In the time it took you to read this sentence, the future became the past. Albert Einstein said he never thought of the future “because it comes soon enough.” Of course, for Einstein, all time was relative! For those trying to anticipate what The Future of Work holds, time is of the essence. If we are always one step behind the future, how do we keep ahead of the curve?

In this issue of CPP, we examine what Cal Poly Pomona is doing today to prepare students for the careers of tomorrow.

University deans, faculty and alumni agree that mastering new technology is important, but that thinking critically and learning to solve problems are the real keys to unlocking future opportunities. The classrooms, laboratories and fields of Cal Poly Pomona are ideal venues for getting a peek at The Future of Work.

All across campus you will find students learning practical skills, working collaboratively and thinking creatively. In the classroom, faculty emphasize hands-on learning and encourage an entrepreneurial spirit and social responsibility. And cross-disciplinary exposure means CPP students have the breadth and the depth of experience that employers seek. But it’s not just about job training, as Sharon Hilles, dean of the College of Letters, Arts & Social Sciences notes. A useful education must prepare students to adapt to a dynamic job market. By gaining a mindset along with a skill set, CPP students are well-positioned to thrive.

Technology will continue improving at lightning speed, and just as skills are mastered, new ones will already be needed. Since we cannot predict tomorrow, we must foster a culture of lifelong learning for a generation of bold risk-takers and prepare them to adapt.

Because Einstein was right, of course. The future is already here.

What will it take for today’s students to succeed in tomorrow’s careers? Six deans weigh in on the dynamic and evolving world of higher education.

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What are the key attributes and skills that you see being paramount in the coming years? Are they any different from those of a decade or two ago?

**LISA KESSELL,** **HUNTSLEY COLLEGE OF AGRICULTURE:** There are long-established skills and attributes, and there are new ones driven by the pace of technological progress, critical thinking, verbal and written communication, listening skills, awareness of what employers want, meeting deadlines, perseverance and the ability to keep calm under pressure have been important for generations.

What has changed is the imperative to be technologically adept, including knowing how to leverage and respect social media. Our new graduates also must be able to work in both traditional electronic work environments and with an increasingly diverse population of colleagues and customers. In a rapidly changing work environment, they must be able to focus on what is important.

**ALISON BASKI,** **THE COLLEGE OF NATURAL SCIENCES:** In the next few decades, the rate of change in the workplace due to technology and globalization will continue to outpace the ability of many people to adapt. New technologies now typically take only five years from introduction to widespread adoption, whereas people usually need more than this time horizon to fully adapt to such changes.

A critical element for success in our unfolding world of dynamic stability will be the motivation and commitment of our students to embrace lifelong learning. This is a different world than just a few decades ago, and it is one that will not go back to static careers. As Thomas Friedman said recently, the “social contract of the future” between companies and employees is “you can be a lifelong employee, but only if you’re a lifelong learner.”

**MICHAEL WOO,** **COLLEGE OF ENVIRONMENTAL DESIGN:** Two decades ago, the U.S. economy was going through a period of expansion at a time of greatly divided partisan government. PCs and cell phones weren’t common, but the smart phone hadn’t been invented yet. I would have encouraged students to learn to see things from a global perspective, gain experience in challenging work environments and with an increasingly diverse population of colleagues and customers. In a rapidly changing work environment, they must be able to focus on what is important.

**LEA DOPSON,** **THE COLLEGE OF PRACTICAL ARTS:** Key attributes will be adapting to rapid change, adapting and embracing new technology, and transferring skills to a variety of careers.

**KESSELL:** Providing group projects, undergraduate research opportunities and group competitions fosters problem-solving and teamwork. Our students will need to solve the complex problems that currently exist and the problems we have yet to know. In our college, students manage farm operations, the Allscapes Center, the Arabian Horse Center, apparel production and fashion retail micro-business.

**DOPSON:** Students will have to “jump in” to their careers immediately upon graduation. The learning curve must be tackled quickly in order for graduates to be competitive. The skills they gain through their learn-by-doing experiences help prepare them to move into the workforce and move up more quickly than those without hands-on learning.

