



CLASS INTERRUPTED

Faculty Needs in the Time of COVID-19

California Education Learning Lab | July 2020

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Summary

The COVID-19 outbreak and subsequent transition to remote instruction posed unprecedented challenges for the students and faculty of California's institutions of public higher education. In order to better understand faculty experiences and needs in this situation, the California Education Learning Lab put out a questionnaire (see Appendix B) in April 2020 inviting faculty to share their experiences of the transition to remote instruction and to discuss their needs and the needs of their colleagues in light of this new educational environment. In addition, Learning Lab staff spoke with senior representatives from segmental learning technology offices as well as additional faculty to understand how segments and campuses managed the transition. More than 30 faculty and administrators informed this report through responses to the survey, direct interviews, and verbal feedback during group meetings.

Administrative and faculty responses underscored the prodigious accomplishment of California's institutions of public higher education in transitioning to remote instruction. Faculty overwhelmingly rallied to meet this challenge in the face of considerable difficulties.

Responses equally, however, revealed the limitations of the transition: while campuses successfully shifted to remote instruction, faculty had little or no opportunity to redesign courses for a new instructional environment, and sometimes

both students and faculty lacked equipment to make online learning successful. Taken together, responses from segmental administrators and faculty from institutions across California point to three primary areas of continuing need: student access to remote instruction; training for faculty; and technological infrastructure and resources.

During the transition to and first months of remote instruction, campuses and faculty often had limited capacity to address these needs fully. There is widespread appreciation that the summer months are critical for preparing for the continuation of remote instruction and creating a better experience for students.

Significantly, although administrators and faculty members emphasized the enormous challenges facing campuses and students, some also identified opportunities within this difficult period. In particular, the transition to remote instruction creates an opportunity to rethink assessment along more equitable lines. It may also encourage both the development of new, effective instructional resources and greater adoption of online resources on the part of faculty.

The Transition to Remote Instruction

The rapid transition to remote instruction during the spring was extremely challenging both for students and faculty. Faculty and administrators alike related that the transition occurred in an environment of "crisis" with little opportunity for

preparation or detailed planning. One faculty member described the experience of transitioning to remote instruction as “fraught” with “different people responding in different ways to identify and achieve their instructional and personal goals.” Another related, “My experience, and that of the vast majority of my colleagues in our department/campus, has been that of a mad scramble to do as best we can under the circumstances, but with nowhere near enough time, training, resources or support to do what we would consider a very effective or satisfactory job.”

Many faculty and departments rallied to switch from in-person classroom environments to remote instruction in a matter of days or over a weekend. Predictably, however, many faculty reported frustration with regard to the overnight transition and the resulting remote instructional environment. According to one professor, while their department was “managing,” “[w]e don’t feel good about the teaching we’re doing, but we don’t have time to make it any better this semester.” In some cases, where it was possible to delay transition by a week, faculty and administrators agreed that the move to remote instruction was smoother as that window provided time to train faculty and allowed them to be more thoughtful about the reorganization of their courses.

Across the board, faculty reported that the rapid transition made it impossible to redesign courses adequately for an online environment or apply best practices for

online instruction. However, within the timeframe and context of the crisis, some respondents emphasized the importance of maintaining perspective. One professor with experience in professional development and education research observed, “It is not appropriate for faculty to expect themselves to suddenly transform their work to ‘best practices for online instruction’ (and not appropriate for anyone else to have such an expectation).” As segmental administrators similarly emphasized, faculty transitioned to remote instruction; they were not providing “online classes.” Instead, under the circumstances, the most that faculty and departments could realistically accomplish was to make available what another professor referred to as “minimally viable courses.”

“[We had] nowhere near enough time, training, resources or support to do what we would consider a very effective or satisfactory job.”

