TRANSFORMING HIGHER EDUCATION

HOW ONLINE EDUCATION FOSTERS ENGAGED LEARNING AT CALIFORNIA STATE UNIVERSITY, EAST BAY

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CALIFORNIA STATE UNIVERSITY
EAST BAY

EXECUTIVE SUMMARY

New research and understanding about the ways people learn are stimulating institutions of higher education to re-think the ways they structure their programs to meet students' needs in the 21st century. "Engaged learning" replaces the traditional approach of classroom lectures, textbooks and content acquisition by a student-centric learning model that is informed by rapid, universal access to information, team-based projects, visual and kinesthetic learning, and self-directed, discovery-based learning. The changes represent nothing short of a transformation in education.

A critical component of this transformation — particularly for non-traditional learners as well as the "net" generation — is the use of online learning systems. While many universities have chosen to adopt a single online strategy, Cal State East Bay has chosen a diversified approach by promoting different technologies designed to meet specific sets of needs. The data captured from the successes and challenges of each can inform the evolution of the University's approach moving forward. Data on student interest and program scalability, together with users' anecdotal evidence, suggest that the approach is working.

As a pioneer in online learning in the California State University system Cal State East Bay serves one of the largest proportions of its students online and features a significant number of courses and programs online as compared to its counterparts. The University focuses its use of online assets to:

- Increase academic achievement and enhance learning experiences for students using full-service online and hybrid programs;
- Enable faculty to use the technologies to foster engaged learning; and
- Expand online learning opportunities to meet growing demand and capitalize on emerging technologies.

In the future, Cal State East Bay sees further potential to apply the lessons the University has learned about online teaching and learning technologies to

- Reinforce student success,
- Support faculty development, and
- Sustain a culture of innovation.

The University is committed to transforming higher education in meaningful ways that enhance the academic preparation, career readiness, and lifelong learning of its students — particularly by fostering engaged learning. This work acknowledges and values deeply online learning — approached in a balanced, holistic way — as a powerful catalyst for that transformation.

TRANSFORMING HIGHER EDUCATION

> “For this University to contribute as an innovative and creative leader in higher education, our graduates [need to] think critically, be problem-solvers, communicate effectively, work well in teams, and possess a global perspective … We must integrate current and future learning strategies and technologies into our classrooms … Our students [must] have the capacity to learn from … face-to-face, totally online … or hybrid instruction.”

President Leroy M. Morishita, October 12, 2012 [1]

The Commitment

California State University, East Bay is committed to transforming higher education by providing a deeply engaged learning environment that is relevant, nimble, and responsive for students, their future employers, the region, and the state. Crucial to achieving this objective — one for which Cal State East Bay has consistently been recognized as a leader across the California State University system — is the intelligent application of online learning.

Research shows that students who are fully engaged in the learning process are more motivated and learn lasting knowledge and skills more deeply. Cal State East Bay has historically offered courses and programs that are highly responsive to the demands of students and employers and has recently redoubled its commitment to preparing its graduates for meaningful life work. The guiding principles behind this commitment lie in understanding and applying the diverse ways people learn, investigating the use of technology to develop creative minds and problem-solvers, and teaching the skills students need to address societal issues.

Researchers writing in the journal of the American Association of Colleges and Universities define “engaged learning” as “being active, integrative of experience, marked by increasingly complex ways of knowing and doing, interactive with social contexts, and holistic in its encompassment of multiple domains of self” as well as exhibiting a relationship to civic engagement. [2]

Engaged learning has gained recognition in recent years as one of several particularly successful high impact practices to develop students’ critical thinking and creative problem-solving skills. [3] Engaged learning takes many forms and can be delivered in many ways; a primary mode is online, through network-based or computer-assisted technologies.

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[1] L.M. Morishita, “A Model for Regionally Engaged Learning in the 21st Century” (speech at Cal State East Bay Presidential Investiture, Hayward, California, October 12, 2012) http://www20.csueastbay.edu/about/administration/2012-investiture-address.html

[2] L.E. Swaner, “Linking Engaged Learning, Student Mental Health and Well-Being, and Civic Development: A Review of the Literature,” *Liberal Education*, Winter 2007.

[3] G. Kuh, *High-Impact Educational Practices* (Washington, D.C.: AAC&U, 2008); S. Harper & S. Quaye, eds., *Student Engagement in Higher Education* (New York: Routledge, 2009)

There are different kinds of online learning. The Sloan Foundation and Pearson distinguish between traditional education; Web facilitated; blended/hybrid; and online. [4] At Cal State East Bay today, all courses are Web-facilitated through the University's learning management system. The University describes a hybrid course as one that combines some face-to-face teaching with an active online component, and reserves the use of online for those courses taught exclusively online with no face-to-face component (including exams). Of course, offering programs and courses online does not necessarily make for a meaningful or engaging experience — many factors must be considered in intelligently designing a course or program that makes the best use of technology. This is true for both faculty and students. For example, just as faculty may encounter challenges in reaching students using online technologies to deliver unmodified, traditional content, so freshmen who are still mastering time management tend to have greater challenges completing online courses.

> "My husband is [in the] military and I collected credits, classes, work experience and confidence over our 13 moves, 11 years and 6 schools… but I never had the piece of paper that proves I had accumulated the knowledge to be qualified for the jobs I knew I could perform. I have that piece of paper now."
>
> **Cal State East Bay student**

This paper examines the ways that Cal State East Bay has made integrated online instruction a component of engaged learning to take advantage of the power of technology to expand access and enhance the quality of learning. The University recognizes that some students learn more effectively in person, and that some subjects require laboratory and field applications (e.g., nursing labs, student teaching, and internships). Thus, Cal State East Bay's approach to education continues to include courses taught face-to-face as well as in hybrid and totally online formats — but all with an emphasis on engaged learning.

As this paper will show, Cal State East Bay's diverse student body, its innovative faculty, and its variety of programs, courses, and certificates (grounded in real-world disciplines and professions) have created an ideal learning ecosystem that has allowed online education to become woven into the University's DNA. This reality presents exciting opportunities for the future directions of the institution.