**WOO:** In the short term, hands-on learning equips our graduates to compete effectively in the job market. But experiential learning may also help our graduates adapt readily to changing conditions in the future.

**LEA DOPSON:** As a polytechnic, Cal Poly Pomona has a long history of experiential, hands-on learning. How does this factor in to preparing students for the world of work?

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**WOO:** In the short term, hands-on learning equips our graduates to compete effectively in the job market. But experiential learning may also help our graduates adapt readily to changing conditions in the future.

**KESSELL:** Faculty serve as mentors and role models. They display an attitude of trying and learning and trying again. They let students know that this circle of learning is normal and how an individual — and, in fact, a society — advances with small steps toward improvement. Our faculty have strong, caring relationships with their students. Smaller class sizes facilitate strong relationships that engage students in their learning. Faculty are very attractive and inclusive. They inspire students to set high standards for themselves and for their students.

**DOPSON:** Our faculty truly care about our students. They care about nurturing service-oriented professionals for the hospitality industry. This “hospitality attitude” often becomes a defining characteristic of our students. I attribute a great deal of student success to consistent, caring and professional role modeling by our faculty.

**WOO:** I like to think that, because ENV has the lowest overall student-faculty ratio of any college at Cal Poly Pomona, our faculty members have more potential for building the kind of mentoring relationships with students that can provide inspiration, honest criticism, job search and career advice, and maybe even a pathway to a real job. But this idealistic vision may crash in reality, under the burden of heavy teaching loads, competition for the faculty member’s time, and other factors that may detract from the ideal teacher/student relationship.

**DOPSON:** A great example of this is our lab in The Restaurant at Kellogg Ranch. The pedagogy definitely develops resiliency in our students. Every day in the restaurant, students have to handle a variety of issues in real time. Through difficults, students learn tremendous lessons in service recovery and guest satisfaction.

**KESSELL:** Agriculture is a field that often must respond to events outside of its control, such as the weather. This allows students to fail but adapt by creating contingency plans. In the classroom, through academic advising and as club advisors, our faculty are mentors and coaches who support students when they perform below expectations. They help students understand that failure is a part of everyone’s experience and that the key is to learn and adapt. Performance problems can lead to great teaching and learning moments.

**WOO:** In some of the ENV programs, there is a healthy tradition of “crits” — criticism of student work by faculty or real-world practitioners watching the studio or the classroom. In the best cases, experiencing a criticism can toughen up a student and shake up a student’s assumptions (which may be inaccurate, off-base, or just plain arguable). But I have sometimes thought that we could go even further and seriously explore FAILURE. Sometimes I think that we have an inbred optimism that is a fundamental tenet in science. Therefore, A critical element for success in our unfolding world of dynamic stability will be the motivation and commitment of our students to embrace lifelong learning. This is a different world than just a few decades ago, and it is one that will not go back to static careers. As Thomas Friedman said recently, the “social contract of the future” between companies and employees is “you can be a lifelong employee, but only if you’re a lifelong learner.”

**BASKI:** Many of our faculty not only mentor students in the classroom but also provide them guidance in undergraduate research projects, internships, career development and networking. The opportunity that students at Cal Poly Pomona have to engage with faculty and develop a deeper connection can be transformational and oftentimes impacts their future career trajectory.

**DOPSON:** Faculty serve as mentors and role models. They display an attitude of trying and learning and trying again. They let students know that this circle of learning is normal and how an individual — and, in fact, a society — advances with small steps toward improvement. Our faculty have strong, caring relationships with their students. Smaller class sizes facilitate strong relationships that engage students in their learning. Faculty are very attractive and inclusive. They inspire students to set high standards for themselves and for their students.

**WOO:** In the short term, hands-on learning equips our graduates to compete effectively in the job market. But experiential learning may also help our graduates adapt readily to changing conditions in the future.