While faculty members on the whole struggled with the challenges of transitioning to remote instruction, several respondents reported relatively positive experiences. One faculty member observed that students in their Zoom lecture were interacting with another and answering each other’s questions through the chat function. Another reported that they were able to build community within their class by deploying learning assistants to Zoom breakout room where students could work

collaboratively. Meanwhile, one faculty member reported that at their campus students had generally responded “positively” and with understanding to the situation. This respondent also observed, however, that it was unlikely that this “honeymoon phase” would last. Moreover, faculty were well aware that the transition to remote instruction often placed the greatest burden on those students with the greatest need.

Ultimately, responses suggest widespread recognition of the need for more engaging, sustainable, and effective approaches to remote instruction. One faculty member stated, “...for many faculty the challenge is finding engaging assignments and activities that take the place of lecture. Students are getting burned out by zooming so much.” Another faculty member wrote, “Many/most online instructional materials are not interactive, do not provide adequate feedback, and can leave students stranded and frustrated.”

Both administrators and faculty indicated that summer would be a critical time for campuses to address needs and further help faculty adapt course curriculum and pedagogy. High priorities included: scaling the infrastructure for remote learning beyond the use of LMS’s (learning management systems) and Zoom; identifying or developing more robust instructional materials, especially materials that can support asynchronous learning; and providing sustained professional development to allow for the effective

deployment and implementation of those materials.

Areas of Need

Administrators and faculty identified three general areas of need in the transition to remote instruction:

- > Student Access
- > Training for Faculty
- > Technological Infrastructure and Resources

Student Access

Faculty and administrators agreed that one of the greatest areas of need is student access, both in terms of access to necessary computing technology and access to the internet.

Issues of student access were a consistent feature of responses from faculty and administrators across segmental boundaries. Responses nevertheless underscored that the level of student access varied among segments and campuses. For example, one respondent from a UC campus reported that access to technology was less of an obstacle for students than expected; instead, the challenge for the students centered on living in environments where it was difficult for them to study because of noise or distractions.

Faculty from community college and CSU campuses, however, repeatedly emphasized the challenges that some of their students faced finding reliable internet access or adequate computing equipment.

To underscore its student access issues, Foothill-De Anza Community College District highlighted that 20% of its students were underequipped either in terms of internet access or computing equipment.

In addition to these basic access issues, responses indicated that access to specific technology, and the know-how to use technology also posed challenges. One faculty member reported that some students did not know how to use the interactive PowerPoint application

deployed by their campus for recorded lectures or how to upload materials to the course webpage. This same faculty member further reported that the laptops issued to students were unable to display features used in professors' PowerPoints.

Meanwhile, segmental administrators observed that many students only have mobile devices, but faculty did not necessarily design sites, resources, or assignments that could realistically be accessed on mobile devices.

Assessing Student Technology Readiness

UC Davis' Assistant Vice Provost for Educational Effectiveness developed and deployed a Tech Readiness Tool (piloted in Spring 2020) that helped faculty use survey results to better understand the needs of students who were enrolling in their courses. Both general campus-wide survey results and course-specific results by faculty member were made available to all faculty through the Know Your Students Tool.

Of all students surveyed campus-wide during 2020, in terms of their familiarity with remote instruction:

For lectures videos and discussions:

- 18.1% have never watched a Lecture Capture video.
- 47.8% have never participated in a video conference or discussion.
- 32.1% have never participated in an online discussion forum for class.

For homework and exams:

- 55.3% have never taken a proctored exam online.
- 62.6% have never worked with a group to complete a project without meeting in person.

The survey also pointed to useful related information such as how to use low-stakes quizzing to ensure students watch videos, discussion strategies for online discussion forums, alternative exam options, and collaboration strategies for projects. Overall, faculty found the information useful in planning the use of specific tools and technologies to support student learning.

These problems of technology and internet access were further compounded by the broader challenges facing many students as a result of COVID-19. One professor emphasized the difficult conditions confronting students, including problems of childcare, crowded conditions at home, and the need to take on extra jobs after family members lost work. This professor observed, “Perhaps one of the greatest threats of all is apathy; student do not see the point of continuing to learn in these times, as they see their schoolwork to be not as important as the situation developing around all of us. I have often heard ‘what is the point’ as a response when I follow up with students who have not been keeping up with distance learning.”

