

UNIVERSITY
OF
CALIFORNIA

Online Education

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Members of the UC-CORO 2018 Southern California Cohort

UC Irvine

Rick Coulon, Associate Vice Chancellor, Division of Finance and Administration
Tawny Luu, Deputy Chief of Staff – Strategic Programming, Office of the Chancellor
Penny Portillo, Assistant Dean, Planning and Administration, School of Humanities
Abby Reyes, Director, UCI Community Resilience Projects

UC Los Angeles

David Aberbuch, Director, UCLA Mail, Document & Distribution Services
Paul Abramson, Director, Central Ticket Office
Tess Elconin, Senior Counsel, Campus Counsel & David Geffen School of Medicine
Todd Grappone, Associate University Librarian
Corey Hollis, Assistant Vice Provost, Undergraduate Academic Support

UC Riverside

Guillermo Aguilar, Professor and Chair, Mechanical Engineering
Iryna Ethell, Associate Dean for Academic Affairs, School of Medicine
Erith Jaffe-Berg, Professor, Department of Theatre, Film and Digital Production
Jeanette Kohl, Associate Professor, Art History

UC Riverside *continued*

Marko Princevac, Associate Dean for Student Academic Affairs, College of Engineering
Amit Roy-Chowdhury, Professor, Department of Computer Science & Engineering
Christian Shelton, Professor, Department of Computer Science & Engineering
Sally Tavizon, Assistant Dean and CFAO, Graduate School of Education
Ertem Tuncel, Associate Dean, Graduate Division
Albert Vasquez, Assistant Vice Chancellor, Enterprise Risk Management
Elaine Wong, Associate Dean, Undergraduate Business Program, School of Business

UC San Diego

Corey Singleton, Director of Environment, Health and Safety

UC San Francisco

Jon Giacomi, Assistant Vice Chancellor, Facilities Services

UC Santa Barbara

Kelly Adams, Senior Director of Development, Institutional Advancement
Joe Sabado, Associate CIO of Student Affairs, Executive Director Student Information Systems and Technology

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Executive Summary

This report reflects the research and analysis of the UC-CORO Systemwide Leadership Collaborative's 2018 Southern Cohort. The cohort developed this report as its capstone project to investigate and assess our campuses' interests in and experiences with online education to date as well as to recommend a model for developing a UC-wide vision and solutions to perceived barriers.

The report covers online education for enrolled students in degree programs throughout the UC. We surveyed stakeholders, interviewed campus leaders, and reviewed market data as well as stated UC goals and metrics to assess the current state. The report summarizes:

- Advantages and possibilities of online education in the UC system,
- Educational problems and risks,
- Current administrative and structural hurdles, and
- Ideological arguments and other hurdles.

The report then delineates recommendations for possible solutions and proposes metrics for evaluating the effectiveness of online education. The report concludes with a call to action to create a UC-wide vision for online education. A guiding vision is key to unleashing campus-level faculty and administrative dedication to overcoming the risks and hurdles associated with online education. The report proposes a UC-wide task force and subsequent work groups to:

- Perform a comprehensive review of existing UC online education
- Articulate a UC-wide vision and mission for online education
- Develop guidelines for campuses to determine campus priorities and implementation processes within the UC vision and mission for online education
- Draft attendant policy.

Introduction

The July 29, 2018 edition of the Chronicle of Higher Education dedicates a cover story to the question: "Can a Huge Online College Solve California's Work-Force Problems? Governor Brown Thinks So." The topic, much debated among faculty and administrators, has become nothing less than a touchstone for the future of Higher Education, public and private. While Governor Brown pushes successfully for a large new online college in California, independent from the Cal State and UC systems, the UC has no comprehensive plan in place yet. In interviewing various stakeholders in the UC campus administrations, the Academic Senate, the Office of the President, and among faculty, we found more questions than answers, with a spotty implementation of MOOC and ILTI initiatives on various campuses, and no satisfactory coordination between the campuses and its stakeholders.

There are several reasons why it is imperative that there be a solid UC investment in online education, both in terms of resources and fundamental philosophy. It is an investment in the future of our State

and our students. This investment must be driven by a shared vision of the educational potential and the articulation of desired outcomes of online education. Decision-making processes as to where, when, and how online education makes sense in the UC should not be driven primarily by financial imperatives. The development and the implementation of an online-education plan will take considerable financial investment. While financial support from UCOP is needed, all stakeholders emphasized that there must be a strong bottom-up component to developing online education plans on the ten campuses. There is no one-size-fits-all strategy, but there is also no guiding UC vision yet to help align goals and expectations.

Roadmap

The summary of findings below is based on interviews and surveys of various UC stakeholders. The findings focus on six areas including (1) advantages and possibilities of online education in the UC system; (2) educational problems and risks; (3) administrative hurdles and structural problems; (4) ideological arguments against online education; (5) metrics for evaluating online education, and (6) recommendations for possible solutions. Appendix A summarizes our survey data.

Advantages and Possibilities of Online Education in the UC System

Online education has the potential to broaden access to the UC. Online education can work best when it complements conventional courses and is not understood to be competing with in-person teaching. It can have positive effects in two directions: (1) in terms of internal growth, innovation, and improvement; and (2) in terms of external visibility, outreach, and educational and cultural impact.

Online education can be defined very broadly as courses that are offered via technological means to exchange information remotely. These courses may be offered in synchronous or asynchronous times, and may or may not include an in-person component in a hybrid format. Furthermore, these courses may be applied to degree requirements or may offered as a coherent curriculum leading to a degree. Currently, there are numerous undergraduate courses being offered across the UC, but no undergraduate degrees, and online graduate programs offering masters degrees, mostly in Engineering.

Internal Advantages

Internally and structurally, online education might be an effective tool to support and improve the time-to-degree rate, in particular for students who commute, have family or work obligations, or are unable to attend classes regularly for other reasons. When thinking about a strategy to develop and implement online education on our ten campuses, it is important to identify target groups at both the graduate and undergraduate levels. There are various ways in which online education might improve UC education and student success. For example:

- **Working adults**, professionals with defined interests and a clear goal in mind – they need the degree to move up on a career ladder they are already taking part of; these are an important target group already identified for online masters programs such as in Engineering. These self-funding programs are largely discipline-specific, and one-fits-all approaches are not applicable.
- Another potential target group are **students who dropped out** as undergraduates but are interested in finding their way back into the UC system. The inhibition threshold may be lower and the reentry easier if online classes are offered to make this transition.
- A third group are **transfer students**. They are joining UCs in larger numbers, and often times are not familiar with the expectations and the format of classes. By encouraging the use of UC online courses in community college curricula, prospective students could be prepared early on for the UC experience.
- A significant group would include **currently enrolled undergraduate students** seeking to satisfy degree requirements with classes that can more easily fit their schedules, or are more available or accessible than on their home campuses.