**KESSELL:** Our strength as a polytechnic may also be our weakness. Our emphasis on practical skills sometimes masks our shortcomings teaching history or theory. We may not be giving students through of a sense of the big picture to enable them to be truly creative in uncertain circumstances.

**BASKI:** In the natural sciences, our majors have significant laboratory experience using advanced instrumentation in their upper-division courses that distinguishes them from typical programs. In the computational and mathematical sciences, majors develop phenomenological models or code programs for real-world applications. To transform our students from novices to experts, we provide significant “time-on-task” experiences in such challenging learning environments with appropriate guidance from our faculty.

**WOO:** By 2008, the approval of Measure R, which provided greenhouse gas emissions, in Los Angeles County, a campaign was had just adopted a landmark law setting an ambitious goal for reducing than English. It would have been very far-sighted to study coding.
SHARON HILLES did not have the world at her fingertips when she was pursuing her Ph.D. in applied linguistics at UCLA. It was the era before cell phones, before Google became part of the lexicon. What she did have was access to ideas that transcend technology and time, as well as professors and colleagues who would challenge convention and help distill meaning. She had the oldest, most reliable and most valuable tool in higher education: critical thinking.

As dean of the College of Letters, Arts & Social Sciences, Hilles oversees 10 departments whose bedrock is, in a broad sense, the human experience. Communication, theatre and new dance, English and foreign languages, and philosophy. Psychology and sociology, economics, geography and anthropology, and political science. History and music. They are the canon, and it is no coincidence that they form the backbone of general education.

“In survey after survey, employers say that they want people who can critically engage in complex problem-solving, who can speak and write clearly and persuasively — people who can work in groups with individuals different than themselves,” Hilles says. “A liberal arts education makes your mind nimble.”

That nimbleness, however, minus an understanding of a rapidly evolving, tech-based world, is only a big piece to a larger puzzle in The Future of Work.

“Steve Jobs said that technology alone is not enough. ‘It’s technology married with liberal arts, with the humanities, that … makes our hearts sing.’ I think he was right,” Hilles says.

The room is buzzing. A wide-eyed incoming freshman talks to a financial aid representative about his aid award. A few feet away, while two friends stand beside her for encouragement, a senior speaks to an advisor about what classes she needs to graduate on time. In between them in the center of the room, a chemical engineering student gets help from a fellow sophomore for a 10-page political science research paper.

“We can’t just do job training, because the jobs we train somebody for today may not even exist by the time we get home tonight. People who can adapt will survive and be successful.”

— SHARON HILLES
Dean of the College of Letters, Arts & Social Sciences

“Once our students graduate, the confidence to go out there and find resources and tools is crucial for continuous self-growth and lifelong learning,” University Library Dean Ray Wang says.

For many students, taking that first step is challenging.

“And yet, just a few years ago a growing opinion was that libraries were losing their relevance. A Forbes article in 2012 posed the question, ‘Will Public Libraries Become Extinct?’

Reports of the death of public libraries are greatly exaggerated. According to the Pew Research Center, millennials, 15 to 34, are the most likely generation of Americans to use public libraries. Survey data from fall 2016 found that 53 percent of Millennials say they used a library or bookmobile in the previous 12 months.

“Many of our students will have a career that changes dramatically in their lifetime because of technology and market factors,” Wang says.

“What the Knowledge Center provides for students is the foundation for that confidence to adapt to these changes. We are with them every step on that journey of discovery so that in the future they approach that journey with excitement and assurance.”

Dean RAY WANG says the new additions to the library help students build confidence to adapt to change.
Students at Cal Poly Pomona learn by doing, one of the many advantages of a polytechnic education. In both indoor and outdoor classrooms and laboratories, they explore, innovate and prepare for the future in a wide variety of disciplines.

Jake Tharp, right, a senior studying mechanical engineering, welds a metal stand in a manufacturing process lab. Another student in the lab, above, bends a piece of steel.

Marlee Fruto takes readings during her analytical chemistry lab, while Meghan Johnson, a third-year graphic design student, below, sketches a classmate in an art course.