The significant challenges facing many students underscored the importance of keeping instruction as engaging and accessible as possible. Faculty recognized the profound importance of giving students “instructional experiences that can provide them with social and emotional connections that enable them to thrive in their classes.” Yet, as another faculty member related, “Finding ways to convey the content necessary while keeping students’ interest and engaged in an online format is a challenge.”

Training for Faculty

Both administrators and faculty pointed to the need for more faculty training, both technological and pedagogical, to enable them to provide more engaging and effective remote instruction.

“I have often heard ‘what is the point’ as a response when I follow up with students who have not been keeping up with distance learning.”

With regard to technological instruction, segmental administrators observed that enabling the mass adoption of online/remote instruction by faculty was an ongoing issue. While the vast majority of faculty adjusted and adapted to remote teaching, a very small subset of faculty had real difficulties. To give a sense of the scale of change for some faculty, one administrator noted that there were instructors who had previously resisted even putting course materials onto the campus LMS. The level of training required for faculty thus varied considerably: some faculty were highly experienced in online and remote education and provided support to their colleagues, while others asked, “What is Zoom?” Faculty reported similar variation in the technological proficiency of their colleagues. Unsurprisingly, faculty with experience teaching online or who had courses that were already online or substantially hybrid found the transition to remote instruction least burdensome.

Beyond technical training, faculty responses almost universally emphasized the need for pedagogical training in remote/online instruction. Faculty generally reported seeing a critical need for support in “figuring out how to deliver live, remote

instruction in an effective way.” They also reported need for training in both synchronous and asynchronous remote instruction, support in finding ways to implement active learning methods in remote instructional environments, and assistance identifying or obtaining effective, engaging, high quality online instructional resources.

Understanding the Student Perspective

“It is essential to experience AS A LEARNER any methods one is considering. I ran a workshop for department faculty using Zoom at the start of March. In it, faculty were students and had access only to what students had. As with our students, few of the people in the virtual room had ever been in a live multi-video-thread session with tools like those in Zoom. I video recorded my screen, for the instructor view of what was happening. I created a video of the session from the screen capture so people could watch how I had made happen, as instructor, the things they had experienced as students. Echoing research about online instruction, my colleagues uniformly report the value of the lived experience as a touchstone for understanding student perspectives of the online environment.” -- CSU professor

To these general needs, one professor added a more specific recommendation: “[we need] guidance (examples, mentoring, learning) about how to build trust and [to] support students and themselves in persisting in the face of new challenges, particularly the challenges of prioritizing instructional intentions and communicating

effectively with students and colleagues in writing.”

Technological Infrastructure and Resources

While issues of student access and faculty training were the principal challenges that the segments and campuses faced, significant technological infrastructure issues were highlighted as well.

Administrators observed that campuses were able to respond to the technological challenge of remote teaching because campus LMS’s were robust; however significant hurdles remained in procuring software licenses and arranging for online proctoring in the context of FERPA review.

Although this technology infrastructure allowed most classes to proceed remotely, specific academic/training areas requiring hands-on curricula for labs or career (technical) education (CTE) instruction were more difficult to adapt to a remote teaching requirement. The problem appears to be particularly severe for career education: while online lab simulations may be available for traditional academic subjects like biology and chemistry, remote training in HVAC repair may not be. CTE subjects and nursing were both highlighted as challenging areas where limited resources for online instruction exist while hands-on training is necessary for certification.

Meanwhile, despite the availability of lab simulations, lab courses still posed a real challenge for STEM faculty across the segments. Many respondents were uncertain as to how to shift laboratory

activities to a remote environment, with some noting that there is no substitute for hands-on learning. One faculty member expressed a common sentiment: “I worry about lab instruction. Complex STEM and statistics labs are much harder to complete online. I think faculty need support there for sure.” Even where online simulations were available, some faculty did not consider them to be adequate as a substitute for physical labs. Notably, this is one point where faculty responses revealed distinctly different perspectives: while some faculty emphasized the inadequacy of online labs, others instead emphasized the urgent need for their greater availability.