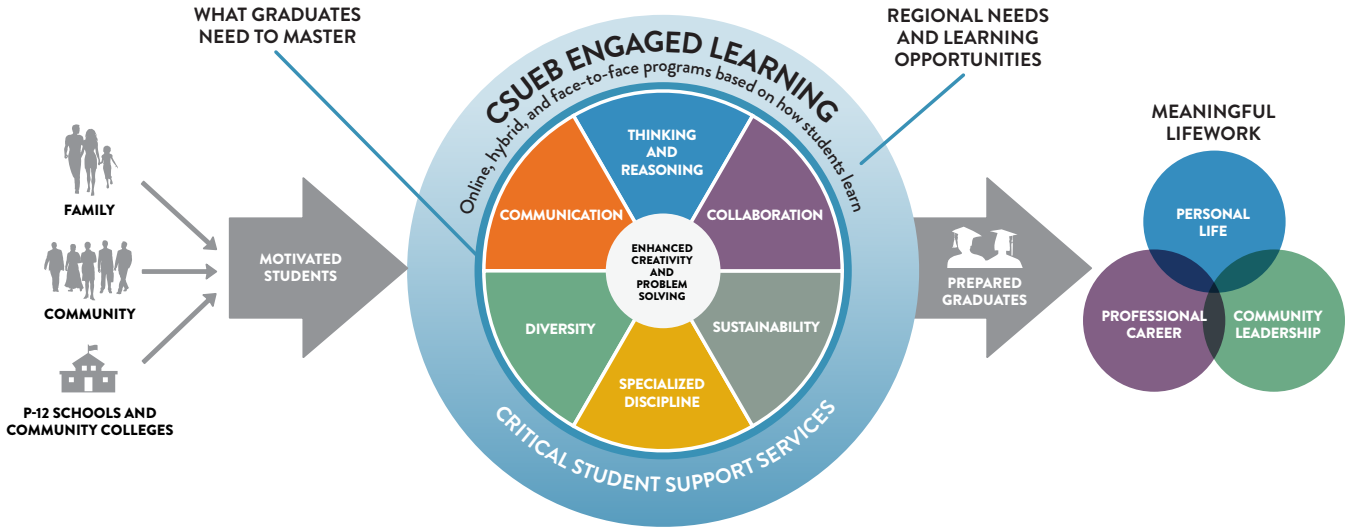
The Challenge

The fundamental goal of 20th century learning required that students learn content and demonstrate achievement through either standardized or textbook-published tests. Although this teaching approach had significant limitations, it reflected the age in which it developed. For the most part, books, radio, television, movies, and other traditional analog media shared a common information architecture based on closed or finite production and distribution systems. By and large, the workforce sought job candidates with specific content knowledge relevant to their businesses.

In contrast, the instantaneous, ubiquitous access to virtually unlimited amounts of information, media

[4] Babson Survey Research Group and Quahog Research Group, LLC. *Changing Course: Ten Years of Tracking Online Education in the United States.* 2013.

Engaged Learning at Cal State East Bay



Cal State East Bay is committed to engaged learning that provides graduates with the creativity and problem-solving skills they need to be successful throughout their lives. The University works with P-12 education, families, and the community to develop a college-going culture, then provides motivated students with the support services they need to be successful learners in online, hybrid, and face-to-face formats. Graduates who are able to reason, communicate, and collaborate; who understand how to work with diverse communities in a sustainable world; and who have mastered an area of expertise can contribute effectively in their careers and to their communities throughout their lives.

content, and social connectivity enabled by the Internet in the 21st century has created an environment in which educators must now rethink the role they play in the intellectual and academic development of their students. This means moving away from the 20th century teacher-focused and -directed notion that learning in a course needs to cover content that is confined to a textbook or specific curricular standards. [5]

Employers are likewise demanding more than content knowledge from job applicants. The 21st century model of learning necessitates that students possess the skills and dispositions to remake or create new content by blending, integrating, and innovating solutions that address real-life contemporary issues. The teaching practices required for this new model of learning can now draw on the wide variety of resources and digital technologies available to university faculty and students. As higher education continues to reinvent its mission, vision, and role in contemporary society, different questions must be asked of universities and colleges, as suggested in a recent Educause report. [6]

- Who are our learners?
- How are today's learners different from (or the same as) faculty/administrators?
- What learning activities are most engaging for learners?
- Are there ways to use instructional technology to make learning more successful for our students?

Based on the evidence presented in this paper, Cal State East Bay has clearly moved beyond these questions and

[5] B. Barnett, *Teaching 2030* (New York: Teachers College Press, 2010)

[6] D.G. Oblinger and J.L. Oblinger, eds., *Educating the Net Generation* (Educause: Transforming Education Through Information Technologies, 2005)

is adopting a strategic course of action that has already started shifting the learning culture on campus. These actions have demonstrated to students that University faculty are invested in meeting the learning needs of all types of learners by embracing new learning tools that reflect ways of learning in contemporary society.

This learning shift did not happen overnight. While the demand for online courses and programs at Cal State East Bay has been driven by the region's rapidly changing education and employment markets over the past two decades, broader external forces have been at work, with particular focus on the basic quality of education that American universities have been able to provide to U.S. students. In recent years, higher education has come under increasing scrutiny, which questions whether the knowledge and skills that graduates learn are adequately preparing them for successful careers and civically engaged lives.

> "Just as it takes many seeds to grow a forest, transformation in higher education doesn't come all at once or from a single source or idea."
>
> **James L.J. Houpis, Provost, Cal State East Bay**

Simultaneously, analysis of contemporary societal issues — which also require a highly educated, well trained citizenry — demand an understanding of increasingly complex relationships among environmental, social, economic, and political forces, particularly in the digital age. These issues require creative thinking and problem-solving from educated people who can collaborate effectively. Technology offers a variety of means of not only facilitating this collaboration, but also enhancing critical thinking and knowledge development, as well as accommodating different teaching and learning requirements. The future of higher education thus depends on innovation to meet the challenges of what has been called *a new ecology of higher education*.[7]

To be sustainable, however, such an ecosystem — just as in a natural ecosystem — must contain a diversity of interdependent species. Cal State East Bay has long recognized that innovation in higher education builds on many ideas, coming from different sources. Just as it takes many seeds to grow a forest, transformation in higher education doesn't come all at once or from a single source or idea. The early models of distance learning and e-learning gave way to learning management and assessment systems, which have now been joined by dashboards, Open Education Resources (OER), Open Source (OS), and Massive Open Online Courses (MOOCs), each offering their distinct advantages and limitations.

But in contrast to universities that have chosen a single approach, Cal State East Bay has deliberately adopted a strategy that nurtures a variety of different online initiatives and approaches that explore ways to enhance student learning. As the effectiveness of these pioneering efforts becomes clear, the University can adapt them across courses, departments, and programs by harnessing knowledge gained from these successes and challenges. This approach has the benefit, then, of powering continuous improvement, which informs the ongoing evolution of Cal State East Bay's strategy in online education.