Another internal advantage might be the potential increase of the number of degrees per year without the correlating increase in the use of **campus space and resources**. In the virtual space of online education there are no physical classroom seats – a factor that might help alleviate the current space crunch on many UC campuses. Online education will allow the UC campuses to **build capacity, increase enrollment and reach a broader range of students**.

Online education can also help stretch resources by increasing access to courses or subjects not normally available or accessible at a campus. For example, students at UC Davis often enroll in online writing courses from UC Irvine to satisfy the University's Entry Level Writing Requirement, and students from UCLA often enroll in Spanish classes from UC Davis to satisfy a foreign language requirement.

The possible **variety** of technology-enhanced classes (fully online, hybrid, online enhanced) can be tailored for various class levels and, if done well, has the potential to enrich and **enhance the students' learning experience**. Fully online classes seem to make sense for repeatable classes of larger size with basic information for disciplines such as math, engineering, business administration and possibly others in the social sciences. A healthy **mix of online course types** seems to be a desirable goal. While there are studies (and opinions based on experiences shared by experts) indicating that students from non-academic and low-income backgrounds do not do as well in online classes due to a variety of reasons, there are support systems that can be implemented to improve their success rates. However, online education could help other students who do equally well or better online than in person and who could finish their degrees sooner due to the **flexibility in time management**, which is a clear advantage of online education.

External Advantages

The key question in the debates around online education seems to be whether the UC can afford NOT to have a coordinated vision for online education in place. Can a university of the 21st century 'dream big' without a well-designed and carefully implemented online strategy, for both UC students and a larger

public audience? While it certainly is not a magic formula to solve all classroom space and educational accessibility issues in higher education, two aspects that might help us think in favor of online education should be taken into account and discussed:

1. The changing viewing habits and learning strategies of younger generations of students; and,
2. The drastic changes in knowledge transfer, information ‘packaging’, and presentation strategies through the World Wide Web over the past decades.

Educational Problems and Risks

In our interviews and surveys with faculty and campus leaders, we sought not only the benefits of online education but also the risks of expanding it. Key risks to mitigate against are a potential differential impact on first-generation students, a reduction in sense of community among students on campus, the impact of reduced faculty presence on campus, and potential limiting of funding of other campus needs if state funds are redirected toward online education.

Some research has shown that **online learning disadvantages first generation and/or minority students**. In California’s community colleges, students are about 10 to 14% less likely to complete an online course successfully than a traditional course (Johnson and Cuellar-Mejia 2014). The results are worse for ethnic and racial minorities: African American and Hispanic students have respectively 17.5% and 9.8% lower online-course success rates than white students (Johnson and Cuellar-Mejia 2014). The better learning outcomes for in-person courses likely stems from more personal interaction, tangible role models, and faculty support than online instruction generally provides. This risk can be mitigated by employing strategies to reduce this success differential. For example, hybrid courses offer flexibility to students, while also providing an in-person component. Campuses and faculty should review other strategies to develop successful online courses, such as those detailed in the report “Successful Online Courses in California’s Community Colleges (Johnson, Cuellar-Mejia, Cook, 2015).

More broadly, there is a potential impact on all students of the **reduced personal interaction with other students and with instructors**. This concern is more salient if students take a high percentage of online classes. The risk is not just to the academic community but also to student life if fewer students are present on campus. Student engagement could be reduced, which would also negatively impact academic and personal student development. Much like residence requirements already in place at most campuses, campuses could choose to address this by requiring a minimum number of units in on-campus classes or a maximum number of credits that can be earned online.

A third area of concern if online classes were to become more prevalent is that it is likely to **reduce the time faculty spend on campus. This could impact the intellectual exchange with other faculty, and negatively impact** their participation in campus life and service. These negative impacts would be exacerbated by departmental conflict that might arise due to perceived or real differences in departmental service. Faculty presence is key to the intellectual community of a university. If there is reduced interaction among faculty, this could impact research collaborations as well.

A final risk to consider is **the potential weakening of funding for other campus needs** if resources are directed by the governor/state toward online initiatives. This could be mitigated somewhat if the investment in online courses yield savings in classroom construction, etc.

We outline these risks not to dissuade online education initiatives, but to be mindful of them so they can be addressed proactively when developing online courses and strategies.

Current Administrative and Structural Hurdles

The Innovative Learning Technology Initiative (ILTI) presentation to the Regents on May 23, 2018 stated the aspirational goal for the University of California:

An automated, centralized enrollment system, including a catalog of online courses available across UC campuses, allows UC students to easily search for and seamlessly enroll in these courses, leveraging the knowledge, expertise, and availability of courses at all nine undergraduate campuses.

Furthermore, the report also acknowledges “delivering outstanding education to engage and inspire across the academic spectrum requires a long-range, multi-faceted strategy, one in which technology plays an integral role.”

To realize ILTI’s goal and for UC online course programs offered by the UC campuses beyond the scope of ILTI to succeed, these current administrative hurdles and structural problems as shared by the various UC stakeholders interviewed must be addressed.

Differences in delivery of online education at different UC campuses

The strategy of each campus and the numbers of online or hybrid classes offered are in part driven by the student enrollment where campuses with a high percentage of residential students may find less demand for online courses than those with a high percentage of commuters. In addition, self-supporting graduate programs offered online have an expanded market including students from countries for which obtaining a visa is difficult. The perceived lack of a unified and clear vision of UC online education and the difficulty for campuses to reach consensus contribute to this challenge. Some stakeholders interviewed expressed a preference for campuses and the faculty to develop their online courses to take advantage of each campus’ strengths and disciplines offered. While ILTI provides funding to support and promote online and hybrid undergraduate courses, UCI’s Graduate Division (business and nursing schools) have developed their own funding structures.