“I worry about lab instruction. Complex STEM and statistics labs are much harder to complete online. I think faculty need support there for sure.”

Several respondents also voiced concerns over academic integrity in the remote learning environment. Although a few faculty members reported instances of cheating in online exams, several were uncomfortable with the intrusiveness of online proctoring services and voiced uncertainty as to how best to address this problem.

Resources & Support

The segments of public higher education in California and their constituent campuses created and curated resources to support faculty in the transition to remote

instruction. All segments created websites designed to direct faculty to helpful resources. In addition, campuses made more specific resources and training available through their technology support offices, centers for teaching and learning, or comparable offices. Additionally, campus offices responsible for working with students with different abilities/students with disabilities at the University of California compiled resources, and in some instances, provided specific training and/or tools for faculty and students.

Yet, while campus and segmental administrators sought to provide resources and guidance to faculty, that support could only partially address the needs of faculty. Several faculty members observed that instructional support staff were unable to meet the sheer demand for their services and support. As one professor related, “It became clear that faculty are really on their own to figure things out, and there are resources available but not really the manpower in IT software support to explain things to you if you don’t know what to do or run into trouble.” Many faculty reported that obtaining technical assistance with Zoom or their campus LMS was nearly impossible. Some faculty members did note that their campus support centers had done a good job of gathering resources and providing online training on the use of Zoom and the campus LMS. Yet, those resources were not necessarily presented to faculty in a manageable way. One faculty member reported being “overwhelmed” with resources and training opportunities.

To address the issue of too many disparate sources of information, one administrator noted that building a faculty-facing suite of tools or interface, complete with a statewide identifier, could be beneficial.

Another respondent highlighted the need for a more complete, integrated support infrastructure: “One substantial need is for more robust materials that can demonstrably enact learning asynchronously while providing a feedback loop to educators so they can maximize their interactions with students. But getting to a place where those materials are in place and useful will require greater infrastructure for this courseware’s development and delivery, greater training for educators...and sustained professional development on how to effectively integrate these types of materials...and related training for centers for teaching and learning staff on how to support these efforts.”

On a more reflective note, one observer questioned whether each course should undergo its unique conversion to an online environment, or whether sharing online curricular resources could allow faculty to focus on other important aspects of student learning.

In total, faculty respondents almost universally reported that they turned to colleagues and/or faculty groups as their principal source of support and for information about how best to teach remotely/online. Several respondents with a background in educational technology or

professional development reported becoming their department’s “go-to” person for questions and support. Faculty also noted the importance of such departmental connections and collegial support during a challenging period. According to one faculty member, the “increase in faculty interactions around teaching has been transformative and was key to a successful transition to fully remote teaching.”

Looking Ahead

Through the Spring term, institutions were in a process of triage and were focused on responding to the immediate need to transition courses and students to remote learning. Yet, within planning for the continuation of remote instruction in the Fall term, some faculty and administrators see opportunities. One professor wrote, “It’s with mixed emotions because of the cost we are all paying in terms of lives lost that I say this, but the saying is true: Never waste a crisis.” In this campus, the faculty member reported that the transition to remote instruction helped to bring internal processes up-to-date: “We are using this emergency to bring the last of the nay-sayers into the technological present.”

The transition to remote instruction also creates opportunities to encourage faculty to shift from traditional practices to approaches that have greater potential for encouraging equity and student learning. Segmental and campus offices have had to help faculty understand that they cannot teach remotely as they normally do and

that they must revise their pedagogical approaches.

“We are using this emergency to bring the last of the nay-sayers into the technological present.”