[7] WASC Accrediting Commission for Senior Colleges and Universities. *The New "Ecology" of Higher Education* by Peter Ewell, 2010.

The Strategy

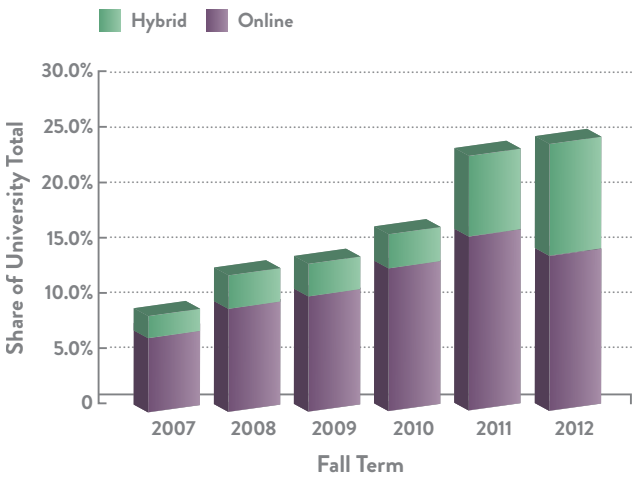
Cal State East Bay has taken a systematic, strategic approach to integrating online technology into its programs. A central tenet of the University's approach, stressed in its 2008 Academic Plan, is that students who study in any location or learn through any format will experience the same high quality education established and taught by the regular faculty. [8] Thus, Cal State East Bay has focused on developing its online and hybrid courses as part of its regular curriculum and degree programs. To date, 35 of Cal State East Bay's 39 academic departments offer one or more online courses in 42 different subject areas, covering both general education and major-specific knowledge and skills. In addition, several programs, including professional certificates, are offered through the University's professional extension programs.

In 1999, Cal State East Bay launched one of the first comprehensive online degrees in the world — the M.S. in Education with an option in Online Teaching and Learning. Since then, online education has steadily grown in scope and quality.

Starting with an Online Teaching and Learning program in the late 1990s, the University was able to prepare teachers to effectively use technology to actively engage students remotely. As this system evolved, the University then developed entirely online degree-completion programs in selected fields. In addition, faculty in many programs use the hybrid format, which takes advantage of the flexibility of some online instruction combined with some face time for applied learning.

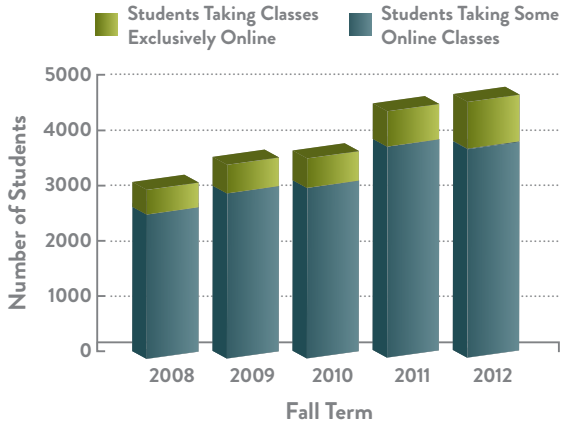
By embracing and integrating these different strategies in ways that cater to the needs of students and faculty, the University has become a leader in the CSU system in adoption of online learning. Nearly 25% of instruction is delivered in hybrid or online courses; and about 35% of Cal State East Bay's students take at least one course online each term.

Online and Hybrid Instruction
(Full-Time Equivalent Students)



During Fall 2012 Cal State East Bay taught nearly one-fourth of its course instruction either in an online or hybrid format, a three-fold increase from Fall 2007.

Students Taking Classes Online



About 35% of Cal State East Bay's nearly 14,000 students now enroll in at least one online course each term, up from 22% in Fall 2008.

[8] California State University, East Bay. Academic Plan, 2008. http://www20.csueastbay.edu/about/strategic-planning/academic-plan.html

The following pages illustrate Cal State East Bay's approach, with specific examples and evidence of its effectiveness in integrating online technology in a wide array of current academic programs, courses, and certificates. Online teaching represents one successful strategy the University is using to develop the knowledge and skills it expects its graduates to master to meet society's challenges today — and tomorrow:

I. Meeting Student and Societal Needs with Full-Service Online and Hybrid Programs — Cal State East Bay's integrated programs lead to certificates and degrees that stress applied knowledge, creative thinking, and problem-solving skills.

II. Enabling Faculty to Foster Engaged Learning through Online Technology — Cal State East Bay's Online Teaching and Learning degree programs model teaching techniques that incorporate best practices for engaged learning.

III. Expanding Online and Hybrid Learning Opportunities to Meet Growing Demand — Cal State East Bay is exploring alternative teaching approaches, institutional structures and funding mechanisms to support the next generation of innovations.

I. MEETING STUDENT AND SOCIETAL NEEDS WITH FULL-SERVICE ONLINE AND HYBRID PROGRAMS

Online learning at Cal State East Bay has made it possible for thousands of students to engage in meaningful educational experiences and achieve their goal of finishing a degree. Yet for every student who finds a way to get a B.A. or an M.S. at the University, there are many more in California (and elsewhere) who left higher education without earning the degrees they need and who require more programs, courses, and assistance in their quest for educational attainment.

As one Cal State East Bay online student passionately wrote: *"I truly believe that the [online] program's flexibility allowed me to finish something that had been holding me back both mentally and physically from career opportunities. My husband is [in the] military and I collected credits, classes, work experience, and confidence over our 13 moves, 11 years, and 6 schools... but I never had the piece of paper that proves I had accumulated the knowledge to be qualified for the jobs I knew I could perform. I have that piece of paper now."*

The University has included online learning as a part of its student learning opportunities since 1999, when the University launched one of the first comprehensive online degrees in the world — the M.S. in Education with an option in Online Teaching and Learning. Since then, online education has steadily grown in scope and quality, incorporating developing technologies to expand teaching effectiveness. In many cases online technology offers individualized learning opportunities unavailable in traditional classroom settings.

Rather than offering disconnected courses online, Cal State East Bay has developed online programs with comprehensive support systems. Of the ten fully online degree programs offered, six are baccalaureate programs that offer all upper-division coursework needed for program completion in a Bachelor of Science or Bachelor of Arts degree. Students in the undergraduate degree-completion programs in Ethnic Studies, Health Sciences, Hospitality and Tourism, Human Development, and Recreation may elect to take classes face-to-face or in a hybrid, or fully online format.

