

Techniques

NOVEMBER/DECEMBER 2019

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The State Of CTE In *California*

- Forging a Path to Linked Learning Success
- Career Development Opportunities for Agriculture Students in Southern California
- Step Up from STEM to STEAM
- ACTE Board of Directors Elections
- Strengthening Career Pathways in California's Community Colleges

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Carri R.

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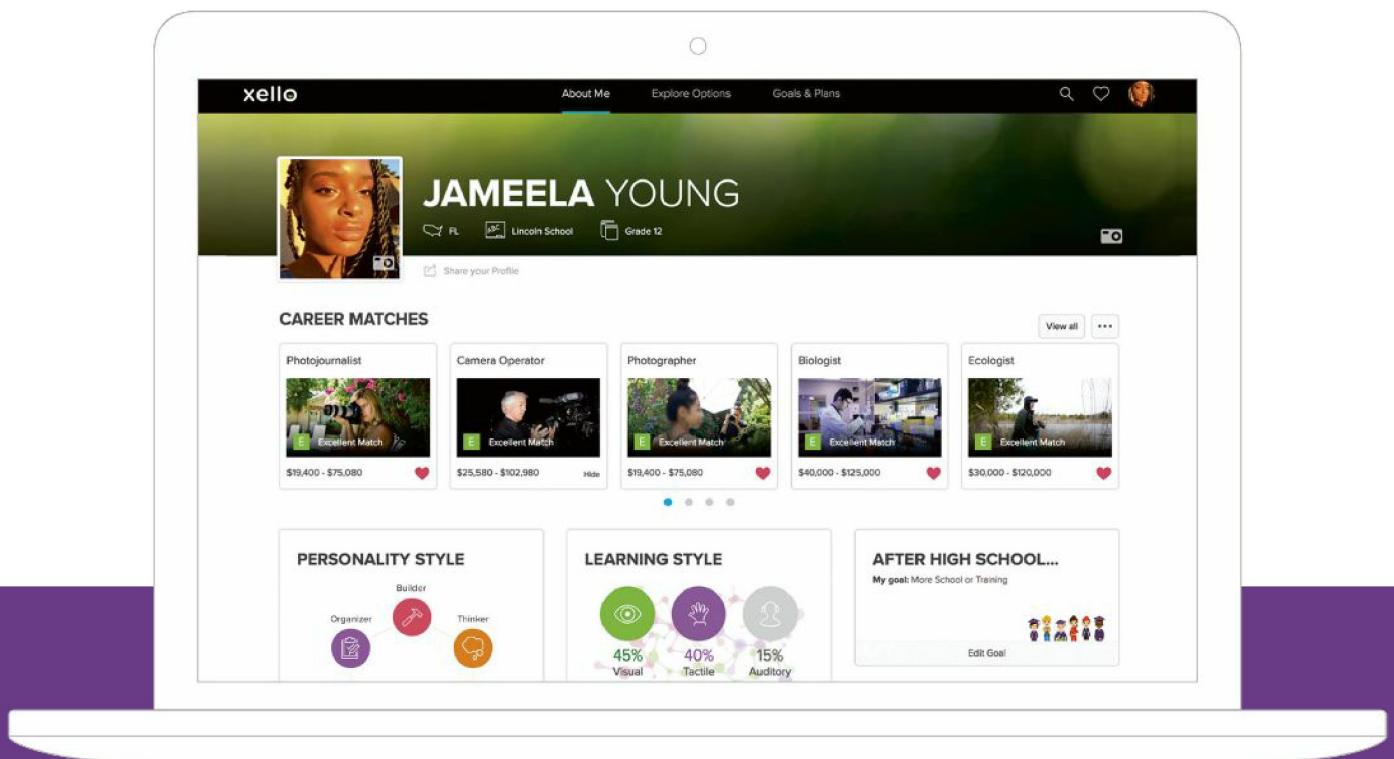
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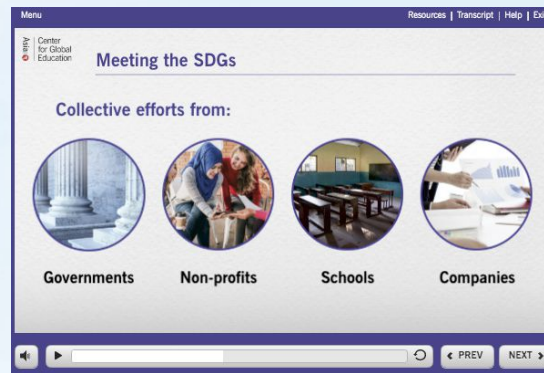
“ The interactive format is excellent. I like applying my learning. The resources provided are very helpful in developing my own STEM Project and I appreciate the process being broken down into small chunks. ”



Want to prepare your students with skills for the global economy? New professional development materials from ACTE, Advance CTE and Asia Society will help you teach career readiness skills using global STEM content and active project-based learning. All materials are available free of charge thanks to the generous support of PMIEF.

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To get started, please visit www.ctelearn.org.

For more information, view Asia Society's website (AsiaSociety.org/CTE) or contact Heather Singmaster (hsingmaster@asiasociety.org).



AS CALIFORNIA GOES, SO GOES THE NATION

DUE TO ITS SIZE AND SCOPE, THERE IS NO DOUBT THAT CALIFORNIA IS A BELLWETHER. THE STATE WOULD BE THE SIXTH LARGEST NATION IN THE WORLD IF IT WERE A COUNTRY ON ITS OWN,

on par with France! As if this is not reason enough, ACTE’s CareerTech VISION 2019 is scheduled to take place in Anaheim. This offers the perfect opportunity to take a closer look at California’s CTE system and related programming, and to learn from it.

While we cannot cover all that is California CTE in one edition, we will explore a range of programs and topics you will not want to miss. One particular feature of note studies how California is improving career pathways within its community college system. The state created the Strong Workforce Program in 2016–17, and the Guided Pathways initiative followed, in order to improve the availability and quality of CTE programs leading to certificates, degrees and credentials. Hear from the Public Policy Institute of California on this and other initiatives to strengthen career pathways in the state, and what it has meant for CTE programs and students.

Another article in this edition provides information on the integration of advanced placement arts and CTE engineering, as it has been implemented in Los Angeles County’s Antelope Valley. Elizabeth McKinstry, director of career technical education for the Antelope Valley Union High School District (AVUHSD) in Lancaster, California, wrote, “As the engineering students were tasked to train their [art and design] classmates on equipment and use of tools, both groups improved their communication skills. Engineering students, typically focused on optimal and acceptable solutions, began to view their projects through a creative and emotional lens. The students’ comments reflected their enthusiasm:

“I wasn’t into art and I didn’t see the purpose, but the class made me a better engineer.”

This innovative strategy, in its third year of a successful pilot at AVUHSD, addresses the benefits of a science, technology, engineering, *arts* and mathematics (STEAM) approach to career and technical education, offering “additional opportunities for all CTE students to apply their industry technical knowledge across other content areas — to truly prepare them for a future where the division of labor will be shared equally with automation” (World Economic Forum, 2018).

Additional content includes insights from CA ACTE leadership as well as from NOCTI and the National Institute for Women in Trades, Technology and Science.

Don’t forget that, outside of *Techniques*, ACTE promotes information on promising practices and state issues in a variety of ways. **Read additional stories on PAGES, a *Techniques* blog. ACTEonline.org houses a set of state profiles where you can compare each state’s unique CTE systems, differing governance structures, and policy and program priorities.** And we also partner with Advance CTE to produce the *State Policies Impacting CTE: Year in Review* series that gives an overview and a state-by-state summary of CTE-related policies enacted each year.

I have had the opportunity to travel to California several times leading up to our CareerTech VISION event and, I can tell you firsthand, there is much to explore and learn from in this vast state. ACTE is excited about the potential as we welcome more of California’s educators, administrators and other professionals who are leading positive change and strengthening the CTE system throughout the nation. I am convinced that shared knowledge, learning and collaboration is one of the keys to developing high-quality CTE programs, no matter where you live. That is one of the strengths that ACTE can provide as a national association. We look forward to leading and learning with you!

LeAnn Wilson
ACTE EXECUTIVE DIRECTOR

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IMPROVE INSTRUCTIONAL PRACTICES & DEVELOP 21ST CENTURY SKILLS WITH DATA

By John Foster & Marie Perotti

IN THE LAND OF THE GOLDEN BEAR, WORKPLACE SKILLS HAVE GAINED PROMINENCE IN EDUCATION.

Though workplace skills aren't represented on the state flag, they are an important factor in the state's ability to compete in the global competition for a skilled workforce.

Coachella Valley Unified School District (CVUSD) sits a little east of Anaheim, California, and district leadership is taking steps to ensure that students are workplace ready! They are getting serious not only because of relatively recent state legislation — to identify college and career indicators (CCI) — nor because of the impact of Perkins V, but because they honestly believe in the career and technical education (CTE) mission, and they want their students to achieve success. College and career indicators were established to deter-

mine what constitutes college readiness and place a greater emphasis on workplace readiness, thus helping California ensure a skilled workforce. These indicators measure workplace readiness through completion of career and technical education (CTE) pathways, and the state is looking to add certifications and work-based learning internships.

The Importance of Data Collection to Change Instructional Practices

In 2010, California's CTE mentor teacher program, CTE TEACH, began training teachers to use data to drive instruction in the classroom and track skill attainment of industry competencies for program improvement (Foster, Hodes & Pritz, 2019a). CTE TEACH found that substantial numbers of new CTE teachers were leaving the profession around

the three-year mark. Further research found that this was occurring primarily because of the lack of a professional network, so they paired mentors with new teachers in a variety of locations throughout the state. In addition to the mentoring efforts, CTE TEACH postulated that instruction of these new teachers, and of programs in general, could be enhanced by utilizing objective third-party data to inform instructional practices. The data utilized was based on national standards and was obtained through credentialing assessments.

CTE TEACH also discovered research being conducted by the National Research Center for Career and Technical Education (NRCCTE) regarding data-driven instructional improvement. Members of the CTE TEACH staff were trained in utilizing strategies referred to by the acronym CTEDDI (career and technical educators using data-driven improvement) (Foster, Hodes & Pritz, 2019b). Through these efforts, educators began to understand the importance of data collection to change instructional practices, and how this connects to the collection of data as it relates to the new CCI model.

Currently, Coachella Valley is working to align to the new CCI model by training teachers on what data to collect, how to use that data for program improvement and benchmarking, and ensuring it is consistently collected. Many CTE programs at CVUSD are high-quality model programs; however, proving it through objective third-party metrics has not been consistent. To remedy the situation, effective in the 2018–19 school year, teachers at CVUSD are required to report the number of students who successfully complete an internship, including the number of hours, the number of students who took a national credentialing test and the number who passed. In addition to pass rates, a breakdown of the data — including information on standards and competencies — was included. While this information seems simple to collect on the surface, it requires a targeted approach

to ensure that data is being collected consistently and accurately, and that it is uploaded into the state's database.

Developing 21st Century Skills

During the 2018–19 school year, CVUSD utilized a workplace readiness credential entitled “21st Century Skills for Workplace Success” with approximately 100 students across two specific groups of students: CTE concentrators and AVID students. AVID, which stands for Advancement via Individual Determination, is a college readiness program designed to help students develop the skills they need to be successful in college. The program places special emphasis on growing writing, critical thinking, teamwork, organization and reading skills and typically targets students in the middle range of academic performance. The CTE students selected were part of a California Partnership Academy program which targets at-risk students. All of the CTE students had completed a 15-week job shadowing experience.

The credentials, digital badges and college credit provided great recognition for the individual students involved, and the data received by CVUSD was equally important. Though the administration of this credential was meant to establish a benchmark for improvement, CVUSD students, on average, scored above the criterion-referenced mean established by industry experts. More specifically, CVUSD noted that in the areas of “work ethics” and “positive attitude,” their students were aligned with the national averages. Their goal in the coming years is to excel in not only those areas, but all of the standards encompassed by the 21st century credential.

Assessment data from both student groups was evaluated and, to the surprise of many, the AVID students who did not receive career exposure through classroom instruction and job shadowing performed very well on the assessment. In follow-up discussions with teachers, AVID students are taught to dissect questions and, through process of elimination, utilize critical thinking skills to help them navigate material they are unfamiliar with; critical thinking itself is a measure of workplace readiness. The CTE students overall performed well on areas of the test that measure career readiness, but we learned, academically, some of the students had difficulty navigating some of the vocabulary and scored lower in areas pertaining to reading and math. It may be worth noting, the CTE student group had many students categorized as English language learners.

Under the new Strengthening Career and Technical Education for the 21st Century Act, referred to as Perkins V, if funding is spent on credentialing exams, the results of the exam must become part of a student's grade; additionally, the data from all students taking the exam must be accessible for use in program improvement efforts. The data can be used as part of the local needs assessment process and can be utilized to assist in professional development and teacher retention! CVUSD leadership understands the value of administering third-party, nationally standardized credentialing assessments to all students in the program, not just those who show aptitude. This can become challenging when students enter and exit CTE programs for a variety of reasons; it is

difficult to assess all students when they are often at different levels of a skill set, based upon many factors.

Nevertheless, CVUSD is committed to utilizing objective data in a longitudinal analysis not just because it can help meet state and federal regulatory requirements, but because it recognizes student achievement and provides a pathway to improving instruction. ■

John Foster, Ph.D., is president/CEO of NOCTI and Nocti Business Solutions. He has over 45 years of varied experience in workforce training and tailored industrial training program development. Foster has written and researched data-driven instructional improvement; authored six books and several research articles; and serves on numerous committees related to developing a skilled workforce. Email him at john.foster@nocti.org.

Marie Perotti is an administrator of College and Career Readiness at Coachella Valley Unified School District (CVUSD). She has 28 years of varied experience in fashion and retail merchandising, teaching, and as a CTE administrator. While at CVUSD, Ms. Perotti has added eight new CTE programs and brought in \$3 million in grants to support programs and foster relationships with local businesses creating a partnership with the district's CTE programs. Email her at marie.perotti@cvusd.us.

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- Foster, J.C., Hodes, C.L. & Pritz, S.G. (2019a). Using data for instructional improvement. In *Putting your data to work* (3rd ed.) (56–59). Alexandria, VA: ACTE.
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High-quality CTE curriculum develops student competency in three content areas — technical, academic, and employability knowledge and skills — each of which is important for student success. First, when building a new curriculum or choosing an established curriculum, quality CTE programs typically begin by considering the underlying technical skill standards. The technical skill standards should be developed or validated by multiple experts from the relevant industry or career field. This could occur at the national, state and/or local levels, depending on the source of the standards.

In addition to these technical skills, high-quality CTE programs of study make explicit the academic content embedded within CTE curriculum and ensure alignment with relevant academic standards. This integration has been a major priority in CTE during the past several decades and has helped CTE transition to a system that develops college and career readiness. In many places, this standards alignment has been completed at the state level, but individual programs have a role to play in implementing an integrated curriculum.

Last, but crucially, high-quality CTE programs of study incorporate content and standards that promote workplace success, such as skills in critical thinking, collaboration, communication and professional behavior. Employability skills are not specific to any one industry or occupation, although programs may emphasize skills with relevance to a particular career area, such as safety in a laboratory setting.

d. The program of study curriculum is developed with employer input to prepare students for both further education and in-demand and emerging careers.

e. The curriculum allows for student application of integrated knowledge and skills in authentic scenarios.

STANDARDS-ALIGNED AND INTEGRATED CURRICULUM

By Catherine Imperatore

STANDARDS-BASED, COLLABORATIVELY DEVELOPED CURRICULUM IS THE BACKBONE OF HIGH-QUALITY career and technical education (CTE) programs of study. For this reason, Standards-aligned and Integrated Curriculum is one of ACTE’s 12 elements of high-quality CTE within the *Quality CTE Program of Study Framework*.

The Standards-aligned and Integrated Curriculum element of ACTE’s quality framework includes seven criteria that address the development, implementation and revision of program of study curriculum, including the relevant knowledge and skills taught in the program and the standards on which they are based. The criteria listed below are from the 2018 version of the ACTE *Quality CTE Program of Study Framework*.

Criteria for High-quality Curriculum

- a.** The curriculum is based on industry-validated technical standards and competencies.
- b.** The curriculum is aligned with relevant content and standards for core subjects, such as reading, math and science, including federal, state and/or local standards, as appropriate.
- c.** The curriculum incorporates employability skill standards that help students succeed in the workplace, such as problem solving, critical thinking, teamwork, communications and workplace etiquette.

To ensure that the program of study incorporates the most relevant technical, academic and employability content and standards, CTE programs of study can engage administrators, instructors and subject matter experts, such as business and industry partners, in collaborative processes like Developing a Curriculum (DACUM). A criterion in the Business and Community Partnerships element addresses the role of subject matter experts in curriculum development and revision, while criteria in the Prepared and Effective Program Staff element describe how CTE and academic staff need time, resources and support to collaborate on curriculum.

However, in many career areas, it is not necessary to build from the ground up because industry and education groups have already developed and validated curriculum that can be integrated into a program. Industry-developed curricula can be found in automotive technology, manufacturing, IT, construction, engineering and biomedical science, among other fields.

Curriculum should also be built to allow frequent opportunities for students to practice their knowledge and skills through hands-on, applied learning and to demonstrate their attainment through performance assessments. Criteria in the Student Assessment and Engaging Instruction elements further address these issues.

f. Program of study standards are publicly available and accessible to students, parents/guardians (as appropriate), partners and the public.

g. The curriculum is reviewed regularly by all relevant stakeholders and revised as necessary to reflect the latest advances in the industry, evidence-based program models and evaluations of student performance.

Curriculum is not static, but must be revisited on a regular basis to ensure it reflects the latest knowledge from industry and academia as well as your own students' performance. This may include new technology and industry processes, student assessment results, and innovative ways of delivering knowledge and skills to students. Curriculum review is another opportunity to engage business and community partners in ensuring that your program is up to date.

Relatedly, the program of study curriculum must be transparent. Curriculum and standards should be clearly communicated to students, parents (when those students are minors), partners and policymakers so that all stakeholders know the skills that students are expected to develop.

Success Strategy: Employability Skill Modules

High-quality CTE programs are increasingly explicit about the employability knowledge and skills included in their curriculum. One institution — Feather River College in Quincy, California — took the lead in this area in 2013, using state grant funding to convene a series of panels that brought together employers, researchers, students and teachers to identify 10 relevant 21st century skills: adaptability, analysis/solution mindset, collaboration, communication, digital fluency, entrepreneurial mindset, empathy, resilience, self-awareness and social/diversity awareness. Feather River then developed and piloted curriculum to address these skills. The initiative has evolved into New World of Work and is now available to all California community colleges. New World of Work features free modules for each of the 10 skills that include lesson plans, slide decks, worksheets, assessments and “what not to do” videos that spark discussion.

Customized professional development is available for instructors.

Learn More and Assess Your Programs

Practitioners can turn to ACTE's High-quality CTE Tools online library for publications and guides on CTE curriculum. The Standards-aligned and Integrated Curriculum section features case studies and tips on curriculum development, course redesign and curriculum integration, as well as professional development models geared at improving the instruction of math, reading and writing tasks naturally occurring in CTE curricula.

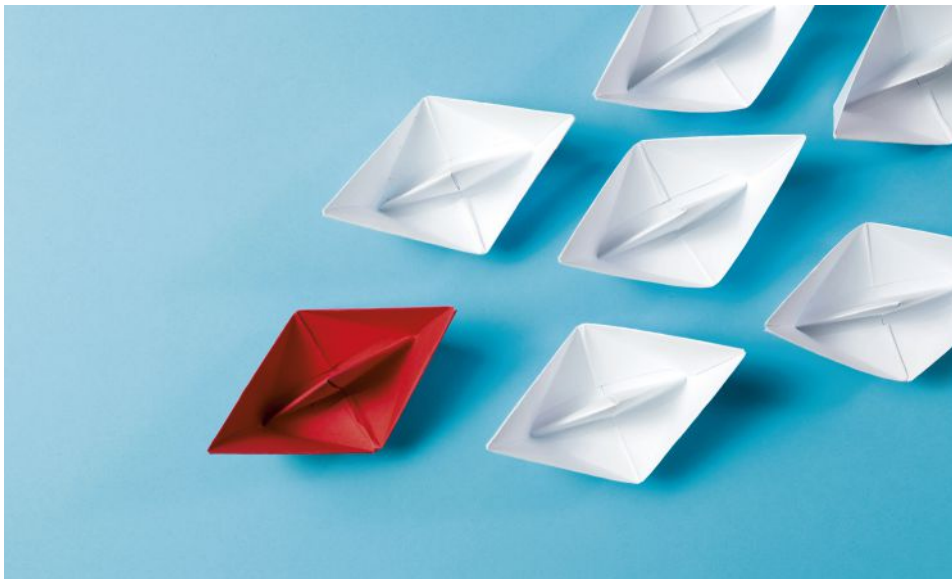
In addition, practitioners can use the *Quality CTE Program of Study Framework Self-evaluation Instrument* to assess a single program, or multiple programs across a district or institution, in relation to the Standards-aligned and Integrated Curriculum element and all 12 elements of high-quality CTE. The rubric can be completed on paper or online, where users can receive automatically calculated scores, save and print their results, and be connected to the online library for areas identified as needing improvement. ■

Catherine Imperatore is research manager for ACTE. Email her at cimperatore@acteonline.org.