One particular area that many faculty members highlighted as needing revision was the approach to assessment. One faculty member observed that the transition to remote instruction “has created a unique moment in time where assessment can be reimagined in way that will be positive even for in-person courses.” Another commented that faculty could “throttle back on the amount of material we are covering” and perhaps redesign assessment to include open tests with Internet.

Educational experts observe that traditional, high stakes assessments are not necessarily an effective way of demonstrating authentic mastery of subject matter and can have an inequitable impact in the classroom.¹ Rather than attempting to translate traditional assessments to the remote instructional environment, some faculty and administrators recommend taking advantage of the moment to develop and adopt alternative forms of assessment, especially in light of concerns around both

cheating and the invasiveness of online proctoring reported by some respondents.

Similarly, other faculty have recommended taking advantage of the challenges surrounding laboratory activities to fundamentally reconsider the objectives of labs. Although this suggestion did not feature among responses to Learning Lab’s questionnaire, current public discourse suggests that the transition to remote instruction presents an opportunity for instructors to reevaluate the learning goals for labs and redesign laboratory activities to emphasize and better achieve those goals.²

It is likely that the current need for remote or in-part remote instruction will continue into the fall 2020 and beyond. Given this circumstance, faculty will likely be using more digital resources in their teaching and may look to include more online components in their courses in the future. In some cases, faculty who may have been interested in using online resources or teaching remotely but did not know how are now seeing or experiencing the parts of online instruction that can be of benefit. One faculty member observed, “Some folks are seeing benefit for online teaching for some things and may have interest to convert to hybrid in future.” Another noted that Zoom proved very effective for office hours and they intended to continue holding remote office hours even after in-

¹ Citation(s) Needed. Jody Greene, “Keep Calm and Keep Teaching,” *Inside HigherEd* (March 17, 2020), <https://www.insidehighered.com/advice/2020/03/17/shifting-unexpectedly-remote-instruction-requires-many-human-solutions-tech>.

² John D. Loike and Marian Stoltz-Loike, “How to Rethink Science Lab Classes,” *Inside HigherEd* (April 8, 2020), <https://www.insidehighered.com/advice/2020/04/08/five-objectives-online-science-labs-lend-themselves-virtual-teaching-opinion>.

person instruction resumes, observing, “It’s easier to ask a quick question from home than it is to walk across campus.”

Conclusion

The imperative to improve online and hybrid education is stronger than ever before. Many higher education journals and mainstream publications have highlighted the opportunity that exists and must be seized, given the uncertainty of the COVID pandemic and the need for greater resilience.

One professor stated the imperative bluntly: “We need a way to encourage/

motivate enrollment of students so they don’t all drop out of school when faced with the prospect of longer-term distance learning.”

According to feedback received from faculty and administrators, steps that campuses can take include increasing basic access to technology, making technology tools more widely available, and including instruction on how to incorporate these tools into pedagogy. As one observer noted, addressing all of these needs should be in campus strategic plans in the future.

Appendix A: List of Resources

The following table includes specific resources (not campus-based) that were highlighted by faculty and administrators who provided feedback to this report.

Resource Name	Type	Description
@ONE: Online Network for Educators	Peer Network Professional Development CCC-based	This network provides courses and additional learning opportunities to support California's Community College system.
California Virtual Campus Online Education Initiative	Resource Bank CCC-based	The California Community College system compiled resources that cater to faculty, instructional designers, staff, leaders, and students to help with the shift to remote teaching and learning.
University of California Educational Innovations and Services	Resource Bank UC-based	This webpage outlines all of the programs, innovations, and assessments that are in place across the UC system to support students with different abilities during COVID-19.
Quality Matters	Professional Development International Program	This organization provides workshops and professional certification programs to empower faculty to improve their courses using research-supported, practice-based, tools and procedures.
Online Learning Consortium	Research Professional Development International Program	This consortium provides professional development to help faculty advance quality digital learning. They also publish research and resources, such as their COVID-19 Faculty Playbook .
QUBES Hub	Peer Network Resource Bank National Program	The QUBES Hub provides a space for math and biology faculty to build community and share/curate open educational resources (OER).