Cal State East Bay Online Offerings

UNDERGRADUATE DEGREE COMPLETION PROGRAMS	
B.S. in Business Administration	B.A. in Communication (planned)
B.A. in Ethnic Studies	
B.S. in Health Sciences	B.A. in Women's Studies (planned)
B.S. in Hospitality and Tourism	
B.A. in Human Development	B.S. in Criminal Justice (planned)
B.S. in Recreation	
MASTER'S DEGREES	
M.S. in Education, Option in Online Teaching and Learning	M.A. in Music, Option in Music Education (planned)
M.S. in Educational Leadership	
M.S. in Health Care Administration	
M.S. in Recreation and Tourism	

This flexible, student-centered approach allows undergraduate students the greatest opportunity to match course formats to their own circumstances and preferences as they complete upper-division coursework to fulfill their degree requirements and educational goals. In addition, the B.A. in Human Development offers an online certificate program that enables students to complete an academic certificate with coursework that is transferable and may be applied toward the baccalaureate degree, providing further flexibility for adult re-entry students. Students enrolling in these degree-completion programs are often returning to college after a lapse, and the opportunity to tailor their courses to their particular abilities is extremely valuable.

Other programs, such as the online B.S. in Business Administration, provide a broad and flexible professional undergraduate education. The two-year online Business Administration degree completion program focuses on the knowledge and skills necessary for adult learners to prepare for professional careers in a rapidly changing global business environment; it is the only such program to be accredited by the Association to Advance Collegiate Schools of Business offered by a California university. More than 500 students from 12 states and three countries have been admitted to this program since its launch in 2010. Educational quality and flexibility are the main factors students cite for enrolling in the online B.S. in Business Administration program.

Another outstanding effort is the Foundational Level General Science (FLGS) teaching credential for Elementary Teachers. By completing online coursework in biology, chemistry, physics, and earth science (with four hands-on laboratory sessions), teachers are prepared to teach middle school science, thus increasing the number of skilled science educators to meet a critical need in California's middle schools.

In addition, students may enroll in four totally online Master's programs, including the M.S. in Education with an option in Online Teaching and Learning, M.S. in Educational Leadership, M.S. in Health Care Administration, and M.S. in Recreation and Tourism.

Students benefit from learning environments that include small cohorts of students and allow professors and peers to interact and exchange ideas in a variety of ways such as email, telephone, discussion board, chat room office hours, and/or videoconference. Faculty may use a mix of these methods in their strategies to prepare for and deliver online and hybrid courses. In response to the steadily increasing student demand for these types of programs, faculty are currently developing new online undergraduate B.A. degree programs in Communication, Criminal Justice, and Women's Studies, as well as an online M.A. in Music, option in Music Education.

As pure online courses have grown and been made available to more students, Cal State East Bay has also moved forward with developing the hybrid model. The most common hybrid format involves courses that meet in person at regular intervals during the term for learning activities that are most effectively conducted face-to-face, while reserving other course work for the online environment.

Depending on the degree and type of course work done in each environment, hybrid courses are sometimes called "flipped" classes, because students are expected to learn what would traditionally be the lecture content of the course using online technology, and then meet with the instructor and other students for applied, problem-solving exercises that would traditionally have been considered homework.

Other hybrid formats include courses that are conducted primarily online and then meet occasionally in person for student presentations and exams. Finally, some entire programs provide options in which students may take certain required courses taught entirely online while others, such as applied labs, are taught in person.

Providing Support Systems for Student Success

Online technology is an integral part of the learning environment at Cal State East Bay. Classes that meet face-to-face, entirely online, or as hybrids include instruction that is closely linked to a learning management system and other technologies that provide 24/7 access to instructional materials including syllabi, assignments, grades, and discussion boards with fellow students and faculty. Clearly, the technologies and support systems now available for faculty and students, compared to those used in 1999 when the Online Teaching and Learning program began, are unparalleled.

Faculty have continued to improve their online teaching skills through faculty development opportunities both on campus and off; and staff have improved their skills and developed new expertise through dedicated positions to support online students. Together, faculty and staff help students develop a facility at navigating the online learning environment.

The B.S. in Business Administration is the only AACSB-accredited online Business Administration degree completion program offered by a California university.

Acknowledging that a growing online population requires dedicated services, the University has committed resources to online course development, online advising, online tutoring, online library activities, and dedicated technology support. Students are able to complete all necessary forms for admission, financial aid, fee payment, course registration, and other administrative forms online. Through MyCSUEB, a student portal, all students can track the status of their admission, financial aid, fees due, and course enrollment.

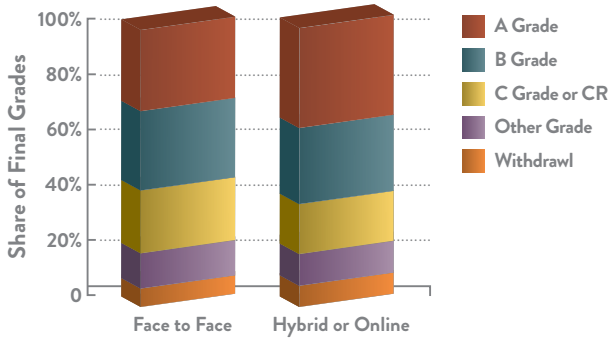
With specific personnel in the library, advising services, and media and academic technology services dedicated to supporting online student learning, the University has developed a bank of expertise upon which online students can call. These personnel afford online students easy access to resources that help them succeed in coursework both academically and developmentally.

To ensure the integrity of the online educational environment, Cal State East Bay faculty employ a variety of student authentication and security methods. These methods include the use of secure student access portals, use of Turnitin software to detect potential plagiarism, use of randomly generated blocks of exam questions so that each student receives a unique examination set, and use of time limits for completion of online examinations so that students are not allowed time to conduct external research prohibited during exams.

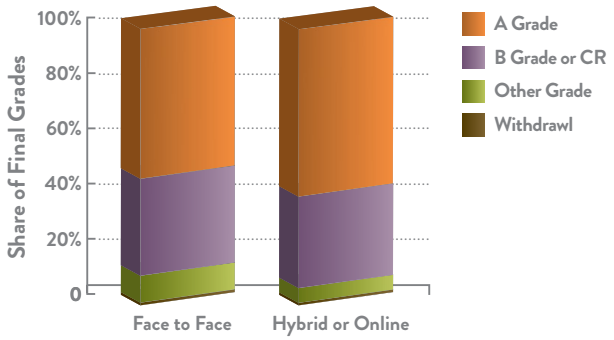
This combination of security, support, and authentication can ensure that student work is documented and that students are held accountable for their own learning. It is clear that dedicated support for both students and faculty is a critical factor for the success of students enrolled in online and hybrid courses.