Need for a robust set of campus-level and systemwide infrastructure and services

The disparate campus student information systems and learning management systems driven by campus academic policies, guidelines, and processes pose a challenge to inter-campus coordination and data sharing. For example, there is no articulation of courses across the UC system, as there is for

community colleges, and the burden is placed on the student to submit a syllabus to their home campus to request credit toward the degree. In addition, students who enroll from other campuses often don't show up in the learning management system until the last minute, which leads to students missing initial emails or assignments from their instructors. The listing of online courses available to all students offered by UCOP is also limited to ILTI and does not include other online courses offered by campuses.

Issues related to ADA compliance and copyright issues, alignment of online courses with the University of California Open Access Policy, the requirement to use a VPN by students in China to access online materials, and curation of online assets were also raised by stakeholders interviewed.

The design, development, implementation, and marketing of effective online courses and supporting services require financial and staffing resources. A development of a course requires a team which includes an instructional designer, a project manager, a video producer, and an instructional technologist and the process from inception to development may take months. Testing and proctoring services must also be accounted for. At UC Davis, the campus has paid for ProcterU, a proctoring service which now costs up to \$250,000 dollars per year, which will not be sustainable with growing online courses and online students. An argument for online cross-campus courses is that they can help to alleviate campus space issues. However, as these courses scale to capacity beyond what on-premises and local campus courses can accommodate, teaching assistants and support staff must be staffed and compensated. Specifically, if a cross-campus online course enrolls 5000 students, who supports them and pays for them?

Ideological Arguments and Other Hurdles

Utilitarian view

UC Regents and the State Legislature have framed online learning as a way to cut costs, which is extremely problematic. One panel hosted by President Yudof with leading online providers had a very utilitarian view: (1) More with less, (2) Access to more students, (3) More students earning 4-year degrees, and (4) Less need for additional buildings. This utilitarian view of more and cheaper may not be the right approach, and may not necessarily even be a viable approach.

Faculty skepticism

Faculty show some healthy skepticism about online education for the following reasons:

- Faculty do not see a coherent UC vision.
- Faculty are wary of more policing and interference from the Office of the President.
- Monitoring the quality of online education may be problematic.
- Faculty are hesitant to invest many hours in the time-intensive creation of online or hybrid courses, in particular when they are not convinced of the benefits. More time spent on creating courses translates into less time on research and grant writing.

- It is not clear how the prestige of faculty teaching online courses will be affected, how faculty time will be measured, or how development and teaching of online courses will be compensated.
- It is not clear how staff workload will be affected.
- Faculty fear that there will be a loss of campus culture and degradation of interpersonal exchange with students on campus.
- Faculty feel like there is an increasing commodification of education and that decisions behind a push for online are money-driven.

On the other hand, some of the skepticism towards online education is rooted in some faculty members' belief that online education is ineffective and lacks pedagogical benefits. As one administrator/faculty interviewed shared, "Faculty challenges are really about the fact that they don't understand what online learning is. They have their own ideas of what online learning means that aren't necessarily true or accurate. Many believe online learning doesn't involve critical thinking, so they don't like it. Many think online learning is like taking the mandatory cybersecurity training where you just watch a video."

Recommendations for Possible Solutions

Although online education offers many advantages and possibilities for technological advancements in providing access to the high-quality UC education, various UC stakeholders pointed out many educational, administrative and ideological hurdles associated with the expansion of online education. Several possible solutions and recommendations were proposed, which may help to overcome the hurdles based on the existing experience in online education and taking into consideration administrative structure, education values, resources, faculty and student needs.

1. Various UC stakeholders from administration and academic senate faculty underscored the differences in delivery of online education at different UC campuses. Although there was little support for a top down approach, it was recognized that there is a need for strong leadership from UCOP, a clear vision for UC online education and willingness to drive some consistency, guiding principles, and best practices. On the other hand, delivery of online education should take advantage of the unique strengths of each UC campus based on a bottom up approach, including the decisions on the discipline, student enrollments and faculty. Each campus and school should determine the broader implications of an expansion of online education based on the campus needs.
2. To ensure that online education will provide a high quality education, there should be a fully vetted, very rigorous formal approval process through the Academic Senate. Additional resources should be allocated in creating tools and evaluation processes for online courses to ensure effectiveness. Learning outcomes and a process for monitoring the effectiveness of online courses should be clearly defined. See below for an expanded discussion of metrics.
3. Online education should not be seen as a cost cutting measure, at the direction of the Governor's office. There are many flawed assumptions with the low-cost approach to online

education, and developing online courses requires more resources as compared to traditional courses. In order to deliver high-quality online education, investments should be made towards online learning, which should be viewed as an investment in the future education. Redesigning courses to improve student learning takes more time and resources. Hybrid courses might be the better model to start, which would optimize student learning and campus resources.

4. The resources can be effectively used towards building the necessary capabilities and expertise to design for quality in the digital realm. Funds should be allocated for instructional design teams on each campus recognizing online learning is a “Tool.” We need a deeper understanding of the technology tools in order to redesign traditional courses to become online courses, to ensure more interactions and to drive more engagement. This would include infrastructure, instructional design, and marketing. It would be also helpful to create a template with plug in for videos, quizzes, and other commonly used digital features.
5. Faculty engagement is critical. Each campus should engage faculty as true partners in digital learning and equip them for success. To offer faculty development programs that show examples in which courses are taught more effectively online and to leverage online learning effectively are first steps in changing faculty perspective of what online learning really means. Providing tools for instructors to utilize pedagogy more effectively in this new learning environment could also help engage faculty in online education. More funds should be allocated for professional education of faculty how to teach online and use hybrid classes more effectively.
6. Students are the most important group of individuals that would be affected by the expansion of online education. Each campus should be able to review credit for its own students and provide the support that students need to succeed in online learning. Various stakeholders emphasized priorities in offering more summer online courses and providing online UC transferable major preparation classes for transfer students from community colleges that do not offer the classes. The benefits of this plan are that the students can complete the UC transferable courses while enrolled at a community college.

Metrics for Evaluating the Effectiveness of Online Education

The UC’s involvement in online education should be an iterative process, and the metrics used to determine the baseline and progression of its activities will further refine and guide online education development. This section will discuss the factors that should be considered and a set of metrics for evaluating the effectiveness of online education. The three areas of focus are the following:

- Considerations for Developing Consistent Metrics
- The UC’s Commitment to Diversity, Equity and Inclusion
- Cost Considerations

The selection of metrics was informed by, and in alignment with, the systemwide Innovative Learning Technology Initiative's (ILTI) strategic goal of performing research and analysis of the efficacy of the program. ILTI has started an initiative to:

- **Develop Analytical Tools:** Develop a longitudinal data analytic practice focused on online learning outcomes, program effectiveness, and program operation.
- **Analyze and Enhance Learning:** Support and augment campus efforts to utilize data-driven approaches to analyzing instructional strategies and enhancing learning outcomes.
- **Evaluate and Disseminate Information:** Plan and conduct program-wide evaluations of ILTI courses and ILTI projects; prepare and disseminate information broadly to stakeholders, including students, staff, faculty, administrators and external audiences.

