety of allied health programs, provide ongoing support services for students currently enrolled in allied health programs, and identify and engage partner high school students to explore careers in healthcare.		$998,962 (3)	$1,000,000 (3)	$1,000,000 (3)	$827,586 (3)	$827,586 (3)	$250,000 (1)	
Health Science Capacity Building — build quality programs statewide that will prepare students for jobs or for postsecondary options in the health science arena, with the end goal of ensuring that the state has an adequate number of qualified workers to meet the critical worker shortages in the healthcare industry. (CDE)			$2,500,000 (19)	$2,500,000 (41)	$2,500,000 (46)	$2,500,000 (37)	$2,022,254 (34)	$2,022,254 (39)
Youth Entrepreneurship Program — economic and workforce development, Small Business Development, and International Trade Development Centers will provide statewide information/education to high school and community college young adults to help them understand entrepreneurship in the global environment as a viable career pathway.			$2,000,000 (33)	$2,000,000 (38)	$1,655,172 (36)	$2,000,000 (15)	$1,560,000 (14)	$1,560,000 (9)
Teacher Preparation Pipeline — align career and technical education curriculum and student support services so as to establish pipelines for students interested in teaching in today's CTE fields.		$4,100,000 (15)	$1,600,000 (9)	$2,000,000 (9)	$1,655,175 (10)	$2,197,934 (10)	$1,200,000 (10)	$1,200,000 (10)
Middle Grades Career Technical Education and Career Pathways — provide middle grade students with career technical education and career exploration learning experiences. (CDE)							$1,800,000 (13)	

Note: Unless CDE is included in parentheses in the first column (denoting that the California Department of Education is the grant administrator), grant categories are administered by the California Community Colleges Chancellor's Office.

Grant Category	2005/06 (# grantees)	2006/07 (# grantees)	2007/08 (# grantees)	2008/09 (# grantees)	2009/10 (# grantees)	2010/11 (# grantees)	2011/12 (# grantees)	2012/13 (# grantees)
Infrastructure								
Statewide Career Pathways — established an infrastructure and processes for the articulation of secondary (high schools and Regional Occupational Centers and Programs) CTE classes with community college courses.	$4,000,000 (1)			$1,500,000 (1)	$1,241,379 (1)	$2,000,000 (1)	$1,500,000 (1)	$1,500,000 (1)
Technical Assistance Center— provided technical assistance to faculty and counselors statewide, both at the secondary and postsecondary level, and also made its resources available to other career technical education providers and workforce development organizations.	$565,909 (1)							
Articulation With Four-Year Institutions — CTE articulation between two- and four-year institutions of higher education and related issues, such as transferability of CTE coursework, portability of credits recognized by four-year institutions, and relative degree of consistency in prerequisite requirements and credits recognized for community college coursework.		$750,000 (1)						
Evaluation — provide information about the ongoing achievement of objectives and activities (formative); gather information about the final outcomes or products of the projects (summative); determine ongoing technical assistance needs; and identify promising practices.		$574,028 (1)		$1,000,000 (1)	$935,586 (1)	$1,600,000 (1)	$1,000,000 (1)	$1,000,000 (1)
CTE Liaison, Initiative Hubs — to build a statewide system to link businesses and economic development work with career technical education efforts. One center in eight of the 10 initiatives will connect on-going work on new certificates, enrollments, and enhancements to career technical education.			$1,000,000 (8)	$1,500,000 (8)	$1,241,379 (8)	$1,500,000 (8)	$1,200,000 (8)	$1,200,000 (8)
CTE Online — expand computerized, web-based systems for CTE teachers in all 15 sectors to improve course content and lesson plan information, including integrating academic and CTE curricula, into the menu-driven system. (CDE)			$500,000 (1)	$1,000,000 (1)	$1,000,000 (1)	$1,000,000 (1)	$849,148 (1)	$849,148 (1)
"a–g" Guide Projects — develop industry-specific model courses for statewide use that meet "a–g" requirements for all 15 sectors and 58 pathways. (CDE)			$150,000 (1)	$550,000 (1)	$450,000 (1)	$600,000 (1)	$600,000 (1)	$600,000 (1)

Note: Unless CDE is included in parentheses in the first column (denoting that the California Department of Education is the grant administrator), grant categories are administered by the California Community Colleges Chancellor's Office.

Grant Category	2005/06 (# grantees)	2006/07 (# grantees)	2007/08 (# grantees)	2008/09 (# grantees)	2009/10 (# grantees)	2010/11 (# grantees)	2011/12 (# grantees)	2012/13 (# grantees)
Infrastructure								
CTE Student Organizations — subject-based extracurricular activities for secondary/postsecondary CTE students to reinforce leadership and technical skills, deepen understanding of related industries, and facilitate internships and subsequent employment. (CDE)				$1,333,333 (6)	$1,333,333 (6)	$1,333,333 (6)	$1,109,869 (6)	$1,109,869 (6)
Distance Learning — develop, implement, distribute, and support participation in CTE courses at a distance for residents in areas of rural California. (CDE)				$500,000 (10)	$500,000 (8)	$750,000 (8)	$457,070 (6)	
New Teacher Workshop — provide sector-specific instruction, particularly for those secondary and community college teachers without formal teacher training, on classroom management, instructional strategies, etc. (CDE)				$1,150,000 (1)	$1,250,000 (1)	$1,750,000 (1)	$1,043,821 (1)	$1,043,821 (1)
Career Development and Work-Based Learning Linkages to Professional Organizations — expand, identify, and provide strong career development and work-based learning opportunities.				$496,667 (1)	$551,724 (1)	$666,667 (1)	$500,419 (1)	$666,667 (1)
Leadership Development — conduct a variety of strategies based on effective models to develop future CTE leaders and the community college and secondary systems. (CDE)				$300,000 (1)	$300,000 (1)	$300,000 (1)	$300,000 (1)	$300,000 (1)
Curriculum Planning for Emerging Industries — build on four recent future-looking studies about the emerging industries of nanotechnologies, biotechnologies, digital manufacturing, and intelligent transportation, and focuses on developing model curricula for instruction in those industries.				$300,000 (4)		$300,000 (4)	$200,000 (3)	
California Career Center (Virtual Counselor) — portal developed to help middle school and high school students explore their career options and plan their next steps toward productive careers. (CDE)								$125,000 (1)

Note: Unless CDE is included in parentheses in the first column (denoting that the California Department of Education is the grant administrator), grant categories are administered by the California Community Colleges Chancellor's Office.

ACKNOWLEDGEMENTS

CaliforniaCommunityColleges.ccco.edu

California Community Colleges Chancellor's Office
1102 Q Street, Suite 4554
Sacramento, CA 95811

CaliforniaCommunityColleges.cccco.edu