A study of the University's student enrollment during 2012 showed that students in online, hybrid, and face-to-face courses had similar levels of student success as measured by student course completion rates. Thus, despite some higher education studies to the contrary, students in online and hybrid courses and programs at Cal State East Bay have levels of success comparable to those in face-to-face courses.

Fall 2012 Grade Distribution and Course Completion for Undergraduate Students



Fall 2012 Grade Distribution and Course Completion for Postbaccalaureate Students



Cal State East Bay students perform very similarly in online and hybrid classes as compared with those they take face-to-face. While a few more undergraduate students withdraw from hybrid and online classes (6.5% compared with 5%), a higher percentage of students in hybrid and online classes earn A's and B's.

Preparing for the Future

East Bay also uses online education to address other pressing societal needs and to prepare students for the future by emphasizing skills and abilities valued in the workforce.

Thus, communication and global outreach have also been part of Cal State East Bay's efforts. Students in the University's online programs learn to communicate effectively with one another, work in teams, and reach across the globe to look for solutions to problems that affect businesses, educators, and health care workers everywhere. Students learn the importance of writing to each other in respectful and meaningful ways. As one student described it: *"The communication process is different for an e-team than a live team ... Being required to organize people without the benefit of body language or tone has forced me to improve my written communication skills. It has also improved my leadership skills: getting people on board takes a different approach when you don't ever get to see them. Virtual teams will be a reality in all businesses as globalization continues."*

The University believes that online education prepares its students and faculty to be lifelong learners. The recent popularity of large online courses points to one of the most important features of online learning — the ability to find for oneself the tools one needs to change, grow, and succeed, at any time and place. Cal State East Bay's online learning program sets students on that path, whether they take one course as part of a predominantly face-to-face curriculum or complete a degree entirely online. Students become alive to the possibilities that exist outside a traditional classroom to maintain their education, their life skills, and their careers in new and meaningful ways.

Dozens of online students have shared their experiences. One summarized it as follows: *"[The online program] has provided opportunities to people like me to be able to set an example for their kids, as now hopefully I can become an example for my 9 year old, and expect her to be focused and work hard to achieve her dreams as I have done. I can expect her to look up to my struggle for inspiration as she saw me spending countless nights and weekends striving hard to complete my assignments, put everything aside to meet deadlines for projects and being excited to [receive] a hard earned grade for my consistent efforts."*

II. ENABLING FACULTY TO FOSTER ENGAGED LEARNING THROUGH ONLINE TECHNOLOGY

It has become clear over the past 20 years that advances in the learning sciences and in new technologies have come together to create a transformed "learning ecology" in higher education. The intersection of these two areas makes possible a personalized, connected, and mediated learning ecosystem that bridges the gap between youth culture and experiences with digital learning outside of formal learning environments. Faculty at Cal State East Bay are increasingly leveraging available technologies to create new learning ecosystems that cultivate the thinking skills, aptitudes, and learning dispositions essential to participating in and contributing to 21st century society.

This new learning model offers faculty the opportunity to support the "net" generation by incorporating into formal learning contexts the tools that "NetGens" prefer to use outside of them as well. The learning preferences of NetGen students that particularly impact higher education include their desire for immediate, visual, experiential, and meaningful interactions. In addition, many of them like to work in teams to solve challenges, require structure to understand what it will take to achieve their goals, are oriented toward discovery and interactivity, and respond well to visual and kinesthetic learning. They also crave social relevance and "things that matter." [9]

LONG-TERM/FUTURES THINKING IN EDUCATION

This innovative course was launched in 2012 with seed funding from a private donor to investigate how long-term and futures thinking could be applied to an academic setting to develop stronger critical and creative thinking capacity among students. Led by a professor in the Department of Communication of the College of Letters, Arts, and Social Sciences, some of the class sessions are taught using the hybrid model. Students work in teams, using basic scenarios to develop original forecasts about aspects of society relevant to the coursework they have learned. They might make predictions 25, 100, or 5,000 years into the future, and are required as a team to provide a detailed, rational justification for their forecasts based on social, political, scientific, and environmental trends. They then present these predictions to the entire class and must defend them. The University plans to bring this curriculum to other professors, departments, and colleges, and to create an interdisciplinary lab where interested faculty could integrate aspects of this model into their courses as appropriate to deeply engage students in the learning process. Cal State East Bay believes that programs that can equip students to learn, think, and work together in new ways are a lynchpin of solving the National Science Foundation's "Grand Challenges," such as addressing global warming and gaining a better understanding of the human brain.

[9] Oblingers, *Educating the Net Generation.*

These characteristics provide a compelling rationale for the strategic shift that Cal State East Bay has made to create online learning opportunities for its students.

Teaching Engaged Learning Online

Faculty who integrate the learning characteristics that appeal to the "net" generation are creating engaged or "connected" learning opportunities for students. Connected learning works to "leverage the potential of digital media to expand access to learning that is socially embedded, interest-driven, and oriented toward education, economic, or political opportunity." [10] Connected learning is realized when students are able to pursue interests or passions with the support of an interested adult, and are then able to link this learning and interest to academic achievement, career success, or civic engagement. Connected learning is based on evidence that the "most resilient, adaptive, and effective learning involves individual interest as well as social support to overcome adversity and provide recognition." [11]

At Cal State East Bay, the College of Education and Allied Studies offers two programs that provide students with the most advanced preparation for teaching in online environments.

- **M.S. in Education, Option in Online Teaching and Learning.** Since its inception, the M.S. in Education with an Option in Online Teaching and Learning has graduated nearly 500 students. While about 60% are California residents, students from 39 other states (particularly Texas and Florida) and from 13 other countries (particularly in Europe and Asia) have earned the degree. The program emphasizes how to conceptualize teaching in an online environment; how to determine which digital tools are most effective for which types of learning; and how to design quality curriculum in an online context. Students in this program come from a variety of careers, including corporate settings, higher education, and public and private K-12 schools. They are placed in cross-disciplinary "home groups" that enable collaboration and cross fertilization of ideas.
- **M.S. in Education, Option in Educational Technology Leadership.** This program is considered by many in the education community to be a model for other national online programs. The program is designed for K-12 teachers who want to become technology leaders in local schools and school districts (although some program graduates also work in the private sector or for other public agencies). The courses are taught in either a face-to-face or hybrid format, but require students to demonstrate the highest level of expertise in computer-based learning. Courses include *Digital Graphics, Designing Effective Multimedia Instruction,* and *The Web as an Interactive Tool,* as well as courses that incorporate the principles of gaming. Students in this program also engage in research through the lens of educational technology.