Considerations for Developing Consistent Metrics

Recognizing the need for consistent metrics for analyzing the successes and challenges of online programs within the UC, the following questions were used to define the factors the metrics needed to address to inform and guide future development:

1. How do we measure success?
2. Who are the students reached through online education?
3. How do underserved students benefit from online education?
4. What are the costs of online education?

Each question is answered in detail below, and will be followed by proposed metrics.

1. How do we measure success (course completion, reducing time to degree completion, meeting course learning objectives, etc.)?

Success will be measured by a myriad of factors, many of which may have an inverse relationship. By way of example, one metric might measure the campus activities of online students as compared to the campus activities of on-campus students as the UC recognizes the value of student interactions on campus. This metric might have an inverse relationship with other success metrics measuring the number of classrooms needed for classes or the time it takes to complete a degree.

2. Who are the students reached through online education?

The following infographic provides demographics and motivations as to why some students find online courses/programs appealing across the United States:

WHO ARE THE ONLINE STUDENTS?

80%

80% of online students live within 100 miles of a campus or service center of the institution they attend.

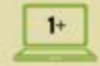


46%

46% say their biggest motivation to enroll was to advance their current career.



37% of online students were the first in their family to attend college.



32% of higher education students now take at least one online course.

33% study business



More than 80% of online undergraduate students have transfer credits.

15%

15% - the largest proportion of online students - study at the **University of Phoenix**

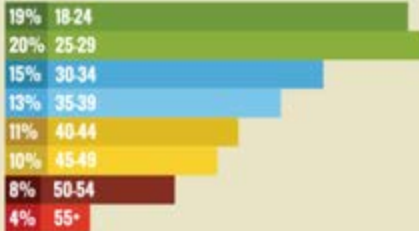


ETHNIC DISTRIBUTION

62% Caucasian 19% African American 9% Asian or Pacific Islander
8% Hispanic 1% Native American 1% Other



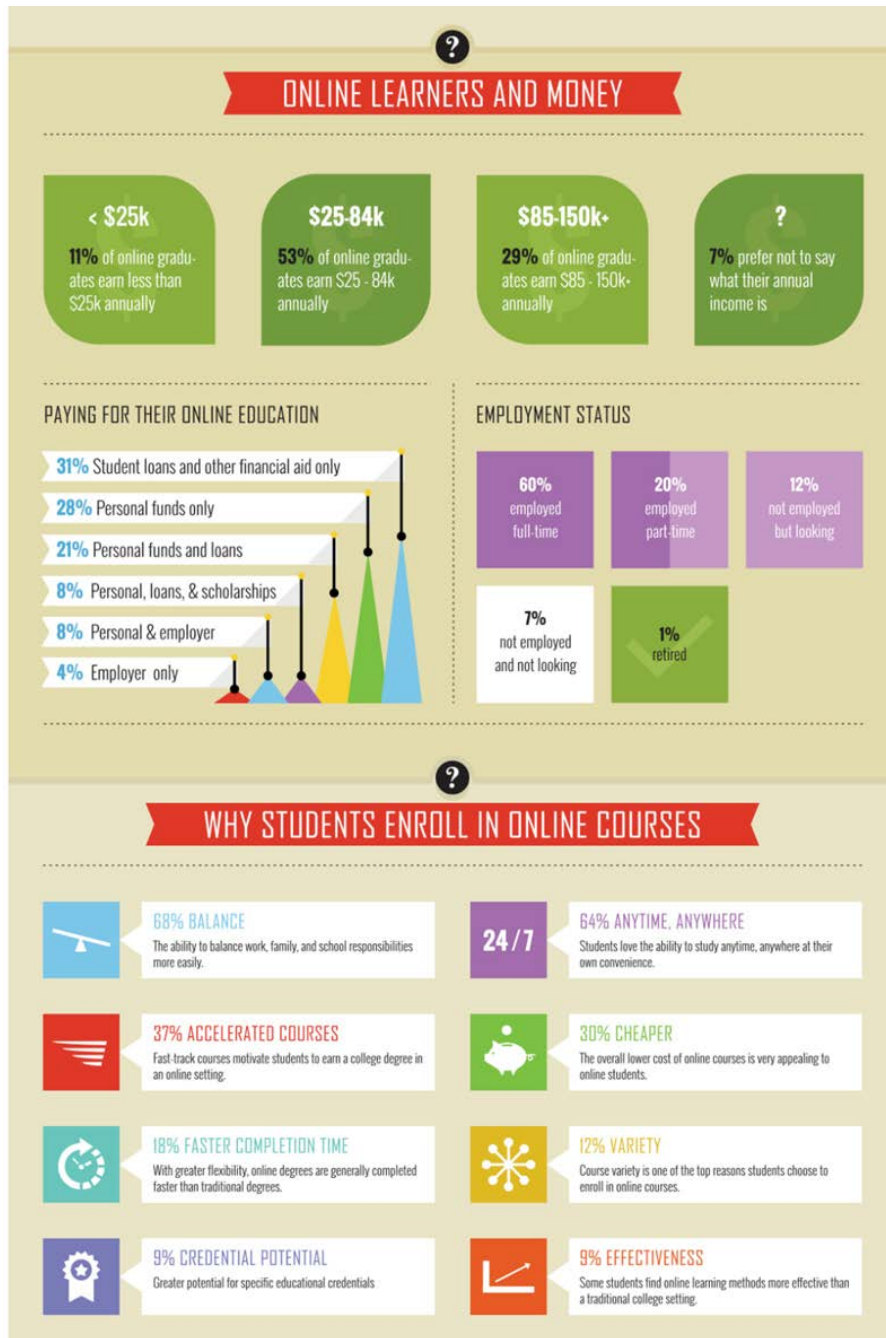
AGE DISTRIBUTION



70% Female

30% Male





While this information is not specific to UC, it does provide a tantalizing view of the students interested in online learning nationally and this information could help guide and inspire UC's efforts. When considering the UC's goal of providing for the educational needs of a diverse student body, it is helpful to consider the following demographics about the current population of online students, nationally:

- 60% of online students are working on a full-time basis
- 53% are earning \$25,000 - 84,000 annually
- 70% are women
- 62% are Caucasian

- 19%, the next largest group, are African American
- 37% are the first-generation university students
- More than 80% have transfer units
- Average age is 32¹

The most common reasons for enrollment are:

- 68% find it easier to balance work, family and school responsibilities;
- 37% cited that faster graduation time encourages students to earn an online degree; and,
- 18% need greater flexibility; online degrees are generally completed faster than traditional degrees.