EXPLORE MORE

High-quality CTE Tools Online Library: www.acteonline.org/high-quality-CTE

Quality CTE Program of Study Framework and Self-evaluation Instrument: www.acteonline.org/high-quality-CTE



A WINNING COMBINATION: CALIFORNIA LEADERSHIP DEVELOPMENT INSTITUTE AND MENTORSHIP

By Valerie Vuicich, Diane Walker, Jacki Sprague & Heather Nursement

IT IS WELL-KNOWN THAT THERE REMAINS A SHORT- AGE OF CAREER AND TECHNICAL EDUCATION (CTE)

teachers and faculty throughout the United States (Advance CTE, 2018). Likewise, the number of CTE administrators lags behind the need of CTE programs (NOCTI, 2019). As a consequence, a number of CTE leadership training efforts exist at the national and state levels, including such things as ACTE LEAD, ACTE's State Leadership Training Program, and national, region and state association fellowship programs.

Developing Strong Leaders in CTE

One long-standing opportunity to address the leadership gap for CTE in California is the California Department of Education's

Leadership Development Institute (LDI). Begun in the late 1990s, LDI "delivers focused training that prepares individuals to be effective team leaders, accessing the most current information to provide the foundation for successful program management" (Butte County CTE, n.d.).

This yearlong, twelve-session Institute is open to aspiring or existing administrators from both the K-12 and community college systems in California, and typically serves 30 candidates each year. Participants in the program are actively involved in professional development modules that include leadership, curriculum and instruction, content standards, course development and approval, state and local

curriculum guidelines and requirements, local board actions, supervision of human resources, and instructional improvement; they attend conferences, board meetings, legislative sessions, and they present to their peers and leaders. One of the primary goals of LDI is to prepare administrators to meet the modern challenges of delivering industry-current CTE content, integrated with academic standards and real-world application.

LDI Director Steve Pinning explained, "We are at a time when many veteran CTE administrators are retiring and there is a huge need for new CTE administrators. With the retirements, much of the historical knowledge is leaving as well. LDI trains new and aspiring CTE leaders how to be effective and transfers the knowledge of years of experience to those coming up in the system. CTE has seen a resurgence in education and there is a growing need for knowledgeable and well-trained CTE leaders to keep the momentum moving forward."

California ACTE state leaders are no strangers to LDI, having participated in the Institute over the years.

Speaking from Experience

Valerie Vuicich — current executive director and a past president of California ACTE also serving as the Region V representative on the ACTE Bylaws Committee — participated in the LDI program in 2006-07. Vuicich began her career as a high school special education teacher and her first administrative position was as a site principal for CTE based out of her district's adult school campus. Her next position was at the county level in the Regional Occupational Program (ROP) as a coordinator serving 17 districts. In that role, Vuicich worked with the local Tech Prep Consortium, joining her community college colleagues as the high school staff member. She spent 12 years in that role providing CTE professional development across the state of California. In 2006, Vuicich became the administrator for the Fresno ROP, and her colleagues at the state department of education suggested she apply for LDI. The LDI experience was invaluable; the networking that took place

among the participants along with those presenting the workshops was the highlight of her experience. The LDI cohort serves as a sounding board for new ideas, clarifying issues and learning about the nuances of how programs function in other parts of the state. Those relationships have been the foundation for many leadership opportunities over the past 12 years.

Diane Walker, a past president of California ACTE and recent member of the Region V Policy Committee, also participated in LDI in 2006–07. In her third year as an ROP specialist, after teaching four years in a local high school Law & Government Academy, and being active in California Association of Regional Occupational Centers and Programs conferences, trainings and meetings, Walker's supervisors encouraged her to attend LDI. It was promoted as a way to not only obtain foundational knowledge and skills about nuts-and-bolts CTE administration and leadership at local, regional and state levels, but also to generate a larger personal network among California CTE professionals. Walker noted, "I believe that the LDI experience delivered well on both of those elements. Not only has it helped me succeed and advance in my career as a CTE administrator, but I have also seen several others in our district go through LDI subsequently; those teachers became academy coordinators, and one is now our district's new CTE coordinator."

Jacki Sprague, the current president of California ACTE, spent her first 15 years in education as a high school math teacher and then a school counselor. Her administrators and peers often encouraged her to move into a leadership role, but she was apprehensive. After enrolling in an Ed.D. program at Cal State University, East Bay, to learn more about being a leader in education, Sprague gained the confidence to apply for administrative jobs, and was hired as a program coordinator at Mission Valley ROP. Not only was she new as an educational leader, she was new to CTE. Her director of educational services, Dr. Cliff Adams-Hart, encouraged her to apply to LDI as a way to enhance her leadership education, to learn more about CTE at the state and

national levels, and to network with other new CTE leaders in California.

"Over that school year, I learned so much about CTE and how to improve as a CTE leader in the LDI program," Sprague said. This, in addition to mentoring from her director of educational services and superintendent, Tom Hanson, and participation in ACTE events at the state and national levels, has encouraged her to improve as a CTE leader by joining the ranks of California ACTE board members.

Heather Nursement, immediate past president of California ACTE, began her CTE teaching career as a high school agriculture teacher. Hoping to continue her high school and college athletic experiences, she accepted a position as a teacher and athletic director in the Morgan Hill Unified School District (MHUSD) to pursue coaching. During this time, other leaders encouraged Nursement to enroll in an educational leadership master's program at San Jose State University. Before completing the program, she took on a position as a middle school assistant principal, then as principal, before moving up to become district director in educational services. Heather continues in this capacity with MHUSD where she oversees many programs, including CTE. Returning to a position that involves CTE has been very rewarding for Nursement in her leadership journey. Through CTE conferences, she connected with other California ACTE members and the current California ACTE president, Sprague, who encouraged her to become more involved. By attending high-quality conferences like Educating for Careers and participating on the California ACTE board, she has broadened her depth of knowledge about CTE, advanced her leadership skills and developed a deeper passion for CTE advocacy.

As can be seen from these personal stories, the combination of formal leadership training and mentorship from proven CTE leaders is a winning combination to develop future CTE administrators. This will sustain a continuous cycle of leaders building capacity to grow programs and promote CTE advocacy. ■

ACTE's CareerTech VISION Tours

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Harold Rutledge, M.A., FCCPP
Lieutenant, Ret.
Instructor
Academy of Law and Homeland Security
St. Augustine High School



CYPRESS PARK MIDDLE SCHOOL

Forging a Path to Linked Learning Success

By Samuel Gilstrap

Los Angeles, California, has always been a city of dreams and, for years now, the city's educators have been helping high school students achieve their dreams with the right combination of rigorous academics, career and technical education (CTE), and personalized supports.

Over the past decade, Los Angeles schools have served as incubators for Linked Learning, a comprehensive approach to education that brings together rigorous, college-preparatory instruction of core academic content and critical thinking with industry-focused, real-world technical training in career pathways combined with academic and socio-emotional supports tailored to students' needs.

Background

More than 30 Los Angeles high schools now offer Linked Learning pathways in one or more of 15 industries where there is high demand for new generations of professionals. Bringing Linked Learning pathways to a school requires leadership on the ground level with the majority of a school's faculty making a commitment to participate in specialized professional development, create sequences of courses, and partner with industry organizations and professionals to bring the authentic real-world experiences for students into the school.

According to data submitted to the California Department of Education (CDE) (2018a), Los Angeles high schools that have built Linked Learning pathways have begun to see higher graduation rates and percentages of

students on track for college eligibility when compared to those without these pathways.

Esther Soliman, the lead administrator for Linked Learning and other CTE pathways across the Los Angeles Unified School District (LAUSD), says there are good reasons behind the success rates.

"An essential part of the approach is the central support we provide to educators who have demonstrated the commitment to doing this," she said. "This is not a top-down effort. Rather, it's very grassroots. We connect with educators who are willing to take a risk and try something innovative for the sake of inspiring their students to love learning, and we do whatever we can to support them."

Given the early successes among high schools, Soliman and other leaders are now aiming to expand the approach to younger populations of students. Los Angeles already has a dozen middle schools, and even an elementary school, building and expanding Linked Learning pathways at their campuses.

Among the first to venture on this path was Florence Nightingale Middle School in Cypress Park, California, an area just north of downtown Los Angeles. According to visionary principal Douglas Meza, it was the right approach to take.

"Anyone will tell you that the middle school years are some of the most challenging," Meza said. "Students are growing and changing physiologically, socially and emotionally. It's incredibly important not only to keep our students engaged in learning but to help them find that intrinsic motivation that actually helps them fall in love with learning."

Now in his fifth year as an administrator at the school — having served as an assistant principal for two years and another two as principal — he reflected on the community's recent efforts to reshape the school's programs, building pathways that align to the passions of the students.

"When I came to Nightingale, the community had already recognized the need to bring a new identity to the school," Meza said. "Thanks to their efforts, the work had begun with the establishment of the Business, Entrepreneurship and Technology (BET) Magnet."

Former Nightingale principal Rafael Gaeta was the one who decided to expand the new magnet program into a Linked Learning pathway.

"It was great to have a magnet program that brought something the students were interested in," said Gaeta. "But we wanted to take it a step further. At the time I was principal at Nightingale, district leadership was making expansion of Linked Learning pathways a priority, so the time was right to get on board."

Benefits

Gaeta explained that employing the Linked Learning framework provided access to much-needed resources, targeted professional development and opportunities for teachers to bring real-world experience into their classrooms.

For example, CTE-certified teachers have access to Perkins funds as well as California's Career Technical Education Incentive Grant (CTEIG), which promotes workforce development for K-12 students across the state. The funds help schools purchase equipment and supplies that can help transform traditional classrooms into facilities that mirror environments — from film and television studios to hospital wards to robotics laboratories — where the careers actually take place.

Providing adequate numbers of CTE-certified educators at schools can be a challenge, however, according to LAUSD Director of Linked Learning Lindsey Corcoran.

"There are a lot of professionals who are successful in their respective industries who are passionate about supporting us in

various ways but may be unable or unwilling to take on a teaching position," she explained. "So, sometimes we do the reverse, and we identify existing teachers who have real-world experience, often from career experiences they've had in addition to their teaching roles."

Meza pointed out that at least one Nightingale math and science teacher was able to follow this path, having built and managed her own business in addition to teaching math and science at the school.

"She could effectively teach our students about things like developing and submitting business plans, for example, because she had done it in the real world," he said. "We were thus able to support her in acquiring a CTE credential, and she is now a key part of our BET pathway."

"This is an example of innovative ways our educators build Linked Learning pathways one layer at a time," Corcoran added. "It doesn't happen overnight. It's a multi-layered process that takes a lot of time, creative thinking and innovation on the ground level. We work to meet these schools where they are and facilitate supports that help bring their visions to life."

While working to build a variety of pathways to align to students' varied interests, Meza points out that there are elements that all pathways share in common.

"Linked Learning allows us to expand and modernize what we offer at Nightingale," he said. "Students enroll in a sequence of courses that integrate core content — English language arts, math, science and social science — with pathway-specific learning such as business concepts, business plans and presentation, computer programming, and coding. By the time students reach eighth grade, they are expected to submit their work to regional and national competitions."

Through the process, Nightingale also became the first middle school in Los Angeles to adopt a key tenet of Linked Learning: the student portfolio and defense.

"This is an authentic assessment that promotes the students' reflections on what they're learning," Meza said. "They produce artifacts such as writing samples that demonstrate their mastery of the academic rigor as well as of the career-focused content they've mastered."

While many LAUSD Linked Learning high schools require a successful portfolio defense, familiarizing the students with the practice as early as sixth grade gives them an incredible leg up when they begin high school, Gaeta pointed out.

The Launch of Linked Learning

The launch of the Linked Learning approach at Nightingale marked the beginning of what would become a revitalization of the middle school.

"As more charters and schools with attractive pathways were opening, families had been leaving in droves to go elsewhere," Meza said. "This community and my predecessors had recognized the need for change, and we seized the opportunity to keep the momentum going."

Meza built on the success of BET with the introduction of two additional magnet programs that also use the Linked Learning model, including a gifted/highly gifted science, technology, engineering and math (STEM) magnet and, most recently, a medicine, health and kinesiology (MHK) magnet.

The STEM magnet provides coursework in highly technical areas, including computer science, engineering design and modeling, and automation and robotics. The program is supported by Project Lead the Way, a national program focused on bringing advanced STEM concepts to middle school instruction. Students in the MHK magnet receive coursework in patient care, public and community health, and biotechnology.

According to Meza, the introduction of the multiple pathways at the school has reinvigorated interest within the surrounding community.

And he's right. Data provided to the CDE (2018b) show that enrollment has increased by 50% over the past five years with 80% of students coming from the surrounding community. Even so, Meza and his team determined that the work was far from done.

"All students here need to feel they belong and have a way to express themselves," he said. "It was along those lines we reworked the resident school into a visual and performing arts (VAPA) career pathway."

Meza helped lead the transformation, hiring a film teacher and a theater arts

teacher, both established in their respective fields and thus offering the technical subject matter expertise that is integral to the Linked Learning model.

“As industry professionals, these individuals brought knowledge and experience to our classrooms,” he said. “It provides very direct and meaningful educational benefits to our students. We are continuously working to leverage resources to support these teachers, with modern teaching tools and facilities. Included in our plans is working with our facilities services division to develop aging buildings into state-of-the-art film and recording studios and a black box performing arts theater.”

Along with the school’s other Linked Learning pathways, VAPA is flourishing with a theater and stage production program, band, orchestra and even mariachi. Film students have submitted entries at recent festivals, competing with high school students, and have won awards. And every student in the resident program receives dual instruction in Mandarin Chinese.

“There is something for everyone,” Meza said. “No matter who you are or what you are interested in, you can find your passion here. You can have an identity. That’s what really matters to these kids.”

To Leverage Real-world Skills

Across all pathways, students are continuously engaged in project-based learning, taking the knowledge and skills they acquire in the classroom into the real world in a direct way with real-world results.

Students in the STEM pathway use the engineering and architectural concepts they’re learning to create eco-friendly homes that minimize harm to the environment. Students design and create 3D models of their green homes that utilize sustainably sourced, environmentally friendly and/or recycled building materials.

Students from VAPA are using skills learned in film class to create public service announcements on bullying and tobacco use in middle school. Students write, direct and star in 60-second segments posted and shared on Instagram and other social media platforms, where they are readily consumed by the students’ peers across the globe.

To glimpse the type of learning and practice taking place is inspiring. But what’s perhaps more inspiring is growing enthusiasm in the community and rapidly improving student outcomes.

The proof is in the numbers. Data submitted to CDE (2018b) have shown that enrollment has continued to increase steadily each year and is now pushing the school’s facilities to capacity. Chronic absenteeism rates at the school are down a percentage, and scores in English language arts and math are up 13.2% and 10.2%, respectively, from the previous year.

Engaged, Enthusiastic Learning

Leaders at LAUSD have taken notice of Nightingale’s success and are seeking ways to replicate the approach at other schools. Soliman reminds us that doing so cannot succeed without a significant investment of time and commitment among educators.

“The key is to support innovation at our schools,” she said. “The reason we’ve seen success with these models is because the teachers and administrators who get behind the pathways are as enthusiastic as we want our students to be. Leaders like Doug [Meza] pour all of themselves into what they are doing. He is already hitting the pavement, talking with other administrators at nearby communities, and sharing ideas about how they can bring the success he’s seen to their schools.”

Soliman says that there are conversations taking place throughout LAUSD about schools interested in building new Linked Learning pathways but that it can take time to realize.

“This is not a program that we launch in a single day,” she said. “This takes many months — and years — of hard work and collaboration among educators, unified in their desire to grow new and innovative approaches to educating our kids. Our job is to provide the tools to bring their ideas to fruition.”

Success happens organically, Soliman says.

“We’re moving on from the traditional ways of ‘teaching to the test,’” she said. “Rather, schools like Nightingale are working to create different kinds of

learning environments where every student is engaged and enthusiastic about the pathways they’re on. The approach organically results in increased student achievement in reading, math, and college and career readiness.”

Meza added that making Linked Learning pathways a reality is a community effort.

“This isn’t because of me,” he insisted. “This is because we have the best teachers and the best students, and it’s all about providing what they need to do what we have always known they are capable of doing. It wouldn’t happen otherwise.”

With new ideas about how to continue improving the instructional program, Nightingale’s leaders show no signs of stopping.

“We want to continue making our students’ middle school experiences more and more like that of a university,” he said. “Even more, we want the concepts and skills our students are acquiring now to be recognized officially, as in certifications that validate the knowledge and skills they’ve acquired.”

Meza continued, “We may not have control over what happens to students before they come or after they leave, but we can affect what happens to them while they’re here. And, while they’re here, it is our responsibility to give them the tools they need to be what they’re capable of being. And every day we ask how we can continue to do that and do it better.” ■

Samuel Gilstrap is a public information officer for the Los Angeles Unified School District. He came to Los Angeles 20 years ago, seeking to guide educators in using data to understand relationships among innovative instructional practices and student outcomes. Gilstrap teaches courses in statistics and research methodology part time. Email him at samuel.gilstrap@lausd.net.

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Trust in Growth:

Career Development Opportunities for Agriculture Students in Southern California

By Erin Gorter





In career and technical education (CTE) courses, students can develop their knowledge and skills to become college and career ready. CTE courses offer unique opportunities for students to combine academic knowledge and technical skills in hands-on, real-world settings. The knowledge and skills gained in CTE courses prepare students to enter the workforce as well-trained, highly qualified employees. Due to California's growing population, diverse landscape and immense size, the state is home to a wide variety of industries and fields. To meet the growing need for employees to fill positions in these industries, California educators are placing a greater emphasis on CTE experiences.

In efforts to enhance CTE opportunities, the California Career Pathways Trust (CCPT) awarded one-time competitive state grants to school districts, county superintendents, direct-funded charter schools, and community colleges to establish or expand CTE pathway programs. In response to the unique opportunity the CCPT provided, the South Coast Regional Agricultural Education Consortium (SCRAEC) was founded in 2014. The SCRAEC is comprised of 21 school districts, encompassing 29 high school agricultural programs, as well as two community colleges, with more than 80 agricultural teachers and 7,600 students representing Los Angeles, Monterey, San Luis Obispo, Santa Barbara, Santa Clara, and Ventura counties.

After being awarded CCPT funds in 2015, the consortium began utilizing grant resources to enhance specific pathways by increasing pathway enrollment, encouraging pathway completion, providing stu-

dents with the opportunity to earn industry certifications, increasing work-based learning opportunities and expanding opportunities to gain industry experience as a part of their pathway program.

Meeting the Industry Need

While the agriculture and natural resources industry sector encompasses a wide variety of career fields, the SCRAEC sought to serve the agriscience and agricultural mechanics pathways specifically. These pathways were selected based on 2014 pathway enrollment numbers and workforce development data. The targeted pathways for improvement were selected by aligning the region's most promising high-skill, high-wage fields in agriculture with the availability of entry-level positions in the region's agriculture and natural resources sectors.

California agriculture continues to thrive as a viable opportunity for job placement. California operates one of the most diverse and productive agricultural industries in the world. The California agricultural industry contributes \$59.2 billion to the state economy annually (Applied Development Economics, 2019). More than 400 agricultural commodities are produced in California, with more than a third of the nation's vegetables and two-thirds of the country's fruits and nuts grown each year (California Department of Food and Agriculture, 2018). California leads the nation in cash farm receipts, accounting for more than 13% of the nation's total agricultural value (Applied Development Economics, 2019; California Community College Centers of Excellence, 2014). In 2017, California agricultural exports totaled nearly \$21 billion in value (California De-

partment of Food and Agriculture, 2018).

Monterey County, one of the largest counties in the SCRAEC, relies heavily on the agricultural industry for economic stability. The Monterey County agricultural industry provides more than 76,000 jobs and contributes \$8.1 billion to the local economy. In Monterey County, one in four employees works in an agriculture-related career (California Community College Centers of Excellence, 2019). In San Luis Obispo County, another large county in the SCRAEC, agriculture contributes \$1.87 billion to the economy and employs one in 10 individuals (California Community College Centers of Excellence, 2019).