Resource Name	Type	Description
International Review of Research in Open and Distributed Learning	Research International Publication	This free, peer-reviewed, journal seeks to “advance research, theory, and practice in open and distributed learning worldwide” and links to several other publications that focus on OER as well as distance education.
Carnegie Mellon University: Eberly Center	Research Resource Bank Campus-based	This center helps faculty transition to remote teaching and also includes research regarding which strategies are more effective at promoting learning, increasing engagement, and enhancing the learning environment.
Chemistry Tools: ChemLabs and Labster	Online Tools	These two resources give students and faculty access to online, interactive, lab simulations to use in chemistry courses.
The Online Student Engagement Scale	Research Tool	This study provides validation of the online student engagement scale (OSE) then discusses potential applications of the OSE by researchers and instructors.

Appendix B: Faculty Questionnaire & Select Responses

The following section outlines the four open-response questions posed in the faculty needs questionnaire as well as select responses. Sixteen-plus faculty submitted roughly 26 pages of commentary responding to the Learning Lab's survey request, representing a total of three community colleges, six CSUs, five UCs, and one out-of-state institution. Additional verbal faculty feedback echoed the themes below.

1. What have been the greatest areas of need regarding remote instruction (you/your colleagues/your students)? What will faculty needs look like 3-6 months from now, if remote instruction continues through more than one term?

Student Needs

- > Many of the students have very limited resources in order to successfully participate in the course and to submit exams, assignments on time. For instance, some students do not have internet or Wi-Fi access at their house. Our university offered a few hotspots but that required students to come to campus.
- > Many students are...struggling to find time for class as they take on graveyard shifts or more jobs to make ends meet after family members have lost work due to covid-19.... I have often heard "what is the point" as a response when I follow up with students who have not been keeping up with distance learning. This relates both to their sense of the future being bleak in terms of job opportunities for graduates and the general mental health needs of students as they deal with unprecedented levels of anxiety and uncertainty. Our campus has limited resources to meet the surge in demand for free counseling services.
- > For students, the greatest challenge has been access to appropriate spaces to study/do coursework. Though initially, we thought the challenge would be the access to technology, we are not seeing nearly the challenge with that that we expected... if "limited" return to facilities is allowed, but instruction is still fundamentally remote, this could help students as access to libraries and other spaces may be a solution.

Faculty Needs

- > Currently, my colleagues and I are being overwhelmed with resources and training opportunities for online teaching. I can barely keep up with reading and responding to all of my e-mails, since all of correspondence is now via e-mail... I just need more time, flexibility, and patience from those with whom I'm corresponding.

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- > Creating and uploading online materials has doubled my class prep time, creating more strain on my already strained time.
 - > A major need of my colleagues is affordable childcare. With parents working from home, caretaking has fallen disproportionately on my female colleagues, even if both partners have jobs as professors.
 - > For me, the wait time on the chat line for Canvas has increased dramatically such that I have yet to get through (I give up after 20 min). Some systems have crashed like Kaltura, probably from way more demand than expected... It became clear that faculty are really on their own to figure things out, and there are resources available but not really the manpower in IT software support to explain things to you if you don't know what to do or run into trouble. There's just no infrastructure to support the demands on the help lines under emergency like this one.
 - > Having a repository of high quality, readily available, easily findable resources would be very helpful.
 - > I think we will really need ways to help faculty use universal design for learning (UDL) principles and ways to build community in the online environment.
 - > On the faculty side the greatest area of need would be for better hardware to be distributed. Faculty need good desktop computers, with good quality monitors, cameras, microphones, speakers, and most importantly good writing tablets.
 - > Better availability of high quality interactive, adaptive instructional materials (such as the OLI courseware) and more opportunities that provide training and support for implementing active instructional approaches and learning activities via remote instruction are very much needed.
 - > We will need many more resources to provide faculty training for remote instruction, as well as student training. Currently, our campus only has one instructional technologist who provides services for faculty in all departments for the entire university. This has been very challenging and insufficient.