The online population may be a viable source of students for the UC as the majority of the online population lives within a relatively short distance of universities or colleges. U.S. News & World Report stated, "In 2016, 56.1 percent of students who took only online courses resided in the same state as their institution – a figure that has risen steadily from 50.3 percent in 2012."²

We caution that these statistics are a biased sample: They represent those for whom the current online offerings are best suited. It could be that with a different approach to online education, the demographics of those engaged in online education would change. However, these data do suggest that students who would most immediately benefit from UC online educational programs include the following.

A. Students Pursuing Professional Graduate Degrees

- Graduate programs for professionals are one of the areas where online programs have been very successful. These students are working in an industry and have many personal commitments. They often cannot afford to go to school full-time, or handle the commute for part-time on-campus programs. They are usually very motivated and know what they are looking for.
- Many students in such professional master's programs may not have the background to jump into graduate courses in their area of interest. Their goals may also be different from PhD students interested in research. Thus, it is necessary to develop course sequences that include senior undergraduate courses, applied industry-oriented courses, and PhD courses. It appears that simply including PhD-level courses does not work as it caters to students with a limited background and would not increase the UC's goal of serving the underserved. However, online education might be able to supply the "bridge coursework" necessary, while providing needed flexibility to the students

B. Transfer Students

¹ <https://www.usnews.com/higher-education/online-education/articles/2018-01-11/study-more-students-are-enrolling-in-online-courses>

² <https://www.usnews.com/higher-education/online-education/articles/2018-01-11/study-more-students-are-enrolling-in-online-courseshttps://www.usnews.com/higher-education/online-education/articles/2018-01-11/study-more-students-are-enrolling-in-online-courses>

- California Community Colleges (CCC) prepare students to transfer to the UC. UC-transferable online courses may augment the courses currently being offered by the CCCs to ensure students are more prepared and most efficiently using their time at the CCCs. They could, furthermore, be tailored to the needed of particular degree programs at particular campuses.
- This solution would provide a more equitable offering of courses to all CCC students, including those in colleges with fewer resources. In this way, students can complete the UC transferable courses while enrolled at their CCC, and if the CCC is reimbursed at the same price as the classes they administer, the program is cost-neutral to the students and the CCC. This solution may also aid the UC's goal to issue more degrees per year without increases in the physical infrastructure, e.g., housing units, library space, dining, parking.

C. Lower Division Students

- Throughout the UCs, some students have found it difficult to take lower division classes or “gateway” courses in a timely manner. Online education may alleviate the bottleneck on highly impacted courses³.

3. How do underserved students benefit from online education?

The type of students that stand to benefit from online education might surprise us. While some studies of online education might lead us to believe that online education is less effective in reaching first-generation university students or students from under-represented groups, other studies have shown that may not be the case.

The studies consulted, as well as the CORO Team interview with UCR Provost, Cindy Larive, suggest that online education is one way of reaching many California residents who would otherwise not be able to access a UC education. In this section, we point to a number of students, including underserved students, who have benefited from the increased access online education provides.

Non-traditional students – students including people who are older than the average student and/or working parents, especially working mothers.

Students with severe disabilities – Students with conditions such as autism have also successfully completed UC-based online courses where a traditional classroom may have been an ineffective learning environment⁴.

More information on UC online offerings and programs such as “UC Scout” that target nontraditional students, students with limited financial means as well as students with severe disabilities can be found on the UC website⁵.

³ <https://www.ucop.edu/uconline/about/uc-online-education-faqs.html>

⁴ See “The Free Online Courses that are Putting College in Reach” Feb. 22, 2018, by Nicole Freeling, UC Newsroom

⁵ See: UniversityofCalifornia.edu/subjects/term/academic-preparation

4. What are the cost metrics of online education?

While online education may seem to be a panacea for bottleneck courses, a way of providing “virtual seats” and increasing access, there are significant startup costs in developing the infrastructure and training necessary to create the courses. The following staff are typically needed for the development and ongoing administration of an online course:

- Subject Matter Experts (SME’s) who develop the text and are the “lecturer” in the online course
- A Design Group/Team mainly consisting of:
 - The Instructional Designer
 - Videographer/Producer
 - Video Editor
 - Instructional Technologist
 - A linguist, depending on the course content

Additionally, there are maintenance costs, both technological and in terms of teaching assistants and instructors who need to monitor and evaluate the students. Other cost considerations include the maintenance of the course and content, and the costs of the Learning Management System (LMS).

Understanding the types of costs will better enable the UC to make decisions about the wisest use of valuable resources.

Proposed Metrics for Success

The metrics listed below are suggestions, as this is an emerging area and will likely require additional study and refining. The metrics reflect a holistic review and include campus specific and systemwide metrics as guidelines for what success might mean, both to the campus and to the system as a whole:

- A. **Student involvement in campus activities** – This metric would measure the number of students taking online courses vs. students taking in-person courses to determine if one group of students is more involved in campus activities and/or student groups. The goal is to measure the effect of online education on the campus environment for students.
- B. **Faculty involved in campus activities** – This metric would measure the campus activities of faculty teaching online courses vs. faculty teaching in-person courses to determine if one group of faculty is more involved in campus activities and/or faculty groups. The goal is to measure the effect of online education on the campus environment for faculty.
- C. **Student course evaluation scores** – This metric is will compare scores of online and on-campus courses when the same course is offered in both venues to ensure students are learning equally well online as they are in person. This metric would quantify the difference in student performance between both courses.
- D. **Faculty course evaluation scores** – This metric will compare faculty teaching evaluation scores of online and on-campus courses when the same course is offered in both modalities to determine where students are most effectively learning the material. This metric may also

provide insights as to what learning modality is best suited for particular students, faculty or courses.