Research studies have estimated more than 8,400 agricultural positions are created annually within the South Central Coast region (Applied Development Economics, 2019). While available labor market data is primarily production-driven, it frequently ignores other occupations that sustain the agricultural industry. Careers in the financing, appraising, marketing, journalism, law, quality assurance, commodity brokering, accounting, dispatching and purchasing fields fuel the \$3.3 billion agricultural industry in the counties of San Luis Obispo, Santa Barbara and Ventura. These counties all rank in the top-producing counties in California, with Ventura County ranking eighth, Santa Barbara County placing 13th, and San Luis Obispo County standing 15th (California Community College Centers of Excellence, 2019). Throughout the region, careers in agricultural production and food processing are on the rise.

Additionally, local advisory boards, which include representatives from industry, workforce development agencies, community members, educational leaders

Trust in Growth:

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and civic organizations, have repeatedly indicated the need for competent employees in the agricultural field. The need expands to include all aspects of the industry, with a strong focus on problem-solving capabilities and personal responsibility. Agricultural employers have identified a shortage of technical skills but also a lack of adequate employability skills in potential employees (Applied Development Economics, 2019). Regional labor development plans call for basic entrepreneurship and employability skills training, as well as work-based learning experiences across all industry sectors, including agriculture. Based on the need for more highly skilled workers in the California agricultural industry, the SCRAEC utilized CCPT funding to provide more opportunities for SCRAEC students to become career-ready by developing their agricultural knowledge and skills.

Increased Pathway Enrollment and Completion

Throughout four years of successful CCPT grant implementation, the SCRAEC has realized multiple accomplishments. The agriscience pathway experienced an enrollment increase of 6.1%, and enrollment in the agricultural mechanics pathway increased by 14.8% (CCPT-SCRAEC, 2019). As a result of the pathway expansion, a need developed for more highly qualified, properly credentialed agricultural teachers to serve the growing programs. To help resolve this, the SCRAEC introduced an event to promote agricultural education careers to high school students, particularly positions focused on agricultural mechanics. The Agricultural Mechanics Power & Design (AMP'D) Experience is held annually during the summer and hosts 20

skilled agricultural mechanics pathway students to hone their skills and promote the field of teaching.

During the AMP'D Experience, students participate in six skill sessions led by California agricultural mechanics teachers and are scored by preservice teachers from California Polytechnic State University. Along with the skill sessions, AMP'D hosts guest speakers and team building activities for the students to develop their leadership and employability skills.

In conjunction with increased pathway enrollment, the number of pathway completers increased by 43% for agriscience and 62% for agricultural mechanics. To complement this, the number of students graduating with a diploma or completion of a general education diploma also increased. Graduation rates grew by 4% for agriscience students and increased by 3% for agricultural mechanics students (CCPT-SCRAEC, 2019). To allow for continuity of pathway development, special projects with two community college partners resulted in multiple associate degrees for transfer programs, stackable certificates in technical content areas, and dual enrollment opportunities for students who wished to continue their agriscience and agricultural mechanics pathways in the postsecondary setting. The SCRAEC has worked to ensure pathway development does not end when a student graduates from high school, in the hope they will continue to develop skills necessary to succeed in today's agricultural workforce.

Earning Industry Certifications

To accompany the development of technical skills in agriculture, the consortium sought to strengthen students' career

readiness through industry certifications. Industry certifications verify an individual's knowledge and skills in a specific area or field. By assessing industry-recognized standards, an industry certification validates an individual as being qualified and prepared to enter the workforce. Additionally, industry certifications allow employers to identify and connect with skilled candidates, filling gaps in the labor market and jump-starting careers.

SCRAEC teachers opted to include industry certifications available on the iCEV testing platform in their courses. iCEV, a division of CEV Multimedia, hosts 15 industry certifications from 11 industry leaders. The certifications available on the iCEV testing platform were developed by leading industry experts to address the growing need for more skilled workers.

In the past four years, 4,724 SCRAEC students have earned industry certifications tested on the iCEV platform. Of the total certification earners, 1,117 students earned the Benz School of Floral Design Principles of Floral Design Certification. Seven hundred and sixteen students completed the Elanco Fundamentals of Animal Science Certification, and 651 students earned the Elanco Veterinary Medical Applications Certification (CEV Multimedia, 2019). The Southwest Airlines Professional Communications Certification was completed by 692 students, and 447 students earned the Express Employment Professionals Career Preparedness Certification. Four hundred sixty-one students earned the Bayer Crop Science Plant Science Certification (CEV Multimedia, 2019).

Other industry certification earners have completed the American Meat Science Association Culinary Meat Selection

and Cookery Certification, the American Meat Science Association Food Safety and Science Certification, and the American Meat Science Association Meat Evaluation Certification. Students have also earned the Equipment and Engine Training Council Principles of Small Engine Technology Certification, the Express Employment Professional Business Office Technology Certification, the Center for Financial Responsibility Personal Financial Literacy Certification, the National Collegiate Livestock Coaches' Association Principles of Livestock Selection and Evaluation Certification, and the National Horse Judging Team Coaches' Association Equine Management and Evaluation Certification.

Work-based Learning

Work-based learning has flourished in the SCRAEC since CCPT grant implementation. While experiential learning has always been an active component of school-based agricultural education in California, particularly in the form of entrepreneurial-based student projects, CCPT funding has allowed for additional opportunities in job shadowing, mentoring, and work experience. In some instances, students have received dual enrollment credit at the local community college for their work experience projects. Further, some programs initiated local job shadow days, with a significant number of participants; industry representatives hosted roundtable conversa-

tions with the students to discuss and evaluate their shadowing experiences.

Industry Tours

Additionally, funding has been used to facilitate student and teacher industry tours within the region to enable career exploration and to provide insight into the training and skills needed to fill positions in high-skill, high-wage job areas in the agriculture industry. In 2017, an agricultural industry roadshow was conducted to allow CTE teachers to develop a deeper understanding of the California agricultural industry and the job opportunities available to students. Teachers who attended the 2017 roadshow toured Central Coast Creamery, an artisan cheese facility, to observe careers in food science. At Trelleborg Sealing Solutions, which produces medical silicone, teachers were exposed to jobs in engineering and fabrication. The Firestone Walker Brewing Company offered an opportunity to explore fermentation science and construction careers.

SCRAEC students also had opportunities to expand their knowledge of California agriculture. Students learned about the wide variety of career opportunities in forestry and natural resources from their tour at the Swanton Pacific Ranch, an educational and research facility operated by Cal Poly. At the Gizdich Ranch, an agritourism operation focused on fresh fruit orchards, students explored unique agricultural entrepreneurship opportunities. From the

tours at Tanimura & Antle, a fresh produce distributor, and the El Camino Machine Shop, students learned about the need for individuals who are well-trained and qualified to operate agricultural machinery. Industry tours have allowed teachers and students to gain a deeper appreciation for the breadth of the agricultural industry in California as well as the variety of careers available, and they have gained unique insight into the specialized skills needed to find success in agricultural careers.

King City High School

As one of the schools incorporated in the SCRAEC, King City High School found particular success from utilizing CCPT funds to enhance opportunities in their agricultural science program. Located in Monterey County, King City High School serves a rural student population. The agricultural science program instructs approximately 600 of the nearly 1,100 students at King City. According to the school, 86% of the students are Hispanic, and more than 200 students are English language learners (ELLs) (Education Data Partnership, 2019).

For these reasons, the agricultural science teachers at King City High School were excited about the chance to offer their students the opportunity to earn an industry certification. Since implementation in 2016, 360 King City students have earned an industry certification and, as a result, King City teachers have seen their students' knowledge and skills expand



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(CEV Multimedia, 2019). Several King City students who received an industry certification were able to gain employment in their certification area because their knowledge and skills were confirmed by an industry leader.

“I would suggest any high school CTE teacher get on board and see what an impact this [industry certifications] can provide,” said Patrick Smith, King City agricultural instructor. “I see a lot of high schools throughout the state, and throughout the country, moving in this direction because it provides evidence for these students. I think it’s going to connect a bridge between industry and education which is outstanding.”

By utilizing the CCPT funds to offer industry certifications, King City educators have given their students the opportunity to become college and career ready by enhancing their technical and employability skills. Because they earned an industry certification, the King City students are ready to enter the workforce; they possess the knowledge and skills necessary to be productive and successful employees in the agricultural and natural resources industries.

The SCRAEC has been able to fulfill their goal of increasing pathway enrollment and completion rates, offering

more options for industry involvement and work-based learning experiences, and providing students the chance to earn industry certifications. These opportunities allowed the students to enhance their academic knowledge and technical skills, making them more qualified and prepared to fill the estimated 132,000 new California agricultural jobs projected to be available in the next five years (California Community College Centers of Excellence, 2014). Production and employment trends indicate that by 2022, there will be 13,900 additional openings in the agriculture cluster along the South Central Coast (Applied Development Economics, 2019). Because of the knowledge and skills gained from CTE courses, and the opportunities provided by resources from CCPT, the SCRAEC students are ready to fill highly specialized and in-demand positions in the California agricultural industry. ■

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STEP UP FROM STEM TO STEAM:

**Integrating AP Art
& CTE Engineering**

By Elizabeth McKinstry



It is another day of clear blue skies in the Antelope Valley, a desert community in the northern part of Los Angeles County,

California. Cruise down a main thoroughfare, and it will soon become evident: This area has a proud history of being home to the aerospace industry. Large airplane hangars, bearing names such as Lockheed Martin and Northrop Grumman, border the perimeter, while signs direct visitors to Edwards Air Force Research Lab and Edwards Air Force Base. Sonic booms and sightings of aircraft in test flight, testing the latest innovations in aeronautics, are common occurrences for local residents.

The aerospace industry is the number one employer in the area, providing nearly 30,000 jobs (Greater Antelope Valley Economic Alliance, 2019). It is a vital part of the region's economy for the half million residents who live there. Because of this, more than two decades ago, educators, city officials and representatives from industry worked in partnership to address the local shortage of highly skilled employees, specifically in the area of STEM.

Their efforts have been successful, resulting in career and technical education (CTE) engineering pathways at eight comprehensive high schools in the Antelope Valley Union High School District (AVUHSD). In the 2017–18 school year, more than 400 students finished as a concentrator (three-course sequence) or completer (four-course sequence) in the engineering technology pathway (California Department of Education, 2019). These pathways prepare students for STEM majors at two- and four-year institutions and include work-based learning opportunities, mentoring, scholarships and other aspects of a quality CTE program.

The Why

Automation and machine learning will continue to replace many jobs that require routine tasks in the manufacturing industries. Yet, human creativity is most difficult to emulate (Frey and Osborne, 2018). Due to the impact of this technology and the many resources highlighting creativity as a primary trait employers are looking for in a

21st century workforce, across all industry sectors, another need surfaced: to add one more dimension to the district's successful STEM programs, to integrate arts into the AVUHSD CTE engineering programs.

During the same time that the district began to recognize the need to address alignment of the arts within the STEM programs of study, the Los Angeles County Arts Education Collective reported on the state of the creative economy to education, community and business leaders in the Antelope Valley; one in seven jobs in the Los Angeles region is tied to the creative economy, which includes architecture and creative goods and products industries (Otis College of Art and Design, 2019). The range of courses in the CTE pathways in the arts, entertainment and communications sectors was a factor in the Collective's reporting and, thus, their decision to develop the district's Strategic Plan for the Arts. A committee, with input from stakeholders, would review district art student data, policy and processes to establish a plan with measurable goals to address quality, quantity and equity in arts education.

In addition, the district had recently developed their Graduate Student Profile (GSP) from the input of stakeholders. Referred to as the district's North Star, the GSP is an indicator of the behaviors, skills, knowledge and abilities that every AVUHSD student should graduate with. The GSP set a standard that each student can be a creator/innovator. Creator/innovators generate and transform original ideas through the development of new products, projects and/or concepts; they integrate and synthesize information from a variety of disciplines to create value, and they persevere through taking risks, experiencing success and setbacks while identifying solutions and continued enhancements.

The AVUHSD previously offered a wide range of courses in both visual and performing arts that included CTE pathways, addressing STEAM in isolated instances in the engineering courses, but never had they taken a comprehensive approach to building capacity for a STEAM mindset.

STEP UP FROM STEM TO STEAM:

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The Process

A convergence of the strong CTE engineering pathways, job market trends, the work with the LA County Arts Education Collective and the Graduate Student Profile produced the powerful mix of initiatives and programs that provided the timing for CTE to move forward with a STEAM pilot. Based on the AVUHSD student demographics — 73% are economically disadvantaged and 80% are from underrepresented minority populations — district leaders felt it was important to increase access to rigorous coursework that leads to both college and career preparation. The College Board's Advanced Placement (AP) 3D Art and Design course "is an introductory college level three-dimensional design course where students refine and apply skills and ideas they develop throughout the course to produce three-dimensional art and design" (College Board, 2019). The course was a natural fit to enhance the engineering pathway with the arts, since it increased the number of students taking rigorous AP coursework; students enrolled in the course work in the area of 3D design, where they become familiar with the form of printing and manufacturing. Thus, it became the focus of the STEAM pilot.

The first step was to present the curriculum with the idea for the pilot to the engineering academy coordinators to ensure that there was shared interest in the concept. The engineering and art teachers from the Multimedia and Engineering Academy at Lancaster High School embraced the idea and, in the 2017–18 school year, CTE engineering students were enrolled in the AP 3D Art and Design course. As expected with new endeavors, the first year came with a steep learning curve for the teachers,

students and administrators. Because there were only 16 engineering students, they were placed in the course with non-engineering art students; and while this might not have been the perceived vision for implementation, it allowed for constructive feedback and surprising outcomes with strong elements for the teachers to build upon.

Referencing Alexander Calder — an American artist known for his monumental public sculptures and mobile art — as an example of STEAM integration, students were tasked to collaborate on creating their own sculptures. With both major cities, Palmdale and Lancaster, in the Antelope Valley developing plans to incorporate public art, it was a natural introduction for the students. Engineering students offered feedback on the structural stability, and the art students provided the aesthetic interpretation. The engineering teacher used his conference period to be available in the makerspace lab for the art teacher. The art students were trained by their classmates in the engineering pathway to use equipment such as mills and laser cutters. Access to the lab fostered new learning and expanded venues for creativity.

As the engineering students were tasked to train their classmates on equipment and use of tools, both groups improved their communication skills. Engineering students, typically focused on optimal and acceptable solutions, began to view their projects through a creative and emotional lens. The students' comments reflected their enthusiasm:

"I wasn't into art and I didn't see the purpose, but the class made me a better engineer."

"I had never used a bandsaw before and probably never would if I had not been in this class."

"My interest had only been in 2D art but this class allowed me to bring my 2D art to 3D form."

"I liked to build things but didn't think about how it looked to others, I now see an aspect I had not considered."

The Collaboration

As the teachers increased the level of collaboration and integration, it reinforced how closely braided the art content was to engineering content. To build their interdisciplinary lesson plans, the teachers focused on two foundational areas: academic and technical language within their disciplines and the process for engineering and art. To be able to assess the work, it was important for the teachers to address what each valued in the sculpture project. Clear documentation emerged from this work, which students could use to deepen their knowledge, make connections and incorporate a process that included iterations to the finished product.

The Outcomes

The CTE and site administrator leveraged various funding sources that afforded flexibility as the program moved from a pilot proposal to actuality. In the first year there were 16 students from the Engineering Academy enrolled in the class; in the following year, course enrollment among engineering students grew by almost 20% to 19. In both years the course included students who were not in engineering. Over the course of two years, 22% of the engineering students passed the AP Portfolio submission and received college credit.

Thirty-three engineering students are enrolled in the current 2019–2020 school year. Because of the instructors' strong teaching relationship to strengthen the program, the students will continue to have the opportunity to work on collaborative projects with art students in other classes. Note that most of the engineering students had never taken an art course prior to the AP 3D class. Many of them voiced frustration at having to address creativity along with functionality. The art teacher gave additional support to these students to help them develop the mindset. It was evident from the outcomes that students with the right support systems in place will rise to a higher standard even after failures and frustration.

The culminating experience for the students in the academy is their senior defense, a performance assessment wherein the students present artifacts from their high school coursework to demonstrate their knowledge, traits and abilities as they support the elements of the Graduate Student Profile. In 2018–19, several students in the program brought their sculptures and other art/engineering examples to demonstrate their ability to be a creator/innovator.

The Future

As the Multimedia and Engineering Academy moves into its third year, the forward momentum is promising. With a better understanding of the process, more confident teachers and established student outcome goals (e.g., 50% AP Portfolio passage and a defined art structure for the school), there are plans to expand the model to two more engineering academies. Eventually, AVUHSD hopes to incorporate the AP 3D Art course into a fine arts requirement for all engineering pathway students. The World Economic Forum (2018) has projected the top 10 job skills for the year 2022 as:

- Analytical thinking and innovation
- Active learning and learning strategies
- Creativity, originality and initiative
- Technology design and programming
- Critical thinking and analysis

- Complex problem solving
- Leadership and social influence
- Emotional intelligence
- Reasoning, problem solving and ideation
- Systems analysis and evaluation

These indicators reflect the importance of continuing on the STEAM path and providing additional opportunities for all CTE students to apply their industry technical knowledge across other content areas — to truly prepare them for a future where the division of labor will be shared equally with automation (World Economic Forum, 2018). This will require CTE to place emphasis on those traits that are not easily replaced with technology. The AP Art and Engineering interdisciplinary pilot is a step in that direction. ■

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Research supports the benefits of the science, technology, engineering, arts and mathematics (STEAM) approach, which includes addressing visual literacy, enhanced learning of scientific concepts, mastery of design process, cognitive development and aiding in attracting and retaining student interest in STEM (Segarra, Natalizio, Falkenberg, Pulford, and Holmes, 2018). In addition,

innovative approaches to art/engineering interdisciplinary study in higher education — such as MIT’s Center for Art, Science and Technology; Carnegie Mellon’s art and engineering degree program; and University of San Diego’s EnVision Arts and Engineering Maker Studio — are providing environments for students to pursue STEAM interests at the postsecondary level.