Engaging Students in the Remote Environment

- > Many/most online instructional resources are not interactive, do not provide adequate feedback, and can leave students stranded and frustrated.
- > Remote instruction makes it difficult to implement many of the active learning methods that I have been using in face-to-face classes and that are effective for improving student learning outcomes.

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- > I think for many faculty the challenge is finding engaging assignments and activities that take the place of lecture. Students are getting burned out by zooming so much. Finding ways to convey the content necessary while keeping students interested and engaged in an online format is a challenge.
 - > Especially in the STEM world, it seems to me that resources and best practices are still very much a work in progress, so continuing/expanding support for projects that investigate remote learning approaches is much needed.
 - > We are...considering plans on how to fund, design, develop, and deploy new online interactive resources. One of the specific groups we are interested in targeting is ESL students who have the potential to be further left behind because many of the online resources are not designed to address the language barriers that exist.

Academic Integrity

- > One of the biggest issues involves academic integrity and how to do meaningful assessment, particularly in foundational courses that stress problem solving. We had a huge cheating problem with an online final exam, which was very disappointing. We aren't sure if Respondus will meet our needs, and some faculty don't like the "Big Brother" aspect of videoing students in their homes.
- > There is absolutely no way to prevent cheating on mid-terms and finals being performed remotely setting...There assuredly will be huge grade inflation, and this will jeopardize the academic integrity of any program. By not acknowledging this is we are simply kidding ourselves.
- > Even though remote proctoring exists, it has the challenge of significant privacy concerns when used at scale, access to technology for students, and security "holes" from the faculty perspective. This has created a unique moment in time where assessment can be re-imagined in ways that will be positive even for in-person courses. It also has sparked useful discussions around academic integrity and grading schemes.

Lab Instruction

- > Online labs leave a lot to be desired. Some lab simulations are/can be effective, but many do not provide good learning experiences and/or address the required learning outcomes.
- > Within the STEM discipline many of the courses have a very large laboratory component to them. One of the critical aspects for a student's training is for they themselves to perform the experiments [and learn] the required laboratory techniques... There is no way any type of remote learning can accomplish the appropriate laboratory training.

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- > Right now faculty are mainly videoing their labs and providing students with data. Running better virtual labs and simulations would really help student learning.
 - > I worry about lab instruction. Complex STEM and statistics labs are much harder to complete online. I think faculty need support there for sure.
 - > Effective remote delivery of instructional labs in chem, physics, engineering courses, Capstone, etc....is a challenge that many institutions are grappling with and we are no exception.

2. Where have you gone for support relating to remote instruction (e.g., colleagues, campus resources, other sources of assistance or advice)? What have been the most useful resources to you or your colleagues? Are there any resources or best practices in particular you would recommend?

Support for Remote Instruction

- > My primary support relating to remote instruction has been discussions with colleagues. This has included descriptions of methods we are using, how well each is working, what are the issues/pitfalls/etc. I have also had support from our Canvas administrator, who has helped with the integration of technologies we had to quickly adopt, particularly for online labs.
- > I have been my own primary resource and have provided support to my department, college, university, and national professional organizations (e.g., by creating and offering sessions about teaching using remote instructional tools). Because my own research is the professional growth of college instructors and I already had some experience with online instruction, I was (and continue to be) sought out as a person to provide guidance.
- > I've signed up for two of the quality matters classes thought the CSU this summer. Fortunately they are free, but I'm not getting paid to take those and see that as a barrier to some faculty to get additional training.
- > I have not needed support as I was already prepared for online instruction. However, the reason I was prepared is because we have an annual mobile technology professional development program [at my university] through the Center of Faculty Excellence.
- > The most dramatic source for support and best practices has been faculty groups. Schools and departments have formed faculty "support teams" that are providing expertise, advice and support. This increase in faculty interactions around teaching has been transformative and was key to a successful transition to fully remote teaching.