- E. **Student engagement with their coursework and professors** – This metric will monitor students completing required coursework and interacting with professors at various stages of the course. Presumably, students who are more engaged will perform better and complete the course. Students who are less engaged, may perform worse and have a higher class drop rate. This metric would identify students who are not engaged in order to provide additional tools or interventions, and may also be used to determine best practices for the courses.
- F. **Growth in students taking online course offerings** – This metric would compare the percentage of students enrolled in at least one course online each year vs. overall student enrollment. The metric would also identify the year over year growth of students completing courses where some portion of the course is offered online. This metric will provide more information about the number and types of students taking and completing courses online.
- G. **Growth in breadth of students taking all types of courses** – These metrics would be based on demographics (age, location, marital status, with or without children, gender, etc.) and other factors (remedial needs, amount of credits needed to finish degree, etc.) of students taking some portion of courses online vs. students taking all in-person courses. Given the UC's commitment to Equity, Diversity and Inclusion, this metric would provide information about how online courses are reaching and engaging all types of students. This metric would also help determine if the students' goals are being satisfied by the online program and if the right courses are being offered to ensure these goals are satisfied.
- H. **Growth in online course offerings** – This metric would compare courses where some portion of the courses are offered online vs. the number of courses which are all in-person. This metric will help track the progression of online learning courses and the growth of online tools being used in primarily in-person courses.
- I. **Student on-time graduation rate** – This metric would compare on-time graduation rates of students who took some portion of courses online vs. students who took all in-person courses. Another variation would also include a third group of students who take both online and in-person courses. Their on-time graduation data might offer a useful comparative tool. This will help evaluate the role online education plays in student's ability to graduate on time. Data might also provide interesting information about students who work in a combined online and in-person format.
- J. **Student graduation rate** – This metric would compare overall graduation rates (regardless of how long it took) of students who took some portion of courses online vs. students who took all in-person courses. This is needed to evaluate the role online education plays in student's ability to graduate.
- K. **Faculty support** – This metric would measure faculty support of the growth of online courses. One possibility is to survey faculty about their expectation before online classes start and then upon completion of their first online course. If the course is repeated, another metric may be

added, which follows the changing perception of the effectiveness of the course in the eyes of the faculty member who is teaching it.

- L. As discussed earlier, some faculty have reservations about the efficacy of online education, be it wholly online or in hybrid format. To that end, the faculty support metric may provide a way of measuring ongoing and evolving perceptions about online education.
- M. **Success of students in subsequent classes of the same sequence** – This metric would be used to compare students' level of learning between online and in-person courses. For classes where students have the option to take some portion of the class online, the metric would compare how well students who take some portion of courses online do in subsequent classes of the same sequence vs. students taking all in-person courses. The goal of this metric is to determine if students learn equally well online as they do in-person, or if there are differences among students, faculty or courses that lead to more successful outcomes.
- N. **How well online degree students perform in a graduate or other professional programs** – This metric would be used to compare the progression of online vs. in-person students in PhD programs. The goal of this metric is to determine if there are qualitative differences between education learned online and in-person.
- O. **Measure the acceptance rate of online master's program graduates to PhD programs** – This metric would be used to compare the acceptance rate of online education students to in-person students. The goal would be to determine if the online learning is a benefit or detriment in acceptance decisions, and to provide additional information to develop best practices for students, faculty and courses.
- P. **Measure employment success of graduates with online degrees** – This metric would be used to compare the employment rate of online education students to in-person students, as well as the extent to which employers value in-person and online degrees, and the qualities future employers desire in students.
- Q. **Determine cost of online learning vs. on-campus programs** – This metric is needed to determine the costs of online, in-person and hybrid courses to (1) identify the value proposition the various modalities; (2) identify the best practices for each type of modality; and (3) budget effectively for expenses of online learning.
- R. **Determine use of classroom space** – This metric will measure the number of courses taught per classroom. With limited resources, it is important to understand the volume of class use and current growth to project future needs. The ability to provide some courses online may alleviate some of these constraints. For example, if an in-person course uses 3 hours per week of classroom space, given a 9-hour day and 5 days per week, we can accommodate 15 courses in one classroom. If we move 1/3 of the classroom time online, this frees up 15 hours per week of classroom space. This would allow the opportunity for another 5 courses to utilize the classroom.

How can UC utilize these metrics to drive support for online education?

Online education has the ability to improve access for all students, particularly disadvantaged Californians who are underserved by the State's higher education system. The UC may use the Metrics for Success described above to better understand and then shape online education to meet any particular systemwide need, e.g., relief from bottleneck courses, accommodations for disabled learners, outreach to disadvantaged Californians or increased graduation rates and on-time graduations.

The UC may also use the Metrics for Success to support online education through feedback for program improvements. Both student and faculty metrics will be able to provide their insights about their unique challenges and areas of growth as the online program matures.

The use of student demographics will aid in selecting courses that maximize outreach efforts. Underserved student populations can be identified and supported. Cost metrics can be used to determine if online education is a cost-competitive alternative to classroom expansion. The combination of all these metrics can be used to evaluate the overall feasibility of online education as an addition to traditional methods of instruction. The benefits of online education may then be evaluated on a financial dimension, but more importantly on the service it provides to all Californians.

Conclusion

In addition to enhancing the educational experience of current students by making classes accessible and improving time to degree, online education has the potential to make the University of California prestige accessible to new, diverse, qualified and larger groups of interested learners and students. A carefully curated and concerted UC online initiative has the potential to promote not only the dissemination of knowledge and quality education but also the UC's unique culture and its core values of diversity, inclusion, excellence, and innovation. Online education is an ideal vehicle to share UC's vision of the future and leave its mark as an innovative public institution and a trailblazing intellectual 'think-space' in higher education.

Given UC investment in the future, and with a clear vision based on the foundational pillars of the UC, online education can be an important additional component making our university a driver of change in 21st century education. Although ILTI was instrumental in opening a door to UC online education and in early stages of implementing the UC online initiative, involvement of all stakeholders in the development and implementation of a rapidly changing online education environment is critical to address a number of issues and overcome educational and technical hurdles of on-line education.

Recommendations

In order to create a successful system wide strategy for online education, UCOP should work collaboratively with the campuses to provide the broad strategy and allow campuses to experiment and find options that work best for their respective constituents.