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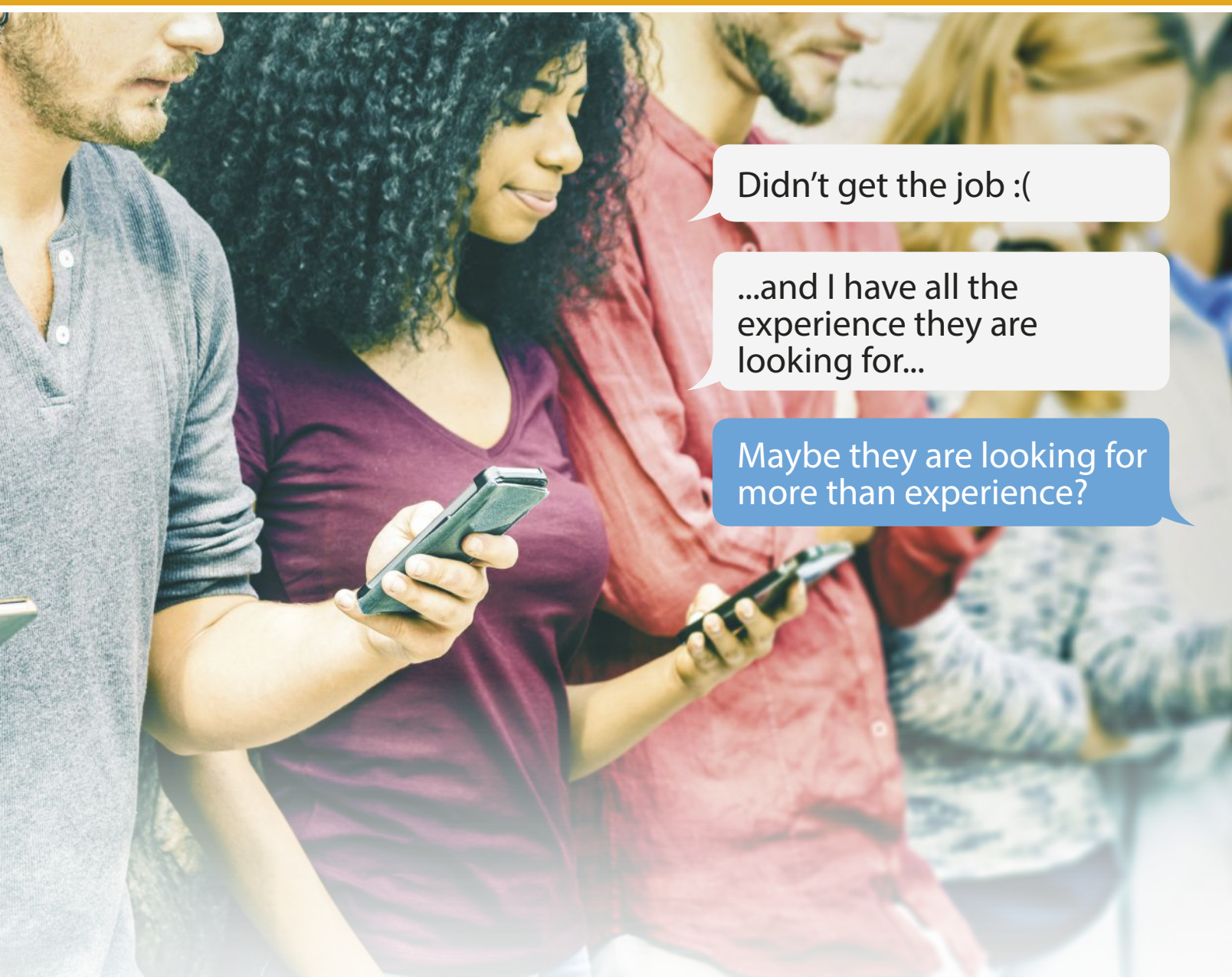


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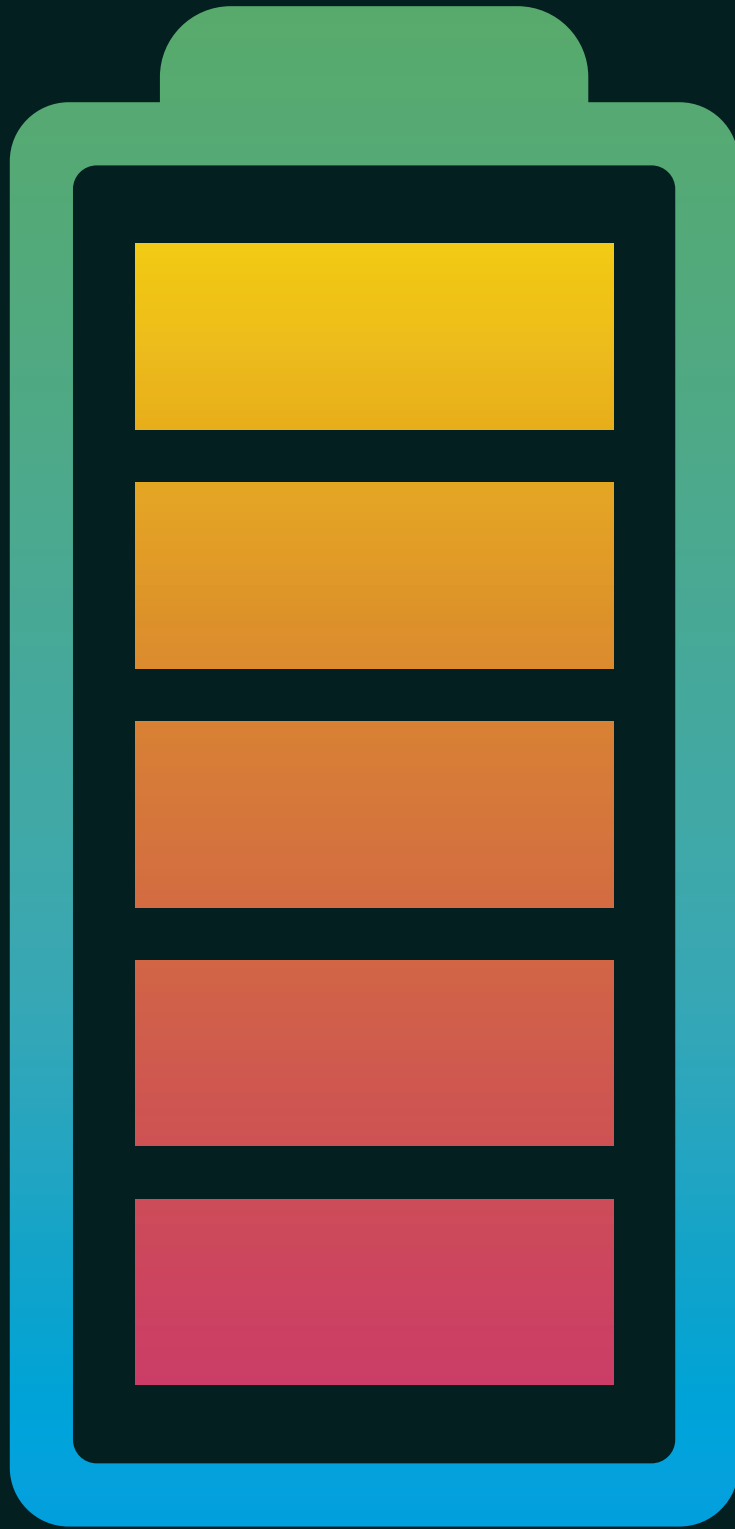
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Strengthening Career Pathways in California's Community Colleges

By Shannon McConville & Taylor Huckaby

The California community college system is the state's largest provider of career and technical education (CTE), serving more than 300,000 students and conferring more than 100,000 career education credentials each year (California Community College Chancellor's Office, 2013). In recent years, state lawmakers have invested more than \$1.5 billion to support career pathway programs — and the Strong Workforce Program, created in 2016, provides ongoing funding for the community colleges to continue work in this area (Bohn & McConville, 2018). To make the most of these investments, it is important to understand how colleges and programs can ensure that more students finish the programs they start, get well-paying jobs, and pursue additional training to further their careers.

One way for CTE programs to provide opportunities for students to advance along a career pathway is through stackable credentials — multiple, related certifications that build skills over time to facilitate job advancement and increased earnings. This strategy is especially important because career education pathways often start with short-term certificates, which can be obtained in less than a year but, on average, confer lower payoffs in terms of wage gains (Figure 1).

Research from the Public Policy Institute of California (PPIC) finds that nearly 40% of students who earn CTE credentials in the state's community colleges start with a short-term certificate, which leads to a 7% increase in earnings, on average, beyond what a student would have earned without the credential. This compares to a 21% increase in earnings returns for students who initially obtain long-term certificates and 32% for students initially

completing an associate degree. However, students who start by earning short-term certificates can increase their earnings potential by returning to the community colleges for more training and stacking additional credentials (Bohn, Jackson, & McConville, 2019).

While longer CTE programs confer the greatest wage returns, students who initially earn short-term awards and then stack additional credentials can “catch up”

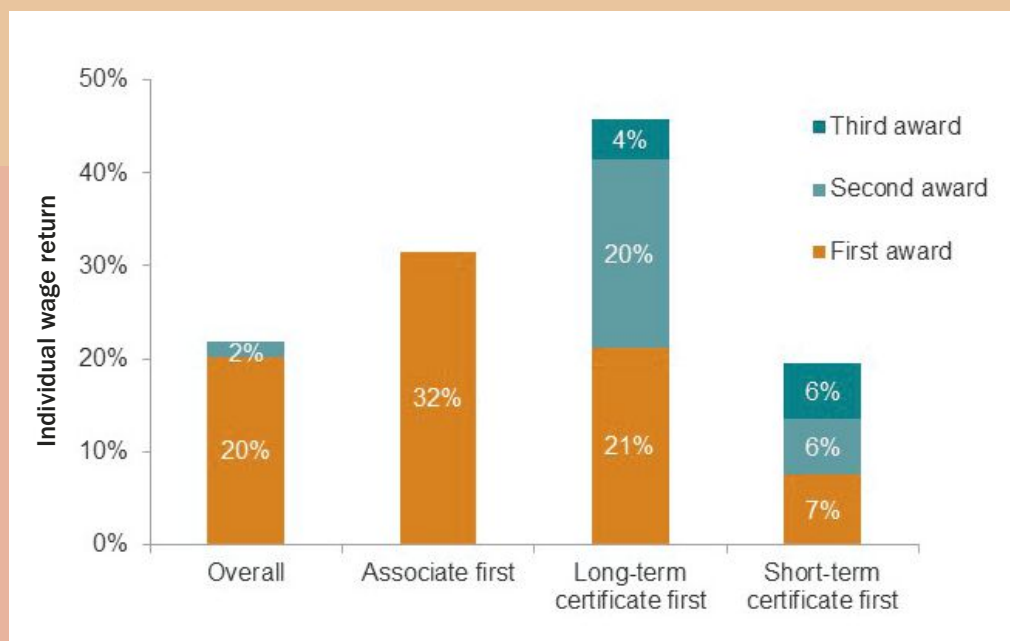
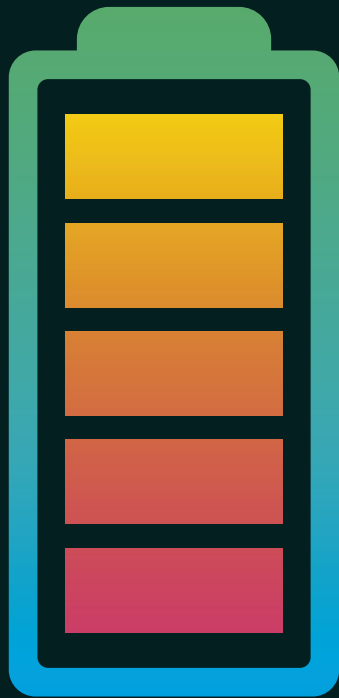


FIGURE 1: Estimated wage returns to career education credentials, California students, 2003-2010 (Bohn, Jackson, & McConville, 2019)

Strengthening Career Pathways

In California's Community Colleges



in terms of earnings gains over time. Additional credentials earned by short- and long-term certificate holders boost earnings about as much as their first credential and put students on a better long-term earnings trajectory relative to career education students who earn only one certificate.

While students who initially earn associate degrees see the largest returns, the field of study tends to have greater implications for potential earnings gains. Career education programs in health confer the largest wage gains — driven largely by registered nursing (Bohn, McConville & Gibson, 2016; Bohn, Jackson & McConville, 2019). Other CTE disciplines also confer wage gains, including engineering and industrial technology, public and protective services, and family and consumer sciences. There is less evidence of wage gains for students earning business and information technology credentials — perhaps in part because many of these students have higher earnings levels when they enter career education programs.

Leveraging Stackable Pathways

Community colleges can structure career and technical education programs to make it more likely that students stack credentials. In other recent research, PPIC identified two promising types of stackable pathways: progressive and lattice (Bohn & McConville, 2018). Progressive pathways allow stu-

dents to stack successively more-intensive credentials. Lattice pathways begin with core courses — sometimes referred to as a launchpad — that provide a foundation for students to pursue related credentials that broaden their expertise in a given field.

To assess how different pathway structures impact student success, PPIC researchers also catalogued the characteristics of progressive and lattice pathways across hundreds of different CTE programs and community colleges. These pathway characteristics were then linked by program and college to individual student records to examine whether pathway characteristics impacted the likelihood that students stacked credentials. This analysis suggests that career pathway programs that make explicit connections between related coursework and credentials, and signal those linkages clearly to students, increase the likelihood that students successfully stack credentials (Figure 2). Overall, students enrolled in career and technical education programs with well-defined pathways were nearly five percentage points more likely to stack related credentials. Results were most promising for Latinx students, who were more than eight percentage points more likely to complete stackable credential pathways if they were explicitly laid out.

These findings are promising, but they apply only to students who complete career education programs. And, while completion rates have improved in recent

years, only slightly more than half (54%) of career education students in California obtain a credential, get an apprenticeship or transfer to a four-year college within six years of starting a program. There are differences in completion across demographic groups (Figure 3). Completion has improved among Latinx CTE students; the most recent available data shows that they now have completion rates on par with white students. Six-year completion rates are lowest among African American career education students (47%), and highest among Filipino and Asian students (62% and 63%, respectively) (California Community College Chancellor's Office, 2013).

Career education students tend to be older than community college students in general education courses — about half are age 25 or older and the mean age at completion is around 30 (Bohn & McConville, 2018). Many have job and family obligations that can make it challenging to pursue college training. Indeed, older students have lower completion rates than younger students and those who do complete programs see lower wage returns.

Improving Student Success

Several efforts are underway at California's community colleges to improve student success and economic outcomes. One example is the Guided Pathways initiative, which aims to provide more guidance and support to help students choose areas of study that connect to their educational

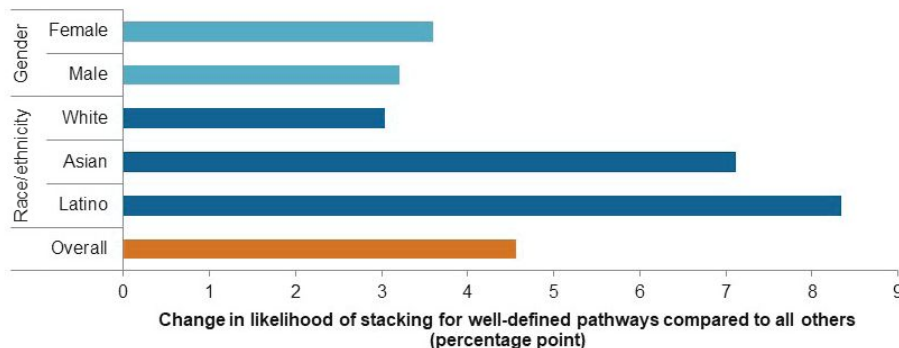


FIGURE 2: Increased likelihood of stacking credentials in well-designed pathways (Bohn & McConville, 2018)

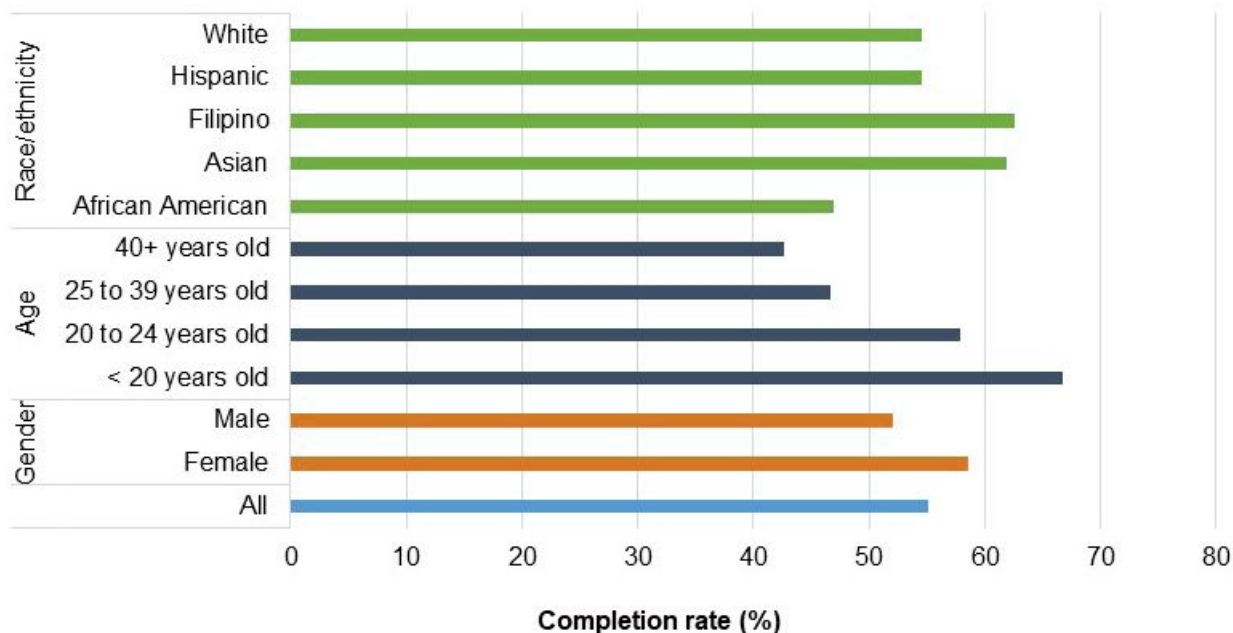


FIGURE 3: Completion rates across demographic groups of career education students (California Community College Chancellor's Office, 2013)

and employment goals. The Strong Workforce Program is another. Comprised of multiple components — including career pathway improvements, curriculum and faculty development, and better use of labor market data and regional collaborations — the main goals of the program are to increase the number of students enrolled in, and finishing, CTE programs that lead to in-demand, high-wage jobs.

In what is perhaps the most innovative effort to meet the needs of students who could benefit from pursuing career education training — particularly those who may be older, working and supporting families — the California Community Colleges system is developing Calbright, a new online-only college. Calbright seeks to provide a unique and debt-free way for students to access career and technical education courses, train for particular occupations, and connect with employers.

Created in the last few months of former governor Jerry Brown's administration, Calbright aims to improve the employment and economic outcomes for the millions of working Californians who have not completed any postsecondary credentials. Californians with no more than a high school

education are disproportionately represented among California's working poor population, despite many working full-time, full-year (Bohn, Danielson, & Thorman, 2019).

Recognizing the challenges many of these workers may face to attend college — whether due to family care obligations, nontraditional work hours, transportation constraints or other factors — the Calbright model seeks to meet students where they are geographically, financially, experientially and circumstantially. Programs are designed to be self-paced with no semesters or hard deadlines and focus on providing competency-based education with instructional support.

In its initial phase, which began enrolling students on Oct. 1, 2019, Calbright is offering three program pathways that include medical coding, general information technology support services, and cybersecurity. Each of these programs provides training that breaks down specific jobs into the foundational skills necessary for entry-level employment in growing economic sectors. In addition, Calbright programs plan to offer wraparound support services that include paid apprenticeships and on-site employer mentorship.

To build these pathway programs, Calbright has partnered with employers in need of workers with these specific skill sets so that those completing the online program are set up to succeed on day one of an apprenticeship or employment. Successful placement in an entry-level job can promote employment stability, which, along with the accompanying benefits of stable wages and health insurance, may encourage and facilitate the pursuit of additional training. In this way, Calbright aims to complement the community college system by serving as a pipeline to more intensive career education programs offered throughout California's brick-and-mortar community colleges.

In addition to funding provided by the state, when a Calbright-certified apprentice is successfully placed in a full-time position, the employer will pay a fee of approximately 15% of their new employee's first-year base compensation. This payment — which is well below the placement fees charged by private-sector recruiting and staffing firms (Deutsch, 2019) — covers the cost of the employee's training and professional development.

Moving forward, Calbright aims to closely track the experience of students



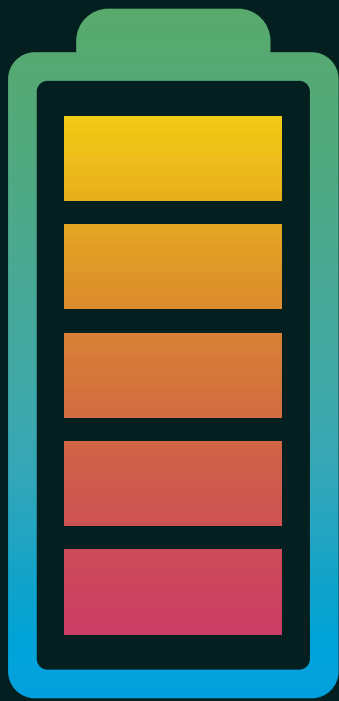
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in the inaugural program pathways — a cohort of about 300 people — to make any needed improvements and inform future program offerings. There are plans to build out additional program pathways and Calbright is actively pursuing and negotiating partnerships with major employers, labor unions and community-based organizations. Calbright's (2019) long-term business plan, which was submitted to state policymakers on Aug. 1, 2019, aims to place tens of thousands of Californians in upwardly mobile careers over the next decade.

Calbright and other reforms being implemented at California community colleges have the potential to improve outcomes for career and technical education students. In order to realize this potential, however, it will be essential to closely monitor and carefully evaluate these programs — and to adjust and innovate as needed. Despite the challenges, developing effective strategies to connect workers to better jobs and career pathways will be essential to improve California's future. ■

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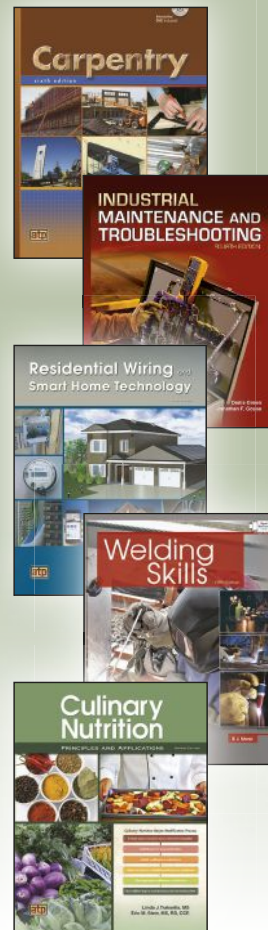
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Intention to Action : Recruiting Women in CTE

By Donna Milgram

IS IT POSSIBLE TO GO FROM INTENTION TO ACTION, TO REAL INCREASES IN FEMALE PARTICIPATION IN

your career and technical education (CTE) programs in less than a year's time? Yes, it is possible and there has never been a better time, with the emphasis on equity in Perkins V, to take that step than right now.

I know many educators feel like they are spinning their wheels trying to close the gender gap at their schools. I spoke with a CTE instructor from Texas not too long ago who told me that she has been trying — unsuc-

cessfully — to recruit more women into surveying for 32 years and nothing has changed. She wanted to believe it was possible, but she needed some evidence to soldier on. Figure 1 demonstrates some promising results; I shared these with her and, now, with you.