  Instructors in this program incorporate a variety of online synchronous class meetings using social Web tools like Facebook and Twitter, along with Web-based video class meetings employing Eluminate and Flashmeeting. They also use a variety of platforms to teach students how to effectively use social networking media for instructional and professional purposes.

  Students in this program also learn how to use 3-D virtual worlds for class meetings in Second Life. Second Life is a complex but excellent tool for engaging students in a wide variety of educational experiences. For example, math teachers can teach geometry concepts by having students construct

[10] Connected Learning Research Network. *Connected Learning: An Agenda for Research and Design* by M. Ito, K. Gutiérrez, S. Livingstone, B. Penuel, J. Rhodes, K. Salen, J. Schor, J. Sefton-Green, S. Craig Watkins. Digital Media and Learning Research Hub, Irvine, California: 2013.

[11] *Connected Learning.*

objects in the virtual world (e.g., creating "to-scale" buildings), while art and science teachers can conduct virtual field trips to virtual art museums or the NASA Simulated Space Center. Language Arts teachers can bring students to a Second Life island to participate in virtual language learning sessions by using a LanguageLab application, having conversations with people from all over the world. The virtual world is so dynamic that students have a chance to speak with native speakers to practice dialogue with virtual participants.

Developing Today's Faculty

Cal State East Bay has been making strategic investments in its faculty, so they can keep pace with the rapid changes that are occurring in student learning, technology, and pedagogy. The University's Faculty Development Center has created and fostered a long-running series of learning communities for faculty, with ten-week, intensive sessions where newer and more experienced faculty share demonstrations, discussions, and learning activities to help implement new ways of teaching and delivering new courses. Typical goals of a Faculty Learning Community in online education have been:

- Developing a deeper understanding of online pedagogy and course design
- Sharing and exploring current approaches and methods in order to develop best practices
- Contributing to the development of a culture of excellence and innovation in online pedagogy
- Preparing for active engagement in campus online education and pedagogy leadership roles, faculty development presentations, and possibly publication
- Applying research and knowledge-sharing to further develop, revise, and improve the University's online courses

In addition, individual colleges have offered incentive funding to faculty for the development of online courses and programs. These incentive programs (with stipends ranging from $500 to $5,000) have been instrumental in the development of the University's online degree completion programs, including the B.A. in Human Development, the B.S. in Business Administration, and the soon-to-be-launched B.A. in Communication (which will be unique in the CSU system).

> "I am graduating next quarter with almost no fear of walking into a room of people (or a computer screen) and saying 'let's get this done' because the online B.S in Business Administration program at Cal State East Bay has used experiential learning to teach me communication, organization, and leadership."
>
> **Cal State East Bay student**

These investments pay off when students respond to the potent combination of high tech and high touch in courses and programs. As one Cal State East Bay student wrote: *"The material has been presented well and in an organized fashion. Amazing teachers...each class I've been in has had a significant emphasis on discussion, participation, and collaboration. ... I am graduating next quarter with almost no fear of walking into a room of people (or to a computer screen) and saying 'let's get this done' because the online B.S. in Business Administration program at Cal State East Bay has used experiential learning to teach me communication, organization, and leadership."*

These results do not happen by accident; they are the deliberate result of developing a robust suite of thoughtfully designed instructional content, support strategies and incentives. The College of Education and Allied Studies is an excellent example of this. It was able to make significant changes to the way its faculty used online learning with students using a highly customized professional development experience initiated in 2011-12. Elements of the program, which also awarded faculty stipends, included:

- Web-based technologies for transmitting data, voice and video
- Use of social networking platforms
- Incorporating mobile devices into instruction
- Intelligent use of graphics
- Smart use of iPads
- Maximizing the Blackboard and SMARTBOARD
- 1-on-1 instructional technology
- Cognitive coaching

Developing Tomorrow's Faculty

Cultivating an inspiring, innovative faculty for the future of student learning is a critical success factor in the transformation of higher education. One of the errors that comprehensive universities often make in faculty hiring is concentrating on courses to be taught, with less attention to the candidate's ability to be a successful scholar. Net generation students require an engaged learning environment that promotes the development of their tacit knowledge; this type of engaged learning environment requires active scholars who will be available to students both inside and outside the classroom.

All new faculty members at Cal State East Bay must demonstrate proven academic records to be successful scholars to compete in the 21st century university setting. They receive start-up packages that allow them to begin their scholarship immediately, and are informed of the University's scholarly expectations, including the expectation that they will actively involve students in their research efforts. They also receive release time for the first two years to allow them to develop curriculum using best practices, as well as establish and refine their scholarly focus at the University.

In the traditional model of higher education, faculty adopt learning strategies that are most familiar to them; often ones that are lecture- and content-heavy but which overlook the development of higher orders of thinking and experiential learning. By contrast, all new Cal State East Bay faculty are expected to learn the concepts of a student-centered learning environment, the proper and best uses of online technology, and how to promote experiential learning. Beginning faculty attend the *First Year Faculty Experience Academy,* where they gain experience in best practices.

Professional Development: Faculty vs. Program Level

Universities typically provide funding for professional development geared toward improving the skills of a single faculty member, one course at a time. This approach is neither transformative nor lasting. Cal State East Bay is committed to funding curricular development at the program level and higher.

To support University-wide efforts to enhance innovation and excellence in education that prepare students to meet the demands of the 21st century global environment, the University established the Programmatic Excellence and Innovation in Learning program in 2012-13. This program provides funding for curricular projects based on most effective teaching practices that will result in innovative degrees. In addition, the University has asked faculty to be active partners in addressing retention rates for first-generation students, better preparation for student teachers, and making the institution environmentally responsive and responsible.