1. Creation of a Systemwide Task Force.

Each campus's staff, faculty, students, and administrators must feel supported by a clear vision for the role of online education in UC, articulated by both Senate and Administrative leadership. We propose to establish a Task Force that represents the Academic Senate, UCOP stakeholder representatives, campus high-level administrators or other stakeholders in student success, and student representatives. The Task Force must be able to speak with authority to all constituents in the UC. The Task Force will be well positioned to draft policy reflecting common existing philosophy and practices, identify and overcome hurdles, and define criteria and metrics to monitor the success of UC online education.

This body should be tasked with the following:

- Performing a comprehensive review and analysis of existing UC online education to determine educational and technical hurdles of online education,
- Determining and articulating a UC-wide vision and mission for online education that also accounts for campus-level variations,
- Developing guidelines and recommendations how to emphasize educational value of online courses and faculty contributions in development and implementation of online courses, including possible changes to the Academic Personnel Manual to give faculty credit for creating new online course for merit advancements and promotion, and creating faculty service time policy and work schedule procedure,
- Drafting policy reflecting common existing strengths, practices and philosophy, and,
- Developing guidelines for campuses to determine their priorities and implementation processes within the UC vision and mission of online education.

This task force will need to grapple with the following through consultation and research:

- Determining hurdles online learners may face and develop tools to mitigate challenges,
- Determining hurdles faculty teaching the courses may face and develop tools to mitigate challenges, and,
- Identifying UC's role relative to other institutes of higher learning, acknowledging other institution's head starts in this area.

Our review of online education suggests that the answers should strengthen the physical campuses by supplementing current educational paths in ways that will allow more students to take part in the UC-wide and campus-specific cultures. It is important to clearly delineate what types of online education are part of UC, much as UC differentiates its educational mission from those of the CSUs, community colleges, and private universities in the state. Without such a clear statement, many faculty, staff, and students are unclear whether or how they fit into online education at UC.

2. Subsequently, more detailed work groups...

Drawing on expertise in learning development, community partners, market research, technical support, and other areas, both at the system AND campus levels, should address the following, with guidance from the first task force:

- Defining the role of UCOP, Campus-level Administration and Academic Senate in the development and implementation of online education,
- Developing metrics and criteria for monitoring learning outcomes and the effectiveness of online education, and
- Developing a strategy for a formal approval process through the academic senate to ensure that online education will provide a high quality education

3. Delivery of online education...

Should take advantage of unique strengths at each UC campus based on a bottom-up approach, including the decisions on the discipline, student enrollments and faculty. Each campus and school should determine the broader implications of an expansion of online education based on the campus needs.

We recognize that this will be a phased or iterative process and the UC cannot complete all of the goals at once. Some of the phases may include:

- Hybrid courses for current students,
- Fully online courses for current students,
- Courses for transferring students,
- Courses for reentering students,
- Degree programs (undergraduate and graduate),
- Interchangeable courses that may be used at all campuses (perhaps for areas of consistency or to alleviate bottlenecked courses or decrease time to degree), and,
- Courses in partnerships with community colleges.

Critically, each campus should find a path that works for its own culture, students, and approach.

Call for Action

This project is a call for action to develop and implement a systemwide strategy for online education that allows for increased focus on campus-level development and implementation, clarifies credit and costs for online education, carefully monitors educational quality, and targets students for whom a little online instruction can make a large difference. Senate involvement, faculty engagement, and benchmarking with other institutions that maintain online programs are crucial.

Online education is a potential piece of the puzzle to address critical issues facing UC: educational access, graduation rates, and reaching new populations. In this model, there would be no one formula for success. The Task Force provides broad direction, but each campus may pursue its own strategies in

Online Deliveries to meet varying on line education needs and audiences. One campus might pursue a full online degree program while another pursues only courses towards degree completion. The thorough evaluation and sharing of all campus program strategies would enable UC to discover which programs are most effective over time.

With the right support, online education can enhance UC campus-based education. Online education can strengthen the UC pillars of access, diversity, excellence and inclusion and will further enhance UC's contribution toward social mobility for both current students as well as potential students who do not have access to a UC education.

Appendix A

In addition to the stakeholder interviews described above, we collected quantitative data from the UC Registrars that examined enrollment, courses and programs on each campus. We also gathered qualitative data via a survey of faculty and staff regarding attitudes toward, experience with, and perceptions of strengths and challenges in online education. One campus also provided student perspectives on their online educational experience.

The summary that follows reflects input from sixty UC faculty and staff involved with online education. The summary describes their attitudes toward, experience with, and perceptions of strengths and challenges in online education at both the undergraduate and graduate levels. It also describes their considerations regarding ways that a systemwide online education program might benefit campuses.

Respondents

On August 13, 2018, we emailed the survey to 154 members of the UC staff and faculty who are involved in some way with online education at the UC. The sixty respondents represented nine campuses as follows:

Location	# of Respondents
Berkeley	3
Davis	7
Irvine	16
Los Angeles	5
Merced	1
Riverside	7
San Diego	8
Santa Barbara	4
Santa Cruz	8
No response	1
TOTAL	60

Survey Overview: Undergraduate Online Education

- There are no UC campuses with an online undergraduate program, defined as “a curriculum consisting entirely of online courses that will lead to a bachelor’s degree.” Respondents perceive the following primary goals for undergraduate online education:
 - To increase accessibility of courses,
 - To increase flexibility for students, and
 - To facilitate degree completion.
- Respondents perceive the leading challenge with undergraduate online education to be the burden that online courses place on students to be self-motivated to regularly connect with the course materials and disciplined in their time management.

- As ILTI grants have motivated the movement of traditional courses to an online format, we also asked about the benefits and challenges of working with ILTI. Nearly half of the respondents referenced ILTI resources (funding, equipment and software) as the primary benefit of working with ILTI. A large proportion also touted the strengths of the instructional designers. Responses on the challenges of working with ILTI were a bit more varied, with the most common challenges centered on the complex administrative processes which are layered and time consuming.

Survey Overview: Graduate Online Education

UC graduate online education is more limited than undergraduate offerings and is generally geared toward professional-level continuing education programs with an aim toward revenue generation for the home campus.

- 53.4% (31 respondents) indicated that their campuses did not have an online graduate degree program, while 46.6% (27 respondents) indicated that their campuses did have such a program.
- Respondents perceive the following primary goals for graduate online education:
 - To increase professional development opportunities,
 - To increase flexibility in scheduling for post-graduate and professional degree students, and
 - To increase revenue generation for the school.
- Respondents perceive the leading challenge with graduate online education to be the burden that online courses place on students to be independent and able to manage their time. Additionally, respondents noted that maintaining a sense of high touch and connection among students was also challenging.
- The most commonly mentioned online program challenges are issues of perception (e.g., the quality of the program), advertising and marketing the program, and support for faculty to develop and maintain the online courses.
- Respondents provided a number of suggestions that might ameliorate some of these aforementioned challenges including policies and procedures, better coordination, and funding.