It can be done!

Three of these colleges had tried unsuccessfully to recruit more female students for a very long time, and one college had zero women in its first cohort even though

it had a grant specifically to recruit women. Where had they gone wrong, and what was the big secret that would lead to success? Here, I will share with *Techniques* readers the top three most common recruitment mistakes as well as three secrets to success, effective in moving the needle for women in CTE in one year or less.

The gist is, all five schools started recruiting narrowly rather than broadly using methods taught in WomenTech Educators Training programs from the National

School	Career Pathway	Outcomes
Milwaukee Area Technical College, WI	Welding	* 0 to 9 women in 4 weeks
City College of San Francisco, CA	Automotive Pre-apprenticeship	* 0 to 7 women in 2.5 months
Lawson State Community College, AL	Automotive Manufacturing Technology	* 2 to 11 women in 1 year; to 15 in 1.5 years
Mt. Wachusett Community College, MA	BioTech Manufacturing	* 1 to 9 women in 1 semester; to 13 in 1 year
Broward College, FL	Information Technology and Computer Science	* 149 to 226 women in 1 year

FIGURE 1. Outcomes from five postsecondary institutions that successfully increased female participation in STEM/CTE courses after working with the National Institute for Women in Trades, Technology & Science (IWITTS)

Institute for Women in Trades, Technology and Science (IWITTS). They worked smarter and focused on a target audience of prospective female students.

Mistakes Recruiting Women to CTE the Same Way You Recruit Men

I recently spoke with a school that is working to recruit more women into construction and discovered that their major push to recruit female students occurred at a Construction Career Day event with 99% male participation. Do you see how this might be a problem? Together we came up with a way to attract potential female students by creating a specialized “Women in Construction” session as part of the Construction Career Day. During this female-focused session, emphasis was placed on how construction helps others, since research shows this is a primary motivator that drives many women to consider CTE/STEM careers (Margolis & Fisher, 2001; Milgram, 2011; SciGirls, 2019). It’s not enough to

hold the same recruitment event as always with the intention of recruiting more female students; you have to take action that is likely to appeal to women and girls.

Outreach Materials that Feature All or Mostly Male Faces

How is it possible to have all-male marketing materials in this day and age? Most likely, photographs were taken of the current class — which was made up of mostly male students — and used on a school’s website and program brochure. However, if you want to change the gender composition of your programs, then you need to send a strong, counteracting message. Outreach materials with 50% female role models send an important message about who you are as a school. It says that you welcome female students and support women in CTE/STEM career pathways.

One-off Strategies

Avoid this common mistake: Many CTE programs try one-off strategies — such as

distributing a female-focused flyer or making a presentation to middle school girls — and then get frustrated and give up when no new female students enroll. If you want to see real increases in female enrollment, it takes a female-focused recruitment plan with multiple, multifaceted strategies.

Sue Silverstein, a welding instructor at Milwaukee Area Technical College, explained, “I was very frustrated about not being able to recruit women to our welding program and I didn’t have a plan. It was the decisive work plan we developed that I think made the biggest difference.”

Secrets to Recruitment Success A Female-focused Recruitment Campaign

The biggest secret to successfully recruiting more women to CTE is a robust plan for a female-focused recruitment campaign. What may surprise you is that you need a separate plan for each career pathway you are targeting; a general “women in CTE plan” for your whole



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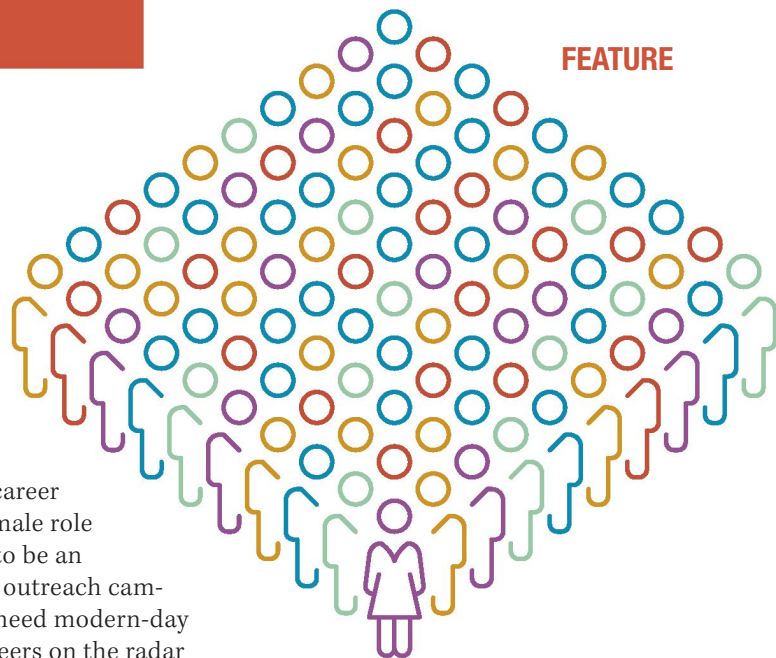
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school won't be as effective. After all, computer networking and welding are different, and the best strategy and target audience for one isn't necessarily the best for the other. The schools featured in Figure 1 each completed a recruitment and retention plan as part of their WomenTech training; an effective plan will set goals, track metrics, and map the right target audiences to key strategies.

Selecting the Right Target Audience

If you have the right recruitment strategies but the wrong target audience, you will put in a lot of time and effort and not see even one more female student enroll. For example, if a high school that wants to recruit more female students to their IT academy holds an event with Girls Who Code and invites primarily students in sixth and seventh grade — thus, not eligible to enroll in high school computing courses in the next year — then that school is unlikely to realize increases in female enrollment.

If your pool of prospective female students cannot register within one year's time, then they are not the best target audience. What's an example of a good target audience for recruitment purposes (not career awareness)? Take that same event, and invite female students in the eighth grade; schedule the event to occur around class registration time to see success.

Another option for a high school computing program hoping to recruit more female students might be a local after-school or summer computer program for girls. A good target audience for a cybersecurity program at a two-year college might be women already enrolled in an introductory computing course at the college.

Design Outreach Materials that Feature 50% Female Role Models

To recruit more female students to

male-dominated CTE career pathways, you need female role models in these fields to be an important part of your outreach campaign. In essence, you need modern-day Rosies to put these careers on the radar screens of prospective female students. They will think, "If she can do it, then so can I." You only need one or two to get started, but if you skip this step you sabotage your campaign. I recently worked with a school that held a Women in Automotive event with no female role models present from the automotive technology field. No women enrolled at that event. Later, they held several more information sessions with two to three women automotive technicians and seven women enrolled.

All outreach material must have 50% female role model images, and career events must be female-focused or have 50% female role models. Once you have success, you will grow your own female role models. ■

Donna Milgram is the executive director and founder of the National Institute for Women in Trades, Technology & Science. She has been the principal investigator of five National Science Foundation grants on women in CTE/STEM including the CalWomenTech Project, which was highlighted by the NSF for demonstrating significant achievement and program effectiveness and chosen as one of three model projects by the American Association of University Women. Email her at dmilgram@iwitts.org.

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How Female Friendly Is Your CTE Program?

Take the free WomenTech Gender Equity Self-Assessment (funded by the National Science Foundation) from the National Institute for Women in Trades, Technology & Science to find out. Your CTE program will get a grade and a print-out to measure how your school compares to existing best practices on broadening participation for women. womentech.iwitts.org/assessment

EXPLORE MORE

WomenTech Educators Professional Development: iwitts.org/professional-development

ACTE BOARD OF DIRECTORS 2020 ELECTIONS

YOUR VOTE, YOUR VOICE



From Dec. 6, 2019, until 11:59 p.m. ET on Jan. 6, 2020, members of the Association for Career and Technical Education (ACTE) will elect officers for the following board of directors positions:

- **President-elect:** Serves a one-year term beginning in July 2020, followed by one year as president and one year as past president.
- **Engineering and Technology Education Division Vice President:** Serves a three-year term beginning July 2020.
- **Administration Division Vice President-elect:** Serves a three-year term beginning July 2021.
- **Guidance & Career Development Division Vice President-elect:** Serves a three-year term beginning July 2021.
- **Postsecondary, Adult & Career Education Division Vice President-elect:** Serves a three-year term beginning July 2021.

All ACTE individual professional or retired members, educational institution members, and national affiliate organizations whose membership dues are received at ACTE headquarters by Nov. 6, 2019, are eligible to vote. Please review the biographical information and platform statements for the nominees and exercise your right to vote for ACTE's future leadership. This information is also posted online on the ACTE website at www.acteonline.org/board_election_candidates/.

Please note that the nominees featured below and online are not official candidates. Candidates will be officially selected at ACTE's CareerTech VISION 2019.

The election process will be conducted via electronic ballot only. Ballots will be sent to member email addresses listed in

the ACTE database. ACTE has selected Survey & Ballot Systems (SBS) to manage the board of directors elections. You will receive an e-signature via email that must be used with your member number to vote electronically. If you do not receive an e-signature by midnight on Dec. 7, please contact support@directvote.net. Electronic ballots must be cast by 11:59 p.m. ET Jan. 6, 2020. Ballots will be counted and audited at the offices of SBS, and the results will be posted on ACTE's website and announced in *Techniques* magazine.

In order to facilitate a smooth election process, please be sure to:

- Verify your email address with ACTE. If ACTE does not have your email address, it is imperative that you update your member profile immediately. You can do this on the ACTE website by going to www.acteonline.org, logging in (Access: email as your username and your ACTE ID number plus your first and last initials as your password, i.e. 123456AH) and clicking on "View Profile," or by emailing acte@acteonline.org.
- Make sure you/your IT department puts Survey & Ballot Systems on your email's "white list" so your voting information can be received/not marked as spam. The email will be sent to you from noreply@directvote.net.
- Remember that in order to vote, you must be a member of ACTE as of Nov. 6, 2019. Members are only allowed to vote in elections for their region and any divisions of which they are a member.



PRESIDENT-ELECT

Kevin English

Region: V

Division: Marketing Education, New & Related Services

Occupation: Senior Director, Knowledge Management

Employment History:

Senior Director, Knowledge Management, NAF: 2013–present
 Engineering/Construction/Agriculture Teacher, Peoria Unified School District: 1993–2012
 Welding/Technology Teacher, Flowing Wells High School: 1991–93
 Graduate Assistant, Agricultural Education, University of Arizona: 1990–91
 Marana Unified Schools Agriculture/Welding Instructor 1986–1990

Education:

M.A.E., University of Arizona
 B.S., Agricultural Education, University of Arizona

National ACTE Involvement:

Board of Directors, Region V: 2006–09
 Executive Committee: 2009
 Committee Member: New and Related Services Policy Committee, 2016–present
 Committee Chair: Professional Development Committee, 2003
 Task Force Chair: ACTE Sustainability Task Force, 2010
 Advisory Group Member: 2015, 2018
 Award Winner: National Teacher of the Year, 2005–06
 Coordinator, National Leadership Fellowship Program: 2006–2012
 ACTE's CareerTech VISION Attendee: 1999–2007, 2010–19
 VISION Presenter: Many times, 2003–2017
 National Policy Seminar Attendee: 2002–07, 2017 and 2018
 CTE Support Fund Supporter: 2002–2019

Regional ACTE Involvement:

Region V Policy Committee: Member, 2003–2010
 Region V Policy Committee: Chair, 2006–09
 Committee Member: Region V Policy Committee Member 2000–03
 Committee Chair: Public Information Committee
 Award Winner: Region V Teacher of the Year, 2005
 Award Winner: Region V Program of the Year, 2002
 Region V Conference Presenter: 2002–09
 Region V Conference Attendee: 2002–09
 Other: As a young ACTE member, my professional introduction to ACTE was through state and regional activities. Presenting sessions, serving on committees, and serving in leadership positions at the regional level were a critical part of my professional growth and development. Many of my lifetime mentors and friends have come from this involvement in ACTE's Region V.

Divisional ACTE Involvement:

Committee Member: New and Related Services Policy Committee, 2016–19
 Committee Member: Professional Development Committee, 2003–04
 Conference Presenter: Marketing Educators' Association, 2016–19
 Conference Attendee: Marketing Educators' Association 2016–19
 Other: I am currently on the New and Related Services Policy Committee. I also serve as an active member of the Marketing Educators' Association and, in 2019, assisted with their summer teacher's conference in Portland, Oregon.

State ACTE Involvement:

President, ACTE of Arizona: 2001–04
 President: Arizona Industrial Technology Association, 1999–2001
 Committee Chair: Arizona Agriculture Teachers Association Policy Committee, 1998
 Workshop Presenter: ACTEAZ/ACTE Nevada/ACTE Wyoming, 2010–12

Other CTE Involvement:

CTE Leadership Public Speaking Coach Volunteer, Mountain Ridge DECA and FBLA: 2016–19
 Chaperone Volunteer to National CTSO competitions, Mountain Ridge DECA (ICDC and FBLA): 2016–19
 Solar Curriculum Development, Questech: 2010–12

Application Summary:

Arizona ACTE is where my foundation in career and technical education began. I served as a member of the Arizona Agriculture Teachers Association at the start of my career. I served the Arizona Industrial Technology Association as president in a revitalization of that organization. I then served on the Arizona ACTE board as president in years of substantial growth for our association. I have grown at all leadership levels within the organization, which has led to this decision to serve in this role of leadership for ACTE.

Currently I am the senior director of knowledge management at NAF. My duties include curriculum development and maintenance, professional learning, teacher-facing platforms and educational partnerships.

As a career and technical educator for over 30 years I am excited to bring my passion, experience and high energy level to service. My hope is that we work together to develop the mission, vision and goals for our association. That we can roll up our sleeves and get to work and then, at the end of the day, smile, laugh and share our dreams!

As my career has unfolded, you just feel when the time is right! I have that feeling that it is my time to get back in the trenches with you and serve this organization. Please consider this as an opportunity for us all to grow and make a difference to all our members and their students!

Platform Statement:

ACTE is the foundation of my professional career. As a young teacher, my adoption by seasoned members of my agricultural education and state associations of ACTE were influential in shaping my career. These individuals knew the importance of being actively involved in your professional associations. At that time, as a new teacher, one of the older members paid my first year's dues. This generosity made a significant impact on my life and was a catalyst for my career journey. Then came the action, serving on committees at the state, local and regional and national levels. Working to share the work, to solve the issues we face together!

I am excited to be a candidate for the ACTE president-elect position. My history and success within ACTE have inspired me to pay it forward. To provide the ACTE members with a productive environment to grow and prosper as professionals! Mine is a working history of over 30 years of involvement in ACTE and its divisions. Throughout my career and professional positions, I have been active in the Agricultural Education Division, the Trade and Industrial Education Division, the Marketing Education Division, and most recently, the New and Related Services Division. My career has driven this involvement; as my assignments evolved so has my participation in ACTE. Career and technical student organizations have also been a high point in my career. With active involvement in FFA, SkillsUSA, DECA and FBLA, I very proudly stand in the background of many successful students at all levels.

My passion for career and technical education is all consuming! I love what I do! I love changing students' lives for the better! I am a product of career and technical education! I am very excited to be a candidate for ACTE president-elect.



PRESIDENT-ELECT

Brian Law

Region: II

Division: Guidance and Career Development, Administration

Occupation: CTE Director/School Counselor

Employment History:

CTE Director/Counselor, Brooks County High School: 2019–present

School Counselor, Brooks County High School: 2018–present

School Counselor and Summer School Coordinator, Valdosta High School: 2005–2018

Adjunct Professor, Psychology and Counseling, Valdosta State University: 2009–present

Middle School Alternative Program Coordinator/Counselor, Williams Middle School: 2004–05

Elementary School Counselor, Odom Elementary School: 1996–2004

Education:

Ed.S., Instructional Technology/Educational Leadership, Valdosta State University

M.Ed., School Counseling, Valdosta State University

B.S.Ed., Secondary Education, Valdosta State College

A.A., Sociology, Abraham Baldwin College

A.A., Psychology, Abraham Baldwin College

National ACTE Involvement:

Board of Directors: Region II Vice President, 2016–19

Committee Member: Resolutions Committee, 2014–16

Committee Member: Audit Committee (Board Liaison), 2016–17

Committee Member: Bylaws Committee (Board Liaison), 2018–19

Task Force Member: Board Allowable Expenses Task Force, 2018

Task Force Member: ACTE Division Affiliate Task Force, 2019

Advisory Group Member: ACTE Board Mentor, 2017–19

Educators in Action Volunteer: 2016–17

Educators in Action Content Expert: School Counselors and CTE, 2016–17

CTE Support Fund Supporter: 2016–19

National Policy Seminar Attendee: 2017–19

ACTE's CareerTech VISION Presenter: 2012

VISION Attendee: 2012, 2014–19

Regional ACTE Involvement:

Committee Member: Region II Policy Committee, 2016–19

Region II Conference Attendee: 2016–18

Divisional ACTE Involvement:

Conference Presenter: Guidance and Career Development Division Opening Session at VISION, 2019

State ACTE Involvement:

Member, Georgia Association for Career and Technical Education: 2010–present

GACTE Summer Conference Presenter: 2011–13, 2016–17

GACTE Summer Conference Attendee: 2011–19

Advisory Board Member, Local CTE Advisory Board: 2012–18

Other: Georgia DOE CTAERN Contracted Presenter at Summer CTAE Academy, 2013

Other CTE Involvement:

President, American School Counselor Association: 2010–11

President, Georgia School Counselor Association: 2008–09

Top 10 School Counselor of the Year, American School Counselor Association: 2009

Secondary School Counselor of the Year, Georgia School Counselor Association: 2009

Region, State & National Elementary School Counselor of the Year, Georgia/

American School Counselor Association: 2004

District CTE Advisory Board Member: 2016–18

Application Summary:

I am Brian Law, a school counselor, district CTE director and advocate for CTE. In my daily job, I get to remove the barriers for learning and allow students to discover and pursue careers based on their aptitude, skills and interests. I have the unique position of serving as the system director of CTE and counselor. CTE is the driving workforce of our future economy. Together we can positively promote CTE nationwide.

Having served as the ACTE Region II vice president, I have encountered many professionals who have the same passion for CTE as I do. My leadership experience grew from serving as president of both my state and national school counseling associations. I have strengths in organizational leadership. I am a communicator and team player who listens with the unique ability to spread excitement for a movement.

Our future depends on you as CTE educators and I want you to join me in this important movement!

If you ask someone to describe me in three words, they would say, "respectful, passionate and real." If you choose me as the next ACTE president-elect, I affirm to use my passion to advocate for you and the many students who are impacted by CTE. I vow to reach out with respect, recruit new members, and raise an awareness of the importance of CTE. I want my passion to be contagious! Join me and catch the CTE fever — our students, business and industry depend on us!

Platform Statement:

John Donne wrote, "No man is an island." Serving on a board is a business. For a business to grow and prosper, we must work together. I am a team player and am very passionate about CTE. I live it! We must market this passion to other educators and business partners to support our students who we educate and train to be successful, productive members of society. I affirm to serve as the ACTE president-elect, to work with ACTE staff, the executive committee and other board members to increase the passion for CTE. Career and technical education is a growing force in our workforce and is imperative to the future economy of the world. I want to make my passion contagious!

As an experienced educator in all levels from P–16 serving as a teacher, school counselor, administrator and college professor, I understand the needs of our members. Having served as president for both the state and national school counseling associations, I have training and experience as an organizational leader. Using my skills of communication, organization and relationship-building, I will help to build the membership (new and renewal) and stakeholder support in ACTE. Public relations and marketing are keys to building partnerships and gaining members. Our message should be that we, as career and technical educators, prepare students to join the workforce and we want to give the best product. By building partnerships and collaboration, we can ensure a product with skilled workers possessing the best training and work ethic. While serving as your president, I would always represent every region, division and diverse CTE educator with respect and integrity. My priorities would be to reach out with respect, recruit new members, and raise an awareness of the importance of CTE by spreading my passion.