This program provides planning grants of $10,000 each and implementation grants of $50,000 each. To date, the following innovative programs and degrees have been funded:

- B.A. in Communication — Development of a completely online communication degree to meet strong demand
- B.A. in Criminal Justice — Development of a completely online degree particularly suited to meeting the needs of military veterans, including wounded veterans in treatment
- From California Teaching Performance Assessment (CalTPA) to Performance Assessment for California Teachers (PACT): Implementation of Processes to Encourage Program-level Assessment and Improvement for California Teachers;
- Games as a Lens for Learning: Examination of the use of video games as education tools for students at Cal State East Bay
- Advancement of Sustainability Within the Curriculum and Co-Curricular Structure of Cal State East Bay
- Gaining Access 'n' Academic Success (Project GANAS) through the pursuit of a college education in the Hispanic Community — Using cohort learning techniques, building online social networks, and establishing closer ties with Hispanic mentors and role models to increase students' engagement in their learning

III. EXPANDING ONLINE AND HYBRID LEARNING OPPORTUNITIES TO MEET GROWING DEMAND

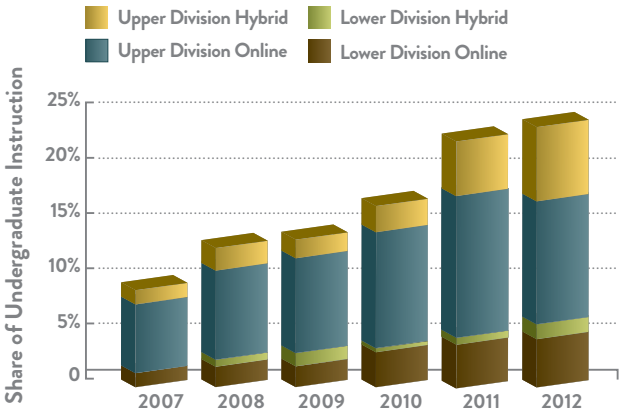
Beyond expanding online programs to encompass additional subject areas that meet regional student and employment demands, Cal State East Bay is exploring alternative teaching approaches, institutional structures, and funding mechanisms to support further innovations.

Student-Centered Learning

Online and hybrid learning environments can create unique opportunities for the development of critical skills and abilities that predict future success in a student's professional and personal endeavors. However, students respond to these advantages differently based on the material they are studying, their educational maturity, and the complexity of their lives. This will continue to be an important area of inquiry for the University as its online education strategy evolves.

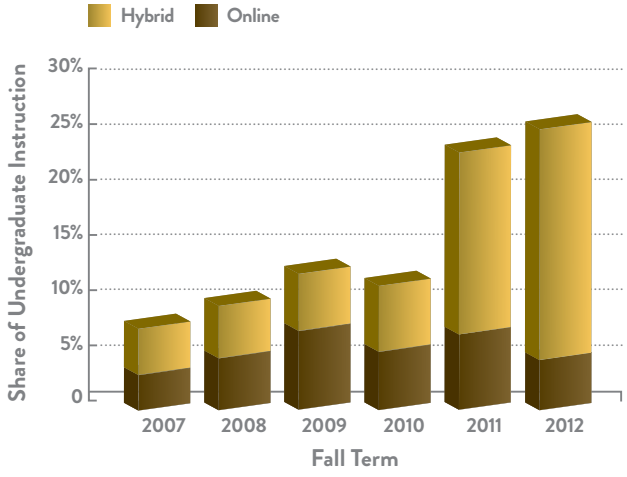
Cal State East Bay has discovered that students need to *learn how to learn online*. Thus, the University actively discourages traditional-age freshmen and other new students from taking classes online until they have demonstrated their mastery of basic higher education skills such as time management. In contrast, adult students who are returning to complete a degree with significant life and work experience often find online and hybrid programs especially attractive because of their flexibility, both in terms of the hours they spend and how they can focus on areas of particular interest.

Online and Hybrid FTES in Undergraduate Courses



Cal State East Bay now teaches more than 10% of its undergraduate courses online to juniors and seniors and another 5% in hybrid format. Online and hybrid courses for freshmen and sophomores are more limited because the University's first-year experience emphasizes small classes taught face-to-face to introduce students to college.

Online and Hybrid FTES in Graduate Courses

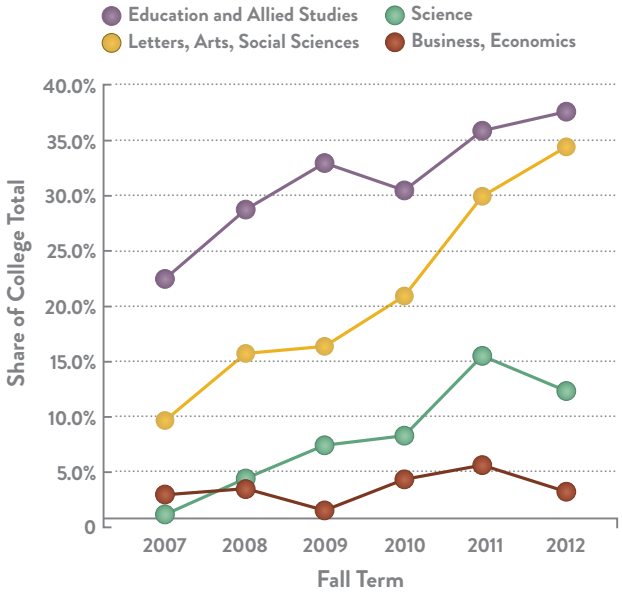


The hybrid course format now accounts for 20% of graduate-level instruction, capitalizing on the advantages of online instruction for knowledge building and face-to-face contact for student-faculty interactions and applying problem-solving skills.

The Role of Face-to-Face Instruction

Cal State East Bay faculty have successfully transformed lecture, discussion, and seminar material to online formats, but continue to find that laboratories require face-to-face formats to be successful. These differences account for more significant online and hybrid offerings at the upper division and post-baccalaureate levels in the College of Letters, Arts, and Social Sciences and the College of Education and Allied Studies as compared with the College of Science and the College of Business and Economics.

Online and Hybrid FTES by College



The College of Education and Allied Studies and the College of Letters, Arts, and Social Sciences teach the most online and hybrid courses. The College of Science teaches more courses face-to-face, particularly laboratory classes. The College of Business and Economics teaches most courses face-to-face, except for its B.S. in Business Administration program.

Moving forward, it will be important to deepen the University's understanding of which students learn better in online vs. hybrid formats and why. This knowledge will help develop and refine strategies to teach applied knowledge and creative problem-solving using the different formats.

Engagement and Service Learning

Many Cal State East Bay programs already incorporate experiential learning as part of the degree. For example, the online M.S. degree in Recreation and Tourism requires that students perform an internship in their desired field and report on their experiences prior to graduation.

Future plans call for the University to expand these learning experiences through additional internships, engagements with industry and education, and service-learning opportunities that are hallmarks of Cal State East Bay's workforce and community-based programs.

Through its centers for Career Advisement, Community Engagement, and Student Research, the University intends to create ways in which online students can be fully engaged in learning that prepares them for the world of work and their futures as engaged citizens.

Technology Enhanced Assessment

Performance assessment that is undergirded by technology platforms creates new ways to assess and evaluate student work. For example, electronic platforms such as Task Stream serve as a repository for storing, analyzing, and evaluating student work in the form of an e-portfolio assessment.