Perceived Benefits of a Systemwide Online Education Program

- Respondents noted that a systemwide online education program has the potential to create opportunities for student success by offering greater course accessibility (e.g., learning at a distance, reducing impacted classes, increasing cross campus enrollments).
- Respondents also noted that a systemwide online education program has the potential to be a valuable support for campuses and faculty by facilitating interdisciplinary connections between campuses and developing best practices.

Survey Detail: Perceived Goals of Undergraduate Online Education

The 60 respondents identified seven goals of undergraduate online education at the UC. Please note that the total number of respondents identified below exceeds the total number of survey respondents because many respondents articulated more than one perceived goal.

Perceived Goal of UG online education	n
To increase accessibility of courses	19
To give students greater flexibility	14
To provide a quality education	13
To facilitate degree completion/improve time to degree	10
To improve the learning experience	7
To relieve enrollment pressures	3
To reduce costs/generate income	3
TOTAL	69

Respondents generally indicated that their campus does not yet meet these perceived goals. The one exception was in the area of providing a quality education through high quality online courses: more respondents perceived their campus to be meeting this goal than not. In addition, when respondents commented on whether their campus currently met other perceived ancillary goals regarding matters such as overall strategic plan for online education or technological support for faculty, they generally responded that their campus does not yet meet these goals.

Perceived goal	Meets goal	Does not meet goal
To increase accessibility of courses by increasing number of courses offered	2	7
To give students greater flexibility/improve the learning experience	0	3
To provide a quality education by providing high quality courses	7	5
To relieve enrollment pressures and reduce costs	2	0
TOTALS	11	15

Other perceived ancillary goals	Meets goal	Does not meet goal
To have a comprehensive strategic plan	0	3
To provide faculty resources & support	3	11

Other perceived ancillary goals	Meets goal	Does not meet goal
To facilitate campus integration/communication	0	5
To provide technology for online courses	2	5
To provide technological support to faculty	1	1
To provide advertising	0	0
TOTALS	6	25

Perceived Challenges

The leading challenge articulated by the survey respondents is that students need to be self-motivated to regularly connect with the course materials and disciplined in their time management. Many comments referenced students' inaccurate perceptions that online courses take less time than traditional courses as problematic for student success in online courses. Respondents also noted the technological challenges students faced by having an inadequate set up for online learning (e.g., lacking required webcams, poor internet connection speeds).

CHALLENGES (n=55)⁶	
Engaging/connecting with students	5
Students may not be self-directed learners (difficulty with time management, discipline), self-motivated	26
Student experience with and expectations for online education (e.g., time commitment, depth of course)	7
Lack of campus infrastructure (orientation, technological support, course articulation)	9
Technology (lack web cam or poor internet connections, navigating technology)	9
Building sense of community among students	3
Student apprehension to online education	2
Student resentment (due to working harder than in face-to-face classes)	1
Perception that online is not as strong as face-to-face	1

⁶ Respondents may have identified more than one challenge.

CHALLENGES (n=55)⁶	
Students feeling forced because traditional offering not available	2
Coordinating offerings between campuses (e.g., semester vs. quarter system)	2
Hybrid could be too time consuming for some students	1
Hard to offer hands-on learning in online courses	1
Lack of offerings for existing programs	1

Perceived Benefits of Working with ILTI

Nearly half of the respondents referenced ILTI resources (funding, equipment and software) as the primary benefit of working with ILTI. A large proportion also touted the strengths of the instructional designers. Additionally, respondents expressed positivity around the general concept of online education as a means of transforming the learning experience as well as offering a way to connect the larger UC system.

BENEFITS (n=54)⁷	
Working with an organized, funded unit	2
Instructional support network for building online courses	18
Resources (e.g., financial, equipment, software). Financial benefit and expertise in staff to build courses was a common comment.	24
Community for innovative pedagogy	10
Cross campus offerings	10
Provides alternative course offerings for students needing classes	1
Flexibility in course development	2

Perceived Challenges of Working with ILTI

Responses on the challenges of working with ILTI were a bit more varied, with the most common challenges centered on the complex administrative processes which are layered and time consuming. Additionally, respondents noted difficulties in communication from ILTI with campuses and across campuses.

Although respondents appreciated the opportunities for cross-campus interactions, they also noted the challenges from a range of issues including semester vs. quarter systems, difficulty in accessing cross campus student information, and course articulation. This related to comments on infrastructure

⁷ Respondents may have identified more than one benefit.

challenges such as technological integration. Importantly, a number of respondents also noted no issue whatsoever in working with ILTI.

CHALLENGES (n=54)⁸	
Comment specifically stated no concerns or issues in working with ILTI	9
Reporting method consistencies	1
Limited number of staff supporting many campuses	1
Limited resources (e.g., licenses for zoom)	2
Grant application (time-consuming, varied time to decision)	3
Infrastructure (e.g., technological integration, cross listing challenges, different LMS)	5
Transforming the faculty mindset	2
Access to cross campus student contact information	1
Courses approved for ILTI may not be high-needs courses that help students' time to degree	5
Goals are unclear; unclear expectations or follow-up	2
Cross campus offerings (difficulty in articulation, uploading of grades)	9
Lack of academic leadership to support this initiative	2
ILTI lack of understanding of how things operate on a campus	2
Complex processes for ILTI grant recipient (budget reporting, administrative layers)	13
Complex processes for student (enrollment, withdrawal)	3
Communication (advertisement between campuses, UCOP committee, with campus)	9

Graduate Programs

Generally, the data indicates that the graduate level online programs across the UC are much more limited than online undergraduate courses. The graduate programs are generally geared toward professionals and are seen as a revenue generator for the home campus. Feedback on the quality of the program was generally positive. Respondents felt neutral (3) or positive (9) about how well the programs were meeting the perceived goals. Perceived goals generally fell into three categories: 1) professional development opportunities, 2) flexibility in scheduling for post-graduate and professional degreed students, and 3) as a revenue generator for the school.

Goal	n
Professional development	9
Flexibility in scheduling	7
Generate revenue	5
Total	22

⁸ Respondents may have identified more than one challenge.

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