PRESIDENT-ELECT

Jon Quatman

Region: I

Division: Administration

Occupation: Retired

Education:

M.Ed., Educational Administration, Xavier University

B.A., Secondary Education/Mathematics, Thomas More University

A.A., Economics, Thomas More College

National ACTE Involvement:

Board of Directors: Region I Vice President, 2017–2020
 Board of Directors: Region I Vice President-elect, 2016
 Executive Committee Member: Finance Chair, 2018–19
 Committee Chair: Legislative Committee, 2001–08
 Committee Member: VISION Planning Committee for Administration Division, 2004–08, 2015
 Task Force Member: Allowable Expenses Task Force, 2018
 Task Force Member: Division Affiliate Task Force, 2019
 Educators in Action Volunteer: 2015–19
 CTE Support Fund Supporter: 2003–2019
 National Policy Seminar Attendee: 2001–2019
 ACTE's CareerTech VISION Attendee: 1996, 2002–2019
 ACTE/NCLA Best Practices & Innovations in CTE Conference Attendee: 1996–2015, 2019
 Public Policy Advocate: 1996–present, a responsibility of all CTE professionals
 Other: Assembly of Delegates, 2010–16

Regional ACTE Involvement:

Committee Member: Region I Policy Committee, 2015–19
 Task Force Member: Policy and Bylaws Revision Task Force, 2018
 Task Force Member: Region I Awards Revision Task Force, 2018
 Policy Committee Chair: 2016–18
 Award Winner: Scott Westbrook Award, 2015
 Region I Conference Presenter: 2017–18

Divisional ACTE Involvement:

Committee Member: Policy Committee, 2002–2015
 Committee Member: Legislative Committee 2003–07
 Committee Chair: Legislative Committee, 2004–06
 Task Force Chair: Policy and Bylaws Revision Task Force, 2014
 NCLA Conference Presenter: 2001–2010
 Other: I have served as a board member and officer of the National Council of Local Administrators (NCLA), 2000–2010

State ACTE Involvement:

Past President, Ohio ACTE: 2011–12
 President, OACTE: 2010–11
 President-elect, OACTE: 2009–2010
 President, Ohio ACTE Administration Division: 2004–05
 President of the Council of Presidents, OACTE: 2004–06
 Committee Member: OACTE Beryl Shoemaker Leadership Advisory Committee, 2011–13
 Committee Member: OACTE Professional Development Committee, 2004–05
 Task Force Member: OACTE Leadership Task Force, 2011
 Assembly of Delegates: 2006–2011
 Testified to the Ohio House Education Committee on behalf of OACTE: 2010
 Testified to the Ohio House Education Committee on behalf of HSTW and CTE: 2007

Application Summary:

I have been involved in education for 44 years in various positions in both middle and high school. My experiences include urban, suburban and rural schools. Twenty-three years ago I was hired by Great Oaks Career Campuses, and I found my passion in career and technical education. I discovered how the educational system makes sense for the students I served. It links the academic and technical skills with the passion of each student and allows the student to participate in the economic system. I immediately joined our association, recognizing the importance it plays in professional development and advocacy for the students, instructors, administrators and communities we serve. For 23 years, I have actively served on the state and national level as president of Ohio ACTE, president of the National Council of Local Administrators (NCLA), committee chair for ACTE, and presently, I serve as finance chair on the board of directors' Executive Committee and as vice president of Region I.

Through the efforts of many we have made significant progress in the perception of CTE in the educational and legislative environments. Through

our strategic plan we need to increase our member engagement, grow our high-quality CTE program work, look to expand our professional and leadership development, and build on our advocacy and awareness efforts. I would look forward to continuing to serve our members and building on this momentum by serving as president-elect.

Platform Statement:

I have been a member of ACTE for 23 years. I recognize the important role the association plays in supporting our members in professional growth, leadership development and advocacy at the local, state and national levels. As a candidate for president-elect, it is my goal to grow this support for our members. To do this, I will work not only to expand the current activities but to identify new and innovative ways for our members to be engaged and supported.

When I ran for Region I vice president, I said, "Career and technical educators have dramatically changed the face of education. First, hands-on learning, with integrated academics and measurable outcomes, has been proven to be an effective educational model. Secondly, leaders now realize that students need to be prepared for a career, not just the next educational step." As Mark Perna said, "Students must have an education with a purpose, not an education for the sake of education." That is what we provide as career and technical educators. I believe the same should be said for our association. That is why, as a board, we established a robust, comprehensive strategic plan that has allowed ACTE and career and technical education to make significant progress in the educational and legislative environments. Our challenge is to keep this momentum moving forward and not rest on our current successes, implementing innovative approaches and programs for membership growth, engagement and ACTE awareness. I will work to ensure all our members' voices are heard through the board of directors, vice presidents of the regions, and divisions.

I would be honored to serve as your president-elect of ACTE to meet the challenge of continuing the momentum forward for you, our members, and the association.



ENGINEERING & TECHNOLOGY EDUCATION DIVISION VICE PRESIDENT

Snehal Bhakta

Region: V

Division: Engineering & Technology Education/Administration

Occupation: CTE Administrator

Employment History:

CTE Administrator, Clark County School District (CCSD): 2019–present
 CTE Project Facilitator, Info Media & Tech, CCSD: 2015–18
 STEM/Business Educator, West CTA, CCSD: 2010–15
 Business/Technology Consultant, MHD LLC: 2003–2010
 IT Consultant, Accenture: 1999–2002

Education:

M.S., Educational Leadership, Nova Southeastern University
 B.S., Secondary Education, Kansas State University
 B.S., Computer Engineering, Kansas State University

National ACTE Involvement:

ACTE's CareerTech VISION Presenter: 2017–18
 Educators in Action *Techniques* Writer: March 2019 "Advancing Access and Equity"
 National Policy Seminar Attendee: 2016

ACTE's CareerTech VISION Attendee: 2013, 2015-18
Other: Completed ACTE State Leadership Training Program, 2017

Regional ACTE Involvement:

Committee Member: Region V Policy Committee, 2015-17
Committee Member: Region V 2020 Conference Planning Committee
Region V Conference Presenter: 2013-15
Region V Conference Attendee: 2013-15

Divisional ACTE Involvement:

Committee Member: Policy Committee, 2018-present
Committee Member: IT Section Committee, 2015-present
Committee Chair: IT Section Committee, 2017-present

State ACTE Involvement:

Committee Chair: Membership/Marketing Committee, 2013-17
Committee Member: Nevada ACTE Summer Conference Planning Committee
Award Winner: New CTE Teacher of the Year, 2013
Other: Applied and administered Region V Member and Marketing grant to help grow our membership by 20 percent; supported and assisted in the planning/ process for Nevada to become a unified state by providing relevant information and data to membership and the NACTE board.

Other CTE Involvement:

IM STEM Steering Committee Member, National Alliance for Partnerships in Equity: 2017-present
Technology Standards Task Force Member, International Society for Technology Educators: 2017
Affiliate Coordinator, National Center for Women & Information Technology: 2016-present

Application Summary:

Currently, I'm employed as a CTE administrator in the Clark County School District, focused on ensuring Nevada's future workforce is prepared for success. I've had the pleasure to work on projects related to increasing student and community participation with National Job Shadow Day, started an Annual Student Workforce & Innovation Summit, increased promotion and growth of career and technical student organizations, and led our #GirlsInSTEM and #GirlsInTECH Initiatives as well as ensuring equity and access to our CTE and STEM programs for all students in middle and high schools.

I've always had a passion to help others and am running for this office to ensure we are doing the right things to support CTE teachers and programs so that all of our students are career-ready.

Platform Statement:

It would be an honor to serve as your next division vice president and, if elected, I will advocate for increased public-private partnerships with ACTE and industry organizations to better support our members with resources and workforce experiences that can benefit all of our CTE programs. Our leadership programming through ACTE needs to continue growing to provide more opportunities at state and local levels for members. Finally, I would work to ensure all of ACTE's events, conferences and trainings are relevant to our membership and that feedback is requested so that we can improve and provide the best possible services to you, our members! Thank you for everything you do for students!



**ENGINEERING & TECHNOLOGY
EDUCATION DIVISION VICE
PRESIDENT**

Richelle Krumsiek

Region: IV

Division: Engineering & Technology Education

Occupation: Instructor

Employment History:

Instructor, Tulsa Tech: 2009-present
Instructor, Claremore Public Schools: 2002-09
Instructor, Coweta Public Schools: 1999-2002
Instructor, Broken Arrow Public Schools: 1995-99

Education:

M.S., Education, Oklahoma State University
B.S., Education, Northeastern State University

National ACTE Involvement:

Committee Member: Resolutions Committee, 2018-present
National Policy Seminar Attendee: 2018-19
ACTE's CareerTech VISION Attendee: 2016-18

Divisional ACTE Involvement:

Committee Chair: Policy Committee, 2017-present
Committee Member: Awards Committee, 2017-present

State ACTE Involvement:

President, Oklahoma ACTE STEM Division: 2016-20
Vice President, OKACTE STEM Division: 2015-16
Board Member, OKACTE STEM Division: 2014-present
Award Winner: OKACTE STEM Division Teacher of the Year, 2017

Other CTE Involvement:

Mobile Robotics Contest Chair, Oklahoma SkillsUSA: 2010-present
Teacher Induction Trainer, Oklahoma State Department of Career Tech: 2012-2020

Application Summary:

For the past seven years, I have taught pre-engineering for Tulsa Tech at a suburban high school in Oklahoma. Six of those years, I have served on the board of directors for Oklahoma ACTE as vice president, president, past president and board member. Currently, I serve as the policy chair for ACTE's eTED Division.

Under the leadership of Vice President Jay Davis, the eTED division has grown and become more reflective of modern technology education to include information technology, arts, and STEM educators. In running for eTED vice president, I look forward to continuing the improvement of diversity in our division by including all levels and types of CTE engineering and technology educators.

Platform Statement:

As the eTED division vice president, I would like to continue bringing the division policies and membership in line with the changing membership. Past leadership has grown the division to include STEM, arts, and information technology educators, which has diversified the division membership. I have been lucky to serve as policy chair the past three years, helping to restructure the awards and encourage members to be involved in leadership. As eTED vice president I will continue the work of current Vice President Jay Davis by updating the bylaws and leadership structure to include representation from all regions and all areas of emphasis. Our division is very diverse and, as your vice president, I would work to make sure all members have a voice and are valued in the division.

Two candidates did not apply for the Trade and Industrial Education Division vice president position. Per ACTE Bylaws and the Board Policy and Procedure Manual, if there are not two candidates for a vice president position, the office shall be declared vacant by the board of directors. The respective policy committee reviewed the candidate to recommend for appointment. The ACTE board of directors voted to appoint Danny Camden as the Trade and Industrial Education Division vice president. The term for this position is July 1, 2020–June 30, 2023.

As a result, voting for Trade and Industrial Education Division vice president will not be featured on the electronic ballot this year.



TRADE & INDUSTRIAL EDUCATION DIVISION VICE PRESIDENT

Danny Camden

Region: III

Division: Trade & Industrial Education

Occupation: Instructor

Employment History:

Teacher, Ben Davis High School/Area 31: 2010–present
Instructor, Lincoln College of Technology: 2007–10
Technician/Shop Foreman, Dugan Chevrolet: 1995–2007

Education:

Some credits earned from Ivy Tech Indianapolis

National ACTE Involvement:

ACTE's CareerTech VISION Presenter: 2018
VISION Attendee: 2018
National Policy Seminar Attendee: 2019

Regional ACTE Involvement:

Conference Attendee: Region III Conference, 2019

Divisional ACTE Involvement:

Committee Member: Policy Committee, 2018–19

State ACTE Involvement:

Conference Presenter: Indiana ACTE Conference, 2017–18
Other: Attended I-ACTE meetings as a board member representing IATTI, 2019

Other CTE Involvement:

President, IATTI: 2016–present
Treasurer, IATTI: 2012–16
Other: As IATTI president, I organized and planned summer automotive instructor update training at Ivy Tech Indianapolis. In 2019, I spearheaded the IATTI movement to join Indiana ACTE (I-ACTE) as an affiliate member. This move was intended to support professional development for the Indiana automotive instructor, while also joining the broader CTE community in state and national advocacy efforts.

Application Summary:

As a dedicated member of the Trade and Industrial Education Division Policy Committee, I understand the importance of quality professional development and collective CTE advocacy. I desire to lead in the position of T&I vice president, because I believe that my efforts in working to align resources can help to support CTE educators across the national landscape. I offer a strong background in association leadership, professional development and employment in the automotive services field. In the coming years, I aim to serve all Trade and Industrial Education Division members with the same level of encouragement and commitment that I offer to my local students and industry partners. Thank you for your consideration.

Platform Statement:

As a dedicated member of the Trade and Industrial Policy Committee, I understand the importance of quality professional development and collective CTE advocacy. I desire to lead in the position of T&I vice president, because I believe that my efforts in working to align resources can help to support CTE educators across the national landscape. I offer a strong background in association leadership, professional development, and employment in the automotive services field. I have also served as an automotive services instructor at the secondary and postsecondary levels. In the coming years, I aim to serve all Trade and Industrial division members with the same level of encouragement and commitment that I offer to my local students and industry partners. I pledge to be consistently engaged in the work of growing our association while both celebrating successes and working to build upon the unique strengths of ACTE members. Thank you for your consideration.



ADMINISTRATION DIVISION VICE PRESIDENT-ELECT

Michael Culwell

Region: IV

Division: Administration

Occupation: Campus Director

Employment History:

Campus Director, Kiamichi Technology Centers Poteau-Spiro Campus: 2016–present
Assistant Campus Director, Kiamichi Technology Centers Poteau-Spiro Campus: 2011–16
High School Principal, Heavener Public Schools: 2007–2011
Assistant High School Principal, Heavener Public Schools: 2005–07
High School Principal, Bokoshe Public Schools: 2001–05

Education:

M.A., School Administration, Northeastern State University
B.A., Spanish Education, Northeastern State University
A.A., Carl Albert State College

National ACTE Involvement:

Educator in Action: 2015–19
CTE Support Fund Supporter: 2014–19
National Policy Seminar Attendee: 2014, 2019
ACTE's CareerTech VISION Presenter: 2014–16
VISION Attendee: 2014–18
Other: Completed ACTE's National Leadership Fellowship Program, 2014

Regional ACTE Involvement:

Committee Chair: Region IV Nominating Committee, 2016–18
Committee Member: Region IV Nominating Committee, 2015
Committee Member: Region IV Policy Committee, 2016–18
Region IV Conference Presenter: 2015
Region IV Conference Attendee: 2013–19

State ACTE Involvement:

President, Oklahoma ACTE: 2018–19
Other: OkACTE Fellows Coordinator, 2018–19

Application Summary:

Any quality administrator models actions they want others to follow. I believe my involvement in ACTE, as a fellow, Region IV Policy Committee member and OkACTE president, can serve as a model for others in my division to follow. If we desire those we lead to be involved in ACTE, we too must serve as the example.

I am passionate about cultivating greater involvement in our association. Since my involvement in the ACTE National Leadership Fellowship Program I have felt the need to create a state-level fellowship program in Oklahoma. One

task I took on while serving as the OkACTE president this year was to see this idea through. Mirroring closely the national ACTE fellowship program, we had our first OkACTE fellows complete their program of work in August 2019.

If given the opportunity to serve as ACTE vice president-elect of the Administration Division, I will strive to continue this passion of cultivating greater involvement within ACTE.

Platform Statement:

Since my time as an ACTE Fellow in 2014, I have been passionate about my personal service to this association. From the moment I sat in on the ACTE board of directors meeting during NPS that year, I have been motivated to find opportunities of service to ACTE and CTE.

During the last several years, I have had the privilege of honing my leadership skills within ACTE while serving as OkACTE president, OkACTE fellows coordinator, OK policy committee representative to Region IV and the Region IV Nominating Committee chair.

If given the opportunity to serve in this capacity I will focus my time and energy on discovering high quality professional development activities and encourage the sharing of best practices for greater member value. Additionally, I would strive to strengthen my advocacy efforts by showcasing strategic partnerships between CTE and business and industry.

CTE has been an integral part of not only my life, but the lives of those close to me. I am honored by this opportunity to be of service to CTE and ACTE as a candidate for vice president-elect of the Administration Division.



**ADMINISTRATION DIVISION
VICE PRESIDENT-ELECT**

Eric Ripley

Region: V

Division: Administration

Occupation: Executive Director of Career and Technical Education

Employment History:

Executive Director of CTE, Grand Forks Public Schools: 2009–present
 Director of CTE, Grand Forks Area Career & Technology Center: 2012–present
 Adjunct Instructor, Valley City State University: 2014–present
 High School Technology Facilitator, Grand Forks Public Schools: 2008–09
 Information Technology Instructor, Red River High School: 2002–08

Education:

M.S., Career and Technical Education, University of North Dakota
 B.S., Business Education, University of North Dakota

National ACTE Involvement:

Task Force Member: National Policy Seminar Conference Task Force, 2018
 Advisory Group Member: ACTE Administrative Professional Development Advisory Group, 2017–18
 Educator in Action: 2017–present
 National Policy Seminar Attendee: 2013–16, 2018–19
 ACTE's CareerTech VISION Attendee: 2010, 2012–13, 2016, 2018
 ACTE/NCLA Best Practices & Innovations Conference Attendee: 2010, 2013–18
 Best Practices & Innovations Conference Presenter: 2015, 2017

Regional ACTE Involvement:

Committee Member: Region V Policy Committee, 2018–present
 Policy Committee Chair: State of the State Reports (2018), State Liaison to North Dakota and South Dakota
 Committee Member: Region V Legislative & Resolutions Committee, 2015–17
 Committee Chair: Region V Legislative & Resolutions Committee, 2017–18
 Region V Conference Presenter: 2016
 Region V Conference Attendee: 2011–12, 2014–19

State ACTE Involvement:

President, North Dakota ACTE: 2016–17
 Member, North Dakota ACTE: 2003–present
 Committee Chair: North Dakota ACTE Legislative Committee, 2015–present
 Award Winner: North Dakota ACTE Administrator of the Year, 2015

Other CTE Involvement:

President, National Council of Local Administrators: 2016–17
 Board Member, NCLA: 2013–present
 President, North Dakota Career and Technical Education Administrators: 2012–13
 Member, North Dakota Career and Technical Education Administrators: 2009–present
 Advance CTE Fall Conference Attendee: 2017
 Award Winner: North Dakota CTE Administrators Administrator of the Year, 2015
 Award Winner: Project Lead the Way North Dakota Administrator of the Year, 2015

Application Summary:

I have had the privilege of spending my entire 20-year education career as a CTE professional in the Grand Forks Public Schools, first spending time as a middle school business education instructor and high school information technology instructor. I became the district's CTE administrator in 2009, serving in this role since then. In 2012, with the approval of the Grand Forks Area Career & Technology Center, a virtual area center delivering a variety of specialized CTE courses via distance delivery was added to my portfolio of director responsibilities.

I remain an active and steadfast advocate for the benefits of CTE within my district, across the state, and at a national level through my involvement with ACTE and administrative affiliate organization, NCLA. There is no other curriculum program more relevant, more in line with workforce demands, more reflective on the changes in technology and equipment, and more impactful on our students' educational careers than career and technical education.

Platform Statement:

As previously mentioned, I would be honored to serve in this leadership capacity and collaborate with the rest of ACTE's board members. I have great respect for Patrick Biggerstaff and the positive work he has accomplished thus far in his term and would welcome the opportunity to learn from him in this role of vice president-elect to help seamlessly transition and continue the momentum for the Administration Division.

With the Administration Division being the largest membership division within ACTE's organization, there is certainly a desire to focus on member value both to retain and recruit new professionals. My time involved in serving on the NCLA board of directors provided me a great opportunity to collaborate with ACTE, current/past Administration Division vice presidents and with the Administration Division membership through professional development and leadership opportunities within Region V and nationally. I feel that strong working relationships will aid me in both identifying and meeting the needs of our members.

I believe I have a strong understanding of the ACTE organization, and would look to serve in this leadership capacity to strengthen the overall organization, advocate and advance the strategic themes of ACTE within the division, and bring a service attitude to the membership.



**ADMINISTRATION DIVISION
VICE PRESIDENT-ELECT**

Brandon Russell

Region: III

Division: Administration

Occupation: Director of Career, Technical and Adult Education

Employment History:

Director of Career, Technical and Adult Education, Columbia Public Schools: 2014–present

Director of Jefferson College Area Technical School, Jefferson College: 2010–14
 Assistant Superintendent, Marshall Public Schools: 2008–2010
 Director of Lex La-Ray Technical Center, Lexington R-V School District: 2002–08
 Graphic Arts Instructor, Carrollton R-VII School District: 1996–2002

Education:

Ed.D., Educational Leadership, Saint Louis University
 Ed.Spec., Educational Administration – Superintendency, University of Central Missouri
 M.S., Industrial Vocational Technical Education, Central Missouri State University
 B.S., Journalism/Graphic Communications, Northwest Missouri State University
 A.A., General Studies, Kansas City Kansas Community College

National ACTE Involvement:

Committee Member: Nominating Committee, 2017–present
 ACTE's CareerTech VISION Presenter: 2016
 National Policy Seminar Attendee: 2019

Regional ACTE Involvement:

Region III Conference Attendee: 2016, 2019

State ACTE Involvement:

President, Missouri ACTE: 2019–present
 President-elect, Missouri ACTE: 2018–19
 Administration Division President, Missouri ACTE: 2006–07, 2014–15
 Award Winner: Missouri Council of Career and Technical Administrators Assistant Administrator of the Year, 2017

Other CTE Involvement:

Adjunct Professor, University of Central Missouri: 2015–present

Application Summary:

Over the past 23 years I have served in a variety of roles in career and technical education, starting as a graphic arts teacher for six years, then 17 years as an administrator, currently as director of career, technical and adult education at Columbia Public Schools/Columbia Area Career Center in Columbia, Missouri. I have been a member of Missouri ACTE for 21 years and served the association in a variety of ways during my career. I served as the president of the MCCTA (administration) division twice, in 2006–2007 and 2014–2015. I have been a member of the board of directors for eight years; I am currently serving a second two-year year term on the ACTE Nominating Committee and have served on numerous committees for the Division of College and Career Readiness at the Department of Elementary and Secondary Education. In July 2018 I was elected to serve as president-elect of Missouri ACTE for the 2018–19 school year.