- Student work (e.g., videos of classroom teaching) can easily be uploaded to the platform and assessed against established rubrics by University supervisors or designated evaluators. Student work can be reviewed using more objective methods, as assessors can be calibrated online and assigned to read student work anonymously.
- Results of evaluations are kept in a database and can be compared across geography, demography, and time.
- Results can be kept indefinitely so that data patterns can be observed within a program and across a college.
- These patterns can be used to inform program improvement and then track the impact of those improvements over time.
- Students can use collected e-portfolio work to support job interviews and career aspirations.

Cal State East Bay is exploring how tools like Task Stream can be applied beyond the pilot program in the College of Education and Allied Studies.

Competencies and Results

Because students today may attend many different institutions of higher education, and may learn material without attending college at all, Cal State East Bay is devoting increased attention to competency-based and outcomes-based means of assessing student learning. The combination of online and hybrid degree programs and competency-based assessments of student learning provide significantly more options for college completion than the outdated Carnegie unit measures based on course seat-time alone.

The University actively encourages students to provide evidence of learning through a variety of means, including exams offered through the College Level Examination Program (CLEP), a program that serves populations such as active-duty and reserve military personnel and veterans. Cal State East Bay accepts all ACE-certified military training and provides academic credit toward degree requirements.

All educational requirements students meet, whether through competency-based assessments or online, hybrid, or face-to-face courses, are recorded with certificates, degrees, and other appropriate credentials as a part of a single student transcript. Cal State East Bay is exploring how to make these accomplishments easy to track online, with full documentation for career development.

Emerging Technologies

Looking beyond Skype, WebEx, FaceTime, and more advanced networking technologies that are now finding and shaping their markets, some emerging technologies that hold promise for education include the first generation of virtual presence robots. These were developed primarily for business use, allowing remote conferencing and work inspection for multiple-site institutions. In the educational field, virtual presence robots enable home-bound individuals to attend regular classrooms from home, enhancing opportunities for learning and socialization without compromising health.

> “Being required to organize people without the benefit of body language or tone has forced me to improve my written communication skills. It has also improved my leadership skills. Virtual teams will be a reality in all businesses as globalization continues.”
>
> **Cal State East Bay student**

Priced between $6,000 and $10,000 per unit, the systems are typically equipped with a video screen, multiple cameras, eye-safe laser pointers, and a microphone–speaker combination for basic conferencing. With the communication system mounted in the robot's head, the base usually consists of a Segway-like, two-wheel chassis with a stabilization device that prevents tipping. Users can steer the robot from any remote location with an Internet connection, using a Web browser, login authorization, and the arrow keys of a standard computer keyboard. Multiple meetings at different locations are therefore possible in a single session. When finished, the user drives the robot back to a simple base unit, where it is charged using a standard wall outlet.

In the future, such systems may allow students at one location to attend courses being offered at another site, without the need for dedicated video-conferencing rooms. One-on-one student–faculty meetings, or attendance at special educational events like lecture series, are also possible. Although the small video displays found on first-generation systems will limit the size of any remote learning group, second generation vehicles with improved displays, audiovisual, and interactive technology will enhance the capabilities of dedicated video conferencing rooms already in place — or eliminate the need for those spaces altogether. Cal State East Bay is experimenting with one of these robots at its Concord campus and will be evaluating its potential as a virtual presence for students otherwise unable to attend face-to-face classes.

Funding

Consistent with its mission as a public university in the CSU system, Cal State East Bay is committed to providing affordable access to high quality, technologically advanced learning to enable today's students to succeed in a variety of fields. All of Cal State East Bay's online programs are taught by regular faculty, unlike those at many other universities offering online courses and degrees.

Most of Cal State East Bay's current online programs serve regular students supported by state-funding formulas and student tuition and fees. In addition, a few programs, including the online B.S. in Business Administration, are offered as professional extension programs to better meet the needs of particular students — typically adult learners. In the future, the University will continue to assess the most appropriate institutional arrangements and funding structures to ensure program success.

As it does this, the Cal State East Bay will inform appropriate constituencies and stakeholder groups about the value and opportunity of the various learning strategies it has researched, tested, and evaluated as part of this multifaceted approach to online education. In this way, Cal State East Bay will continue to be positioned as a leader in online learning in the CSU system by acting as an incubator of emerging instruction models that can be applied toward the broader goal of engaged 21st century learning.

CONCLUSION

The evidence presented in this paper documents Cal State East Bay's effectiveness in the use of online teaching and engaged learning practices to provide students with the academic background and career preparation required to be successful lifelong learners and community leaders. Cal State East Bay's experience also underscores the importance of a strong faculty development component to any endeavor that introduces innovation in higher education.

Further, the University's approach demonstrates that change occurs in many small ways that accumulate to transform higher education and improve its ability to meet societal needs. As new prototypes are tested and as the University is able to evaluate their effectiveness, Cal State East Bay will continue to advance the application of new technologies to student learning.

In sum, the University sees the following as critical next steps to supporting future innovation and transformation in higher education:

- **Reinforcing student success** through undergraduate and graduate education on into students' careers. As development of online learning technologies continues, universities need to discover what online practices will contribute most to long-term improvements in college-going and completion rates, particularly for populations historically underserved by higher education.
- **Supporting faculty professional development.** As technologies evolve and societal needs shift, current faculty as well as new members of the university community will need assistance in learning to use and adapt state-of-the-art technology to teach creative thinking and problem solving in ways that enhance the environment for student-centered learning.
- **Sustaining a culture of experimentation and innovation.** Perhaps most important for students, faculty, and the University community, Cal State East Bay must continue to cultivate an environment that encourages faculty and students not only to take advantage of technology in their scholarly work and teaching, but to be innovators themselves and share their successes with the larger world of higher education.

With attention to these areas of investment Cal State East Bay can continue to make a significant contribution to the transformation of higher education, serving the citizens of California and the larger global community.

ABOUT THE AUTHOR

Dr. Leroy M. Morishita is the fifth president of California State University, East Bay. He has served as a senior administrator in higher education for over 30 years. President Morishita has committed his professional life to developing community partnerships and providing high quality engaged learning opportunities for students. With the goal of becoming a model institution for "Regionally Engaged Learning in the 21st Century," President Morishita is working with the University community to identify its highest priorities in order to align resources in academic, co-curricular, student life, and student service activities which best promote academic achievement and performance — namely graduation.

> "We must marshal our limited resources and invest in our students … to provide engaged learning strategies within and outside the classroom and online to enhance student learning and achievement resulting in increased graduation rates and successful entry into professional careers."
>
> **Leroy M. Morishita, President**

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