Best Practices

- > A practice I have found effective is to use Google Docs to engage students rather than listening to me talking all the time. My students are engaged and ask lots of questions, and I can clarify any positives/issues in what they type on the Google Docs.
- > Making synchronous learning optional but strongly encouraged. Many students are working more shifts or facing unpredictable situations with childcare at home and can't guarantee they will be free/able to get online in a quiet place at a given time.
- > It is essential to experience AS A LEARNER any methods one is considering... Echoing research about online instruction, my colleagues uniformly report the value of the lived experience as a touchstone for understanding student perspectives of the online environment.
- > Best practices I recommend is to stick with asynchronous learning as much as possible. Getting everyone online at the same time is a huge challenge of its own. The technological hurdles and glitches that come with it getting everyone online at the same time is sometimes not worth the cost.
- > The one best practice that I would emphasize is the need to build in flexibility to the course policies and structure so that technology glitches that impact students, different time zones, and virus impacts can be smoothly and fairly addressed.
- > Zoom is particularly effective for office hours and I'll continue to use that even after we're meeting in person again. It's easier to ask a quick question from home than it is to walk across campus.

3. How would you generally characterize your department, school, or campus' experience with remote instruction over the past weeks? What improvements would you like to see occur within the department, school, or campus moving forward?

Past Weeks

- > My experience, and that of the vast majority of my colleagues in our department/campus, has been that of a mad scramble to do as best we can under the circumstances, but with nowhere near enough time, training, resources or support to do what we would consider a very effective or satisfactory job.

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- > We don't feel good about the teaching we're doing, but we don't have time to make it any better this semester. We're hopeful that having the summer to prep for the fall will be better.

Moving Forward

- > Faculty and students both could benefit from more training in how to have effective remote learning. Building communities of practice to share ideas could help with this. [They also] could benefit from support for curating and developing effective online learning resources...students would benefit if those resources could be made available for zero or low cost.
- > ...Other improvements would be for universities to send students tips on how to effectively manage their learning environments at home for most effective results.
- > I am worried about the quality of instruction of some of my colleagues. I know that most faculty are trying to do a good job, but I am also hearing from students about faculty who are not doing anything at all. There needs to be some way to address this situation going forward if we continue to teach online. I'm worried about getting students in my classes next semester who took a class from a faculty member that didn't do anything, and now have no idea what's going on.
- > I currently use multimodal approaches (e.g. providing students with the options to create and submit podcasts, video essays, graphic novels, and traditional paper essays as midterms) in my in-person classrooms... I would like to see more teachers become comfortable with the idea of multimodal instructional approaches. I believe this is especially needed and very appropriate for online courses.
- > The real challenge moving forward will be to clearly address issues that should be “uniform policy” issues during this emergency and which issues are really up to the faculty. This would help with student perceptions of the “rules” and allow for students to have one area of stress diminished.

4. Is there anything else you would like to share with us?

- > It's with mixed emotions because of the cost we are all paying in terms of lives lost that I say this, but the saying is true: Never waste a crisis. We are using this emergency to bring the last of the nay-sayers into the technological present.
- > It seems entirely possible that we will be entering an extended period of time during which a larger proportion of instruction will be done remotely, whether we like it or think it is a good idea or not. This may lead to significant changes in how instruction is done in the future, and presents both challenges and opportunities. So this would be a

good time to put some thought and effort into how to maintain, and perhaps even improve, teaching and learning in a different instructional environment.

- > The work faculty are doing right now is not online instruction in the way the term is used in higher education. It is not appropriate for faculty to expect themselves to suddenly transform their work to "best practices for online instruction" (and not appropriate for anyone else to have such an expectation).
- > Whatever the state's predicted areas of need and development for the long-term pandemic response will be, make opportunities available to students in those areas.