Platform Statement:

As the vice president-elect of the Administration Division I will first strive to lead others on the division policy committee to develop a strategic plan that fosters the priorities of ACTE and provides opportunities for growth and member benefits. I would encourage my colleagues to become active members by providing engaging networking and learning at ACTE's CareerTech VISION and beyond. As a member of the ACTE board of directors I will be an active participant in all board functions and contribute to the review, revision and implementation of a strategic plan that supports and enhances the goals of the association, especially in membership growth and member engagement. I believe to move any organization forward, committed leaders must come together to collaborate, engage in honest dialogue, and make decisions based on the benefit of the membership. I learned from my father at an early age that if you are going to have an impact on an organization it is important to not just be a member, but to serve others by taking an active role in a leadership position. I seek this office not for personal reasons, but to actively serve ACTE in its mission to be a national leader in CTE.



GUIDANCE & CAREER DEVELOPMENT DIVISION VICE PRESIDENT-ELECT

Teresa Gibbons

Region: II

Division: Guidance & Career Development

Occupation: School Counselor

Employment History:

School Counselor, Roanoke County Public Schools: 2015–present
 School Counselor/School Counseling Coordinator, Roanoke City Public Schools: 2005–2015
 School Counselor, Montgomery County Public Schools: 2000–05
 Instructional Assistant/Counseling Intern/Co-director of Before and After School Program, Richmond Public Schools: 1995–2000
 Art Director/Adventure Program and Trip Coordinator/Lakefront Supervisor/Life-guard Instructor, Camp Carysbrook, 1996–present

Education:

K-12 School Counseling Licensure, Virginia Commonwealth University
 M.A., Student Personnel Services/Counseling, Eastern Kentucky University
 B.S., Business Administration/Management and Insurance, Ball State University

National ACTE Involvement:

VISION Presenter: 2018–19
 VISION Attendee: 2015–19

Regional ACTE Involvement:

Other: Active Member of Region II

Divisional ACTE Involvement:

Committee Member: Policy Committee, 2017–present
 Committee Chair: ACTE's CareerTech VISION
 Other: Developing a social media presence for Guidance and Career Development Division; recruiting and selecting VISION conference presenters/sessions; actively involved in developing and implementing a divisional strategic plan.

State ACTE Involvement:

I am currently working with another school counselor in Virginia to create and support counselor representation in VA ACTE. In January we met with the VA ACTE executive director and president and presented our proposal to start a counseling division at the state level. Through our conversation, they offered a member-at-large position for a counselor immediately on the VA ACTE board and continued support as we work to create a counseling division at the state level.

I am also working with Virginia School Counselor Association leadership to create a collaborative relationship to support counselors working in CTE.

Application Summary:

I have been actively involved with ACTE's Guidance and Career Development Division for nearly two years. I believe that we are on a good track in developing and implementing a strategic plan that will serve our members well. We are working to align our strategic plan with that of ACTE. I have worked over the last two years to become very active in all facets of the Guidance and Career Development Division. As the school counselor at Burton Center for Arts and Technology in Roanoke County, Virginia, it is imperative that I not only work with my students but that I work to increase the positive perception of CTE within our community and state. Advocacy and awareness are two integral parts that I believe this division can work on to increase member value and engagement, leadership, and partnerships with other organizations. I believe that I have the energy and passion to be an innovative leader.

Platform Statement:

I believe that counselors are an integral part in helping students find career pathways that meet their needs. CTE is an essential part of many of these pathways. Counselors are the one group in any school that literally work with every student in one way or another. Counselors should and need to support CTE. It will be my goal as vice president-elect for Guidance and Career Development to take this division to the next level.

It is imperative to work to increase the positive perception of CTE. Advocacy and awareness are two integral parts that I believe this division can work on to increase member value and engagement, leadership, and partnerships with other organizations. I believe that I have the energy and passion to be an innovative leader to motivate the policy committee to strive for this. I also feel that it is imperative to get people involved that want to be involved. I want to increase member involvement. Plain and simple.



**GUIDANCE & CAREER
DEVELOPMENT DIVISION
VICE PRESIDENT-ELECT**

Shelly Thome

Region: V

Division: Guidance & Career Development

Occupation: Exceptional Student Services Manager

Employment History:

Exceptional Student Services Manager, West-MEC: 2018-present
Counselor Liaison, West-MEC: 2012-18
Executive Director, CLTatum and Associates Counseling: 2004-present
Counseling Department Chair, Greenway High School: 2000-2012
Social Worker, Thunderbird High School: 1998-2000

Education:

M.A., Career and Agency Counseling, Chapman University
B.S., Psychology, Arizona State University-West

National ACTE Involvement:

ACTE's CareerTech VISION Presenter: 2019
VISION Attendee: 2012, 2013, 2018
Award Winner: ACTE Career Guidance Award, 2019
Educators in Action Blogger: 2019

Regional ACTE Involvement:

Award Winner: Region V Career Guidance Award, 2018
Region V Conference Attendee: 2016

State ACTE Involvement:

Fellow: 2014-17
ACTE of Arizona Conference Presenter: 2013-present
Award Winner: ACTEAZ Career Guidance Counselor of the Year, 2017
Other: ACTEAZ Premier Series Presenter, "Serving Exceptional Students in CTE," 2014-present

Other CTE Involvement:

I provide professional development training for counselors from 12 different member districts and more than 50 high schools regarding CTE. I also present at state conferences with the Arizona Department of Education and the Arizona School Counseling Association.

Application Summary:

As a school counselor of over 20 years, I am a strong supporter of career and technical education as a means to assist all students gain the information and skills to become college- and career-ready. The research is clear that counselors are primary influencers of students' career paths. As the exceptional student

services manager at West-MEC, I help achieve student success, in part, through providing counselors with strategies to help students with career development.

As a graduate of the state ACTEAZ fellows program, I have learned the importance of advocacy in CTE as well as the need for counselors to receive timely and useful career pathway information. I greatly appreciate the mentorship I have received over my career which guided me forward to become a state, region and national Career Guidance Award winner. In the role of ACTE Guidance and Career Development Division vice president-elect, I desire to provide the same level of support to counselors, which, in turn, supports student success.

Platform Statement:

Years ago, I was fortunate to join a career and technical education district that believed not only in high-quality CTE for students, but also in developing strong professionals and leaders within CTE. When I signed my employment papers, I was informed of the expectation to become a fellow within my state. Through the completion of the fellowship, presenting at conferences, and advocacy, I was surrounded by individuals that pushed me to push myself further than I had once considered. It is because of the opportunities provided to me in CTE and in my state association, ACTEAZ, that I won the state, Region V, and national Career Guidance awards.

If chosen as the Guidance and Career Development Division vice president-elect, it would be my honor to "push" members to recognize the leadership skills they have, and to celebrate our members for the great work they do every day on behalf of students and CTE. I would increase opportunities for continuing education and effective strategies to be used within a comprehensive guidance program. The newsletter, webinars, Resource Center, industry partnerships and conference attendance would be avenues to strategies and support for all. I look forward to the opportunity to serve ACTE.



**POSTSECONDARY, ADULT &
CAREER EDUCATION DIVISION
VICE PRESIDENT-ELECT**

Kristina Ropos

Region: I

Division: Postsecondary, Adult & Career Education

Occupation: Consultant

Employment History:

Learning and Development Manager, Illinois Tool Works: 2019-present
Career Tech Planning District Consultant, Montgomery County Educational Service Center/State Support Team Region 10: 2015-19
Director of Education, Ohio Valley Associated Builders and Contractors: 2014-17
Marketing Management Instructor, Greene County Career Center: 2012-14
Business Foundations/Clerical Services/Architectural Drafting Instructor/Apprenticeship/Adult Education Instructor, Miami Valley Career Technology Center: 1997-2012
Architectural Draftsman, Benchmark Industries: 1987-2003

Education:

M.Ed., Educational Leadership, Kaplan University (Purdue University)
Graduate Certificate, Human Resources/Principalship/Supervision/Finance, Purdue University
B.S., Business, Indiana Wesleyan University

National ACTE Involvement:

Task Force Member: ACTE Division Affiliate Task Force, 2019-present
National Policy Seminar Attendee: 2019
ACTE's CareerTech VISION Attendee: 2019
Other: Enrolled in ACTE National Leadership Fellowship Program, 2019-present

Regional ACTE Involvement:

Region I Conference Attendee: 2016

Divisional ACTE Involvement:

Award Winner: Marketing Education Division, DECA New Advisor Scholarship Award, 2013

State ACTE Involvement:

Byrl R. Shoemaker Leadership Team, Ohio ACTE: 2018–present
Ohio ACTE Conference Presenter: 2018–19

Other CTE Involvement:

Marketing Chair, Ohio ACTE Construction Education Advisory Committee: 2014–15
SkillsUSA Regional Drafting Judge: 2003–present
SkillsUSA State Contest Coordinator: 2018
Regional Conference Coordinator/Committee Chair/Presenter, Miami Valley Tech Prep Consortium: 2018–19

Application Summary:

I am currently a career technical consultant for Ohio's State Support Team. My 33 years of career and technical education experience includes my own vocational education in the area of construction trades as well as serving 15 years as a CTE instructor. I now provide training and career readiness solutions for educational partners within the career technical, postsecondary and private business sectors in Southwest Ohio.

I have been honored by this year's induction into the ACTE Experienced Fellows cohort of the National Leadership Fellowship Program; I represent the Postsecondary, Adult & Career Education Division and serve on ACTE's Division Affiliate Task Force. I have also been selected to participate on Ohio's Career Tech Leadership Team.

My core competencies include career advising, employer engagement, data analysis, work-based learning programs, program development and improvement. Educational credentials include M.Ed. from Purdue University; B.A. from Indiana Wesleyan University; Master Training Certification from the National Center for Construction Education Research; and Events Management Certification from the International Institute of Event Management.

Platform Statement:

Empowering youth and adults for a better tomorrow, that is my ultimate career goal.

Being elected to the position of vice president-elect of PACE would provide me with the opportunities to advance career, technical and adult education in the U.S.

I believe that being in a leadership position will provide the access to deepen my existing relationships with current and potential ACTE members. Being able to employ communication tools to members will also support outreach efforts. These tools would include the quarterly newsletter, mailings and email communications. This will provide a communication platform that will encourage innovative strategy and thought leadership development.

One of the first projects I would want to take action on would be utilizing task force committees to develop tools to increase value to ACTE membership. Streamlining processes for organization that would expedite their engagement with schools through advisory and program contributions that would potentially build a reciprocal relationship with those districts.

Communicating the opportunities in career and technical education to students, families and non-CTE schools in the Midwest is currently a component of my position. I believe that being appointed to a leadership position will provide me with more channels of outreach on a much broader level.



POSTSECONDARY, ADULT & CAREER EDUCATION DIVISION VICE PRESIDENT-ELECT

Ed Woods

Region: V

Division: Postsecondary, Adult & Career Education, Guidance & Career Development

Occupation: Director

Employment History:

Director, Mid-Willamette Education Consortium (MVEC)/Chemeketa Community College: 2014–present
Perkins Regional Coordinator, MVEC/Chemeketa Community College: 2008–2014
Community Education Project Specialist, Chemeketa Community College: 2007–08
ABE/GED and College Prep Instructor, Chemeketa Community College: 2006–08
South Marion County WIA Program Leader, Chemeketa Community College: 2004–07

Education:

M.A., Education and Organizational Leadership, Oregon State University
B.S., Elementary Education K–9, Western Oregon State College
B.A., Business Administration & Economics, George Fox College

National ACTE Involvement:

ACTE's CareerTech VISION Attendee: 2010–11, 2014–17
Other: Worked with Michael Connet on the 2018 ACTE Oregon Summer Professional Development Event and emceed

State ACTE Involvement:

Past President, Oregon ACTE: 2017–18
President, Oregon ACTE: 2014–17
Regional Coordinator Representative, Oregon ACTE: 2013–14

Other CTE Involvement:

Postsecondary Representative Board Member, Oregon Career Information System: 2016–18
Oregon Committee Member on Perkins V state plan, Chemeketa Community College: 2019–present
Committee Member, Willamette Valley Construction Career Day: 2011–present
Committee Member, Future Engineers Day: 2015–present
MVEC Director/Regional CTE Area Representative: 2016–present

Application Summary:

I have worked with Chemeketa Community College for about 19 years and have had a number of positions, from my days with workforce managing WIA to teaching up to 12 different courses within ABE/GED and overseeing non-credit community education on two campuses. That experience brought me to the Mid-Willamette Education Consortium (MVEC) as their regional coordinator to my current position as director. MVEC is the largest consortium in Oregon and includes two community colleges and 35 high schools under the Carl Perkins grant.

During this time, I led the effort to bring Oregon ACTE back to a functioning, fiscally sound, nonprofit organization as president. ACTE provided a great deal of support and guidance during this period, helping me understand the amazing work they do. During this same time, I served as the postsecondary representative board member with Oregon Career Information System and am currently working with our state planning team and Advance CTE on our Perkins V plan.

Platform Statement:

There is no question that CTE changes lives and impacts futures!

ACTE has been a leader for the nation, shaping policy, developing business partners, working with educational leaders on all levels and, most of all, focusing on you, the member. I want to take a major step to be a part of this dynamic association. I promise to invest in our many partnerships, providing more awareness and support of CTE educators and sector partners, adding some “zing” and humor along the way. My strengths lie in innovation and creativity.

Presently, our economy is booming and, while that's exciting, it offers a number of challenges within our education systems, business divisions and diverse partnerships. The jobs exist, but the skilled labor is scarce. I want to change this scenario, finding solutions through teamwork and networking. Let's stop looking at the negative news, throwing our hands in the air. I want to roll up my sleeves and do the heavy lifting necessary to move ACTE in a new direction, with fresh ideas, problem-solving goals, and constructive strategy.

In short, I have the background and experience to make a difference at ACTE as the Postsecondary, Adult & Career Education Division vice president-elect.





Student Video Challenge

ACTE and NASA HUNCH are excited to host, in our second year, the student video challenge, celebrating career and technical education (CTE) and project-based learning programs. This year's theme is *Living and Working on the Moon and Beyond* and calls on middle school (sixth through eighth grades), high school and postsecondary students to consider the following ideas for their video:

- Celebrate the 50+ year anniversary of the Apollo 11 mission by “looking back and looking ahead” — discuss some ideas of what lies ahead in lunar exploration and colonization.
- The moon is our closest planetary neighbor (average distance of 384,400 kilometers or 238,900 miles). Feature a project (hosted on Earth or the moon) that could advance our understanding of living and working in extreme environments.
- Showcase a future scenario on the moon that incorporates CTE and/or project-based learning.

The deadline to submit videos is **March 2**. To view video submission guidelines and resources, visit www.acteonline.org/video-challenge.

Webinar Series: CTE for Students with Disabilities

ACTE is concluding its webinar series on CTE for students with disabilities (SWD), a collaboration with Penn

State University's Workforce Education program and the National Technical Assistance Center on Transition. Changes in Perkins V and an increasing emphasis on college and career readiness for all students are bringing the needs of SWD to the forefront of the CTE conversation. This five-part webinar series is taking a deep dive into programs, practices and partnerships among CTE and special education practitioners that support SWD in CTE. Register now to attend Webinar 4: Classroom Management (Nov. 21) and Webinar 5: Toward Best Practices (Dec. 19), or watch all the events in the series at CTELearn.org.

Postsecondary Leadership Success Program at ACTE – Sponsored by the ECMC Foundation

Final Presentations at VISION

Come listen to the final presentations from the PLSP-ECMC Foundation fellows! The Postsecondary Leadership Success Program at ACTE – Sponsored by ECMC Foundation is a yearlong professional development experience intended to develop the organizational leadership and management skills of postsecondary CTE professionals, with an emphasis on addressing the needs of underserved populations. Come listen to the 20 selected fellows' institutional plans at VISION. See topics listed below, and check the VISION program for times.

Thursday, Dec. 5, 2019

- Development of Career and Technical Educators in the Postsecondary Environment: Bryanne Peterson and Brandon Hudson

- Changing the Perception of CTE Through Professional Development: Crystal Latham, Andrea Golden-Pogue and Carrie Scheiderer
- The Power of Professional Learning Communities in CTE: Nzingha Williams, Lynne McCoy and Rachel Andre

Friday, Dec. 6, 2019

- Engaging Adult Learners for CTE Pathways: Model for Urban Colleges: Sharnee' Hobbs and Georgia Reagan
- Changing the Perception of CTE Through Professional Development: Claire Van Der Plas and Hahli Rogers
- Creating, Managing and Sustaining Community & Business Partnerships: Rosario Torres and Jacob Kassuba
- Partnerships + Persistence: A Collaborative Student Support Model for Secondary to Postsecondary Transition and Student Needs: Dominique Footes
- Bringing ACTE's High Quality CTE Standards to Life: Frank Polen and DeAnna Little
- Effecting Perceptions of CTE in High Schools: Torrie Costantino, Jeff Henderson and Diana LaBelle

Please visit www.acteonline.org/plsp-ecmcf for more information.

State Leadership Training

Are you looking to further develop your leadership skills in your role as a state association leader? Join us on Dec. 4 from 8:00 a.m.–5:00 p.m. All current state leaders and those interested in service are welcome to attend. Registration cost is \$25; register on your VISION registration form. ■

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REGISTERED DIETITIAN NUTRITIONIST

By Susan Reese



PHOTO COURTESY OF CALIFORNIA POLYTECHNIC STATE UNIVERSITY AT SAN LUIS OBISPO

Cal Poly's Food Science and Nutrition program provides students with opportunities such as internships in Nutrition Therapy and hands-on experience in Human Nutrition Labs.

REGISTERED DIETITIAN NUTRITIONISTS ASSESS, COUNSEL AND ADVISE PATIENTS ON THE EATING

habits that are part of a healthy lifestyle. Their duties may begin with determining the patient's nutritional needs, then developing meal plans to assist the patient in reaching a specific goal or in managing a health issue such as heart disease, obesity, diabetes, kidney disease or digestive disorders. Another important service provided by dietitians and nutritionists is education — whether that means teaching their patients specific food choices and dietary management targeted to the needs of those patients, or community education targeted to specific groups such as the elderly or adolescents. Some may work in food service settings, where they monitor nutrition, safety and quality.

The Workplace

Registered dietitian nutritionists work in public and private hospitals and clinics, nursing and residential care facilities,

SCHOOL SPOTLIGHT

CALIFORNIA POLYTECHNIC STATE UNIVERSITY AT SAN LUIS OBISPO

IN A BEAUTIFUL SETTING, 10 MILES FROM THE PACIFIC OCEAN AND ABOUT MIDWAY BETWEEN

Los Angeles and San Francisco, California Polytechnic State University at San Luis Obispo (Cal Poly) is a four-year public university providing a hands-on education intended to prepare students for careers in scientific and technical fields. It began in the early 1900s as a co-ed vocational school with a “learn by doing” approach, which remains its guiding philosophy today. It is part of the 23-campus California State University system and serves more than 21,000 students. Among the pro-

grams it offers are 65 bachelor's, 39 master's, 84 minors and 13 credentials.

The food science and nutrition program is part of Cal Poly's College of Agriculture, Food and Environmental Sciences. Students can choose to major or minor in nutrition or food science. There are options in food science concentrations that include advanced food science — with curriculum approved by the Institute of Food Technologists that includes advanced chemistry and calculus. The culinary concentration is designed for students who want to blend culinary and food science principles in ingredient de-

velopment, food product development or in entrepreneurial pursuits.

Nutrition concentrations include applied nutrition — which is the Cal Poly didactic program in dietetics and is approved by the Accreditation Council for Education in Nutrition and Dietetics — and nutrition science, which prepares students for postgraduate studies in health-related professions such as medicine or nursing, or in nutrition research. Cal Poly's graduate programs include a master of science in agriculture, specialization in food science, and a master of science in nutrition.

Cal Poly's College of Agriculture, Food and Environmental Sciences has human nutrition labs and a pilot food plant. These labs provide students with the opportunity to “learn by doing,” and include food safety, sensory evaluation, quality control, culinary science/product development and chemistry. Cal Poly notes that its pilot food plant is one of the only university-based food production programs where students

government and nonprofit agencies, health management organizations, schools and even correctional facilities. Some are self-employed.

Education

Registered dietitian nutritionists must:

- Have at least a bachelor's degree
- Have completed a supervised internship consisting of at least 1,200 hours
- Pass a registration exam for dietitians

After becoming registered dietitian nutritionists, they must complete continuing education in order to maintain their credentials. According to the U.S. Department of Labor's Bureau of Labor Statistics (U.S. DOL BLS) (2019), most states require registered dietitian nutritionists to be licensed in order to practice, but the requirements for state licensure and certification vary. The organizations offering certifications include the Commission on Dietetic Registration, the

credentialing agency for the Academy of Nutrition and Dietetics, which offers the registered dietitian nutritionist (RDN) credential. An additional certification, the certified nutrition specialist (CNS) credential, is administered by the Board for Certification of Nutrition Specialists and requires a master's or doctoral degree; 1,000 hours of supervised experience; and passing an exam.

Earnings

According to the U.S. Bureau of Labor Statistics *Occupational Outlook Handbook*, the median annual wage for dietitians and nutritionists was \$60,370 in May 2018, with the highest 10 percent earning more than \$84,610 (U.S. DOL BLS, 2019).

Job Outlook

The *Occupational Outlook Handbook* projects that employment for dietitians and nutritionists will grow 15% from 2016–2026, which it attributes to factors such as the increased interest — particularly in med-

ical settings — of the role nutrition plays in promoting health; the need for more dietitians to care for the increasing number of patients with issues such as obesity, diabetes and heart disease; and the aging baby boomers who are seeking ways to remain healthy and active.

EXPLORE MORE

For more information about the career of registered dietitian nutritionist, here are some resources to explore.

Academy of Nutrition and Dietetics
<http://www.eatright.org>

Accreditation Council for Education in Nutrition and Dietetics
<https://www.eatrightpro.org/acend/>

Board for Certification of Nutrition Specialists
<http://nutritionspecialists.org>

Commission on Dietetic Registration
<https://www.cdrnet.org>

work with department staff to design and produce commercially sold food items. Their products include two types of barbecue sauce, three types of jam and nine types of chocolate bars.

Students in the food science and nutrition program have opportunities to join clubs such as the Food Science Club and the Nutrition Club, and to participate in competitive events. Members of the food science product development teams and the human nutrition research teams compete against other universities in real-world challenges. The program also benefits from the Food Science and Nutrition Advisory Council, which provides advice and assistance on matters such as curriculum, student and faculty recruitment, facilities, business and community connections, and funding sources.

Also housed in Cal Poly's Food Science and Nutrition Department is a dietetic internship that has rotation sites in both San Luis Obispo and Santa Barbara County. In addition to the class and seminar

hours, the internship includes rotations in nutrition therapy (clinical nutrition), foodservice management, community and electives chosen by the students. In the two-week professional staff experience, the intern serves as acting dietitian at a selected facility.

Cal Poly offers many pathways for students to follow into a career in food science and nutrition, and its graduates will find many career options available to them. With the projected need for more dietitians and nutritionists in the upcoming years, it is fortunate for California that Cal Poly will be there to produce the high-quality skills and education that are needed for the job and for the future health of the state's residents.

For more information about California Polytechnic State University at San Luis Obispo and its Food Science and Nutrition program, visit <https://www.calpoly.edu>.

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California Polytechnic State University at San Luis Obispo's Food Science and Nutrition program offers options in Nutrition Concentrations that include Applied Nutrition and Nutrition Science.

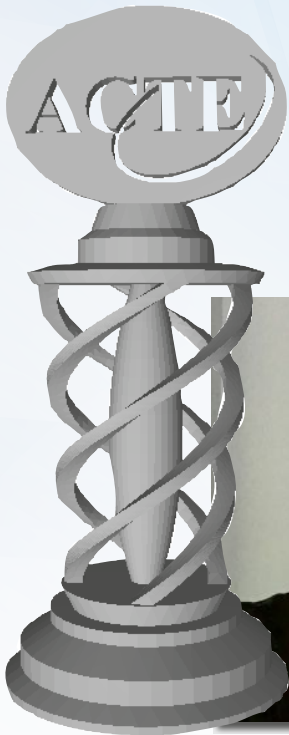
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California Polytechnic State University at San Luis Obispo. (2019). Retrieved from <https://www.calpoly.edu/about/>.

U.S. Department of Labor Bureau of Labor Statistics. (2019). Occupational outlook handbook. Retrieved from <https://www.bls.gov/ooh/>.

University Freshman Announced as Winner of

ACTE's 2019 Student Trophy Design Contest



ACTE's Student Trophy Design Contest encourages secondary, postsecondary and adult CTE students in 3D design or CAD courses to develop and submit a trophy design that reflects the prestige of ACTE's Excellence Awards program. ACTE staff and Stratasys Ltd. — manufacturer of 3D printers and production systems — then judge designs on visual appeal, function and structural integrity.

Our 2019 winner, Kathleen Terwilliger of Exeter, New Hampshire, will receive a \$1,000 scholarship prize, a one-year lease of a 3D printer (courtesy of Stratasys) and materials to be installed at the Seacoast School of Technology, and a trip to ACTE's CareerTech VISION 2019 in Anaheim, California, where they will be recognized at the Excellence Awards Gala.

And here, for *Techniques*, an exclusive interview.

Kathleen, congratulations! Let's begin; please tell me a little about yourself and your background, your school, your experience with career and technical education (CTE), and your plans for the future.

Kathleen Terwilliger: I am very interested in art. I paint a lot. I do a lot of abstract paintings. And so far my experience with CTE-related classes has been at Seacoast School of Technology where I took Pre-engineering, which is an introduction to engineering fields. This fall, I am enrolled in college as a freshman. I'm studying computer science and I really hope to pursue a career in cybersecurity.

How and why did you decide to enter the ACTE Student Trophy Design Contest? What inspired your winning design?

KT: [To design a trophy for ACTE's national award winners] was an assignment that everyone had to do, but not everyone chose to enter the actual contest. I thought, 'I might as well give it a try. Like, let's see how it goes'. It was really my CTE teacher's idea.

I wanted my trophy design to be simple yet elegant. I thought, 'You can get a lot

across with a simple structure'. I wanted it to stand up, to create an impact, on its own.

What guidance did your teacher provide?

KT: The teacher said, "The [ACTE Student Trophy Design Contest exercise] is a way to test your inventor skills." We were learning to use AutoDesk Inventor to create, for CAD design. She encouraged us to challenge ourselves; "see how well you can do on your own." She supervised our process to make sure we created designs that could be printed.

How do you hope the students at Seacoast School of Technology will benefit from the one-year lease of a 3D printer from Stratasys Ltd.?

I am very excited about it. I won't personally be in the classes next year but, I know, classmates often weren't able to print their designs; the 3D printer leased from Stratasys will allow pre-engineering CTE students to print more things than they could with the current 3D printer on site. It's going to be amazing for them.

ACTE looks forward to welcoming you at its CareerTech VISION 2019, Dec. 4-7 in Anaheim, California; what do you look forward to most about that experience?

I'm really looking forward to all of it. I don't even know what it's going to be like, but I've never been on a plane before. I'm a little nervous about that. Overall, I am excited for the experience.

Thank you for taking the time to speak with me. Congratulations again, and good luck as you embark on further education.

EXPLORE MORE

The ACTE Student Trophy Design Contest is back for 2020! Encourage your CAD and 3D-design students to enter the competition, which is open to those enrolled in secondary, postsecondary and adult CTE programs.

To learn more, visit www.acteonline.org/professional-development/acteawards/.

Putting the “Good Game” In Education via esports and Streaming

PERHAPS YOU’VE HEARD OF FORTNITE? OR THE FACT THAT A 16-YEAR-OLD FROM

Pennsylvania won \$3 million this summer, winning a Fortnite tournament hosted at the venue that houses the U.S. Open tennis tournament (FOX 4 Kansas City WDAF-TV, 2019)? The only argument left now about the popularity of gaming is how to properly capitalize the word esports (or eSports?). eSports stands for electronic sports, and there are already 1,200 high schools around the U.S. that have formed a club or official team. This growth in high school gaming has been spurred by the award of more than \$15 million in scholarships to collegiate esports players (DeGeurin, 2019).

HighSchool.GG is a nonprofit that blends practices of existing career and technical student organization (CTSO) models with the compelling use cases of gaming, streaming and new digital media in a format that is attractive to a diverse set of students and can be used to teach subjects spanning many career clusters. By focusing on identifying teachers with an affinity for gaming and creative culture in their schools, HighSchool.GG offers curriculum and competitions in areas such as:

- Arts, A/V Technology & Communications
- Business Management & Administration
- Finance
- Hospitality & Tourism
- Information Technology
- Marketing
- Science, Technology, Engineering and Mathematics

Students don’t run mock businesses or work on theoretical business plans. They take on the real-world tasks of operating their own entertainment company, a 21st century broadcast studio that, thanks to emerging technology, is available at their fingertips. While students have the opportunity to compete in varsity gaming, the majority of the curriculum is focused on producing esports content and competitions. Each team’s matches against other

schools are broadcast on the internet, on live streaming platforms like Twitch.

Mark “Garvey” Candella, director of students at Twitch, explained that “Twitch is more than just about watching people play games. Twitch is used to broadcast all sorts of content, from math classes to football games, and everything in between. We’re happy to have led the way in supporting esports and streaming curriculum at the collegiate level, and are happy to partner with HighSchool.GG in the K–12 space.” Students learn broadcasting techniques with affordable computer hardware and free software that, in the ‘90s and early 2000s, were accessible only to television and film production companies with million-dollar budgets.

HighSchool.GG helps schools wade through the always changing gaming and creative landscape and stay abreast of what students are interested in, which is the key to engaged classrooms. There are a myriad of 21st century skills that can be garnered by students experimenting with all aspects of the gaming and streaming industry. HighSchool.GG serves as a student leadership equivalency, and is operating in 16 states for the 2019–2020 school year with the goal of becoming a full-fledged CTSO.

Professional esports fill stadiums, and gaming competitions are watched online by audiences that match NCAA final viewership (Booton, 2015). In 2018, a local-league championship event for a popular game called Overwatch — produced by a high school student in Downey, California — was attended by 500 fans. Complete with excited school administrators, students, parents, cheerleaders and the national anthem, the atmosphere rivaled their homecoming football game; school officials credit the esports program for a large increase in STEM-oriented classes in the 2019–2020 school year. Students run the production for these events, and professional industry volunteers are on hand to mentor students and judge them in their respective competitive events. The competition has all the same audiovisual complexities as a Broadway theatrical production, and students also broadcast the event online on Twitch to a captive live audience, requiring PC networking and trouble-

shooting skills. Students can also compete in computer science competitions where they learn to make websites and mobile leaderboard apps related to their school’s gaming teams.

HighSchool.GG is different than previous approaches to the gamification of the classroom, and resonates with the students. It’s a flexible CTSO that allows educators to relate to the gamers in the school, regardless of their course load. The project-based curriculum and competitions map to state and national standards, so it’s easy for schools to get started.

HighSchool.GG’s competitive calendar for the 2019–2020 school year consists of local competitions in fall 2019, and district, state and national championship events throughout spring 2020. Elections are currently taking place for both teacher and student leadership roles. Competitive events include several computer science disciplines, cybersecurity, data analytics, graphics and video production, sports-writing, marketing, finance, and entrepreneurship.

Esports are an engaging, accessible and affordable option for any school.

REFERENCES

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- DeGeurin, M. (2019). 15 colleges and universities that will pay you to play competitive video games. *Insider*. Retrieved from <https://www.insider.com/schools-with-video-game-playing-scholarships-esports-2019-6>.
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EXPLORE MORE

Interested in integrating esports and streaming into your school? HighSchool.GG can point you in the right direction. Contact ACTE@HighSchool.GG for more information.

EVENTS CALENDAR



MARCH 29–APRIL 1

ARLINGTON, VIRGINIA

acteonline.org/nps

**Region IV
ACTE**

Leadership Conference

APRIL 15–17

NEW ORLEANS, LOUISIANA

acteonline.org/region-iv-event

**Region V
ACTE**

Leadership Conference

APRIL 22–25

LAKE TAHOE, NEVADA

acteonline.org/region-v-event

**Region I
ACTE**

Leadership Conference

TBD

acteonline.org/region-i-event

**LEADING
the Education
Revolution**



JUNE 9–12

CINCINNATI, OHIO

acteonline.org/leading-the-education-revolution-conference

**Region III
ACTE**

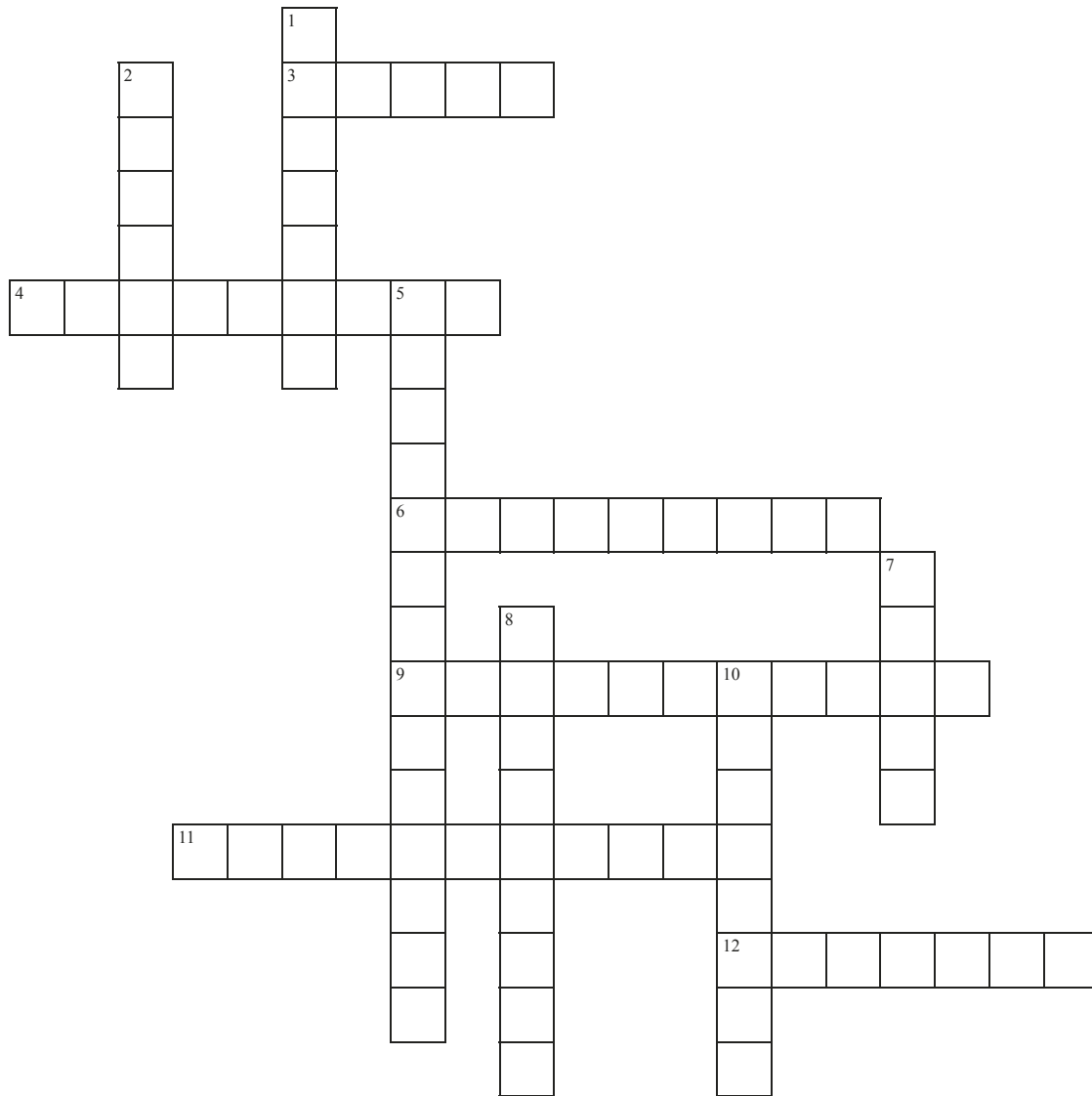
Leadership Conference

JUNE 17–19

PRIOR LAKE, MINNESOTA

acteonline.org/region-iii-event

The State of CTE in California



Across

- 3. Date in January when ACTE's board of directors election closes for voting
- 4. Registered [blank] nutritionist
- 6. ACTE's partner in hosting their second collaborative student video contest, themed Living and Working on the Moon and Beyond
- 9. Last name of Kathleen, ACTE 2019 Student Trophy Design Contest winner
- 11. Middle school in Cypress Park, California, forging a path to Linked Learning success
- 12. Standards-[blank] and Integrated Curriculum, element No. 1 in the *ACTE Quality CTE Program of Study Framework*

Down

- 1. Electronic sports (No one quite knows where the hyphen should go. Should there even be a hyphen?)
- 2. Acronym for the South Coast Regional Agricultural Education Consortium
- 5. California LDI Director Steve Pinning explained, "We are at a time when many veteran CTE administrators are retiring and there is a huge need for new CTE [blank]."
- 7. Science, technology, engineering, arts, mathematics
- 8. City in Virginia that plays host to ACTE's National Policy Seminar
- 10. Benefits of the STEAM approach "include addressing visual [blank], enhanced learning of scientific concepts, mastery of design process, cognitive development and aiding in attracting and retaining student interest in STEM."

Promote *Your* Career Center



National Technology Centers That Work Leaders Forum

The *only* national event dedicated to the unique needs of career centers

Bring a team and take home an up-to-date toolset for rebranding your programs and increasing awareness of the value of CTE with students, parents and the community.

SREB.org/tctw-leaders-forum

[#tctwforum](https://twitter.com/tctwforum)



Meet Our Keynote — Pam Daly

Let marketing and branding expert Pam Daly of **DK Brand Strategy**

help you take your career center marketing efforts to the next level.



Grand Hotel Golf Resort & Spa

January 28 – 30, 2020 | Point Clear, Alabama

*“We’re sending
students to college
or into the workforce
with a leg-up.”*

Laura Henning, Media Specialist,
Trumbull Career and Technical Center



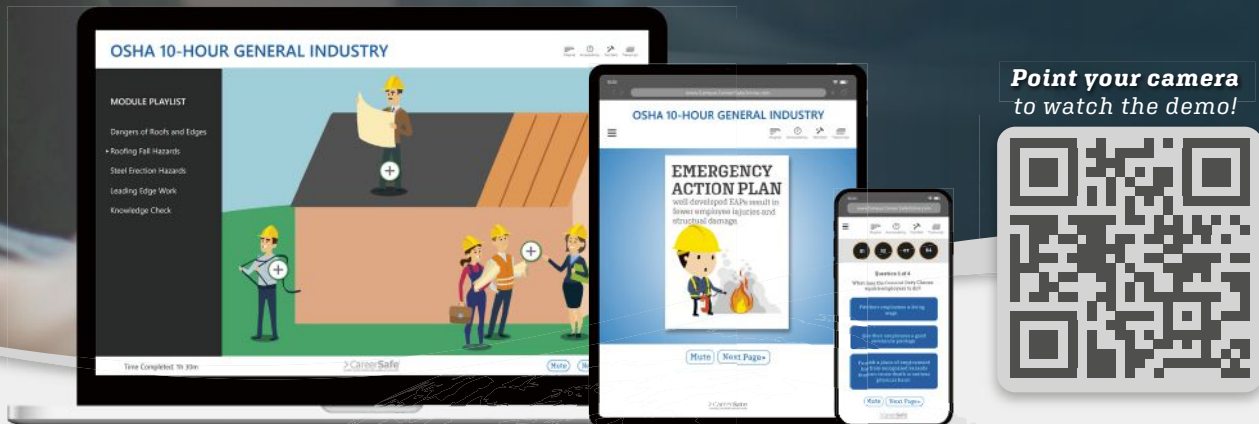
Trumbull Career & Technical Center in Ohio and other educational facilities have integrated Roland Education Solutions into their schools and curriculums with huge success. See how student-friendly equipment, software and resources have transformed design and engineering programs.

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- **Kylie**, Hargrave High School



OSHA 10-Hour Courses:

General Industry

Construction Industry

General Industry (Agriculture)

General Industry (Healthcare)

General Industry (Automotive)

General Industry (Cosmetology)

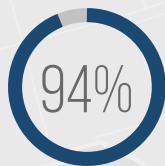
General Industry (Culinary)

General Industry (Manufacturing)

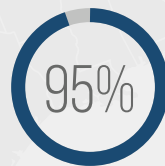
As the only **youth-focused**, online General Industry Provider, CareerSafe® has exclusively tailored the course for 6 of the most common industries young workers are entering today.



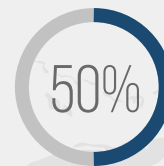
agreed the program will help them identify hazards



would recommend this training to other young workers



said the program was easy to use



had never received job safety training prior to the course