

ECAR Study of Faculty and Information Technology, 2019



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Executive Summary

Key Findings

- **A majority (51%) of faculty prefer to teach in a blended environment that includes both face-to-face and online components.** However, combining the proportion of faculty who prefer a *completely* face-to-face teaching environment (43%) with those who prefer a *mostly* face-to-face environment (30%) reveals that faculty preferences skew heavily in the direction of face-to-face interactions with students. Comparatively, only 9% of faculty reported a preference for learning environments that are mostly or completely online.
- **Many faculty aren't using online student success tools, but when they do use them, a majority find them at least moderately useful.** For each of the four online student success tools in our research, between 27% and 39% of faculty reported not using them. When faculty used these tools, about a third rated them as very or extremely useful. Students find these tools more useful than faculty.
- **Faculty satisfaction with their overall technology experience has declined slightly. When faculty have good or excellent experiences with IT support services, their overall technology experience is good or excellent.** Overall, good or excellent ratings declined from 71% in 2017 to 64% in 2019. Compared with 2017, fewer faculty in 2019 rated the support services at their institution good or excellent, and fewer reported using their institution's help desk when they need support; yet when used effectively, both contribute to overall satisfaction.
- **Faculty's receiving training on integrating technology in the classroom is associated with increased use of mobile technology in the classroom.** Among faculty who received professional development training on integrating technology in their classroom, fewer than half (47%) reported banning smartphones in their classrooms. Among faculty who did not receive such training, 63% banned these devices.
- **Faculty give high ratings to support services for accessibility technology, when they use them.** A majority (60%) of faculty who used accessibility support services for students rated them good or excellent. Only 23% of faculty at AA institutions reported *not* using these services within the past year, suggesting high rates of accessibility support among these institutions in particular. At non-AA institutions, fewer students reporting disabilities and/or lack of faculty awareness of the technology needs of students who have disabilities might contribute to lower awareness and use of these services.

Recommendations

- **Promote benefits and strategies for engaging in online teaching through mentoring and the creation of sustainable learning communities. Academic departments need to consider changes to their tenure requisites to reward faculty who choose to engage in course development and online instruction.** Faculty report strong preferences for face-to-face learning environments, but with increasing offerings and enrollments in online classes, institutions need to provide professional development to faculty who have the interest and skills to teach online.
- **Communicate to faculty and students the benefits of advising technologies. Gain buy-in by understanding faculty needs and advising processes, and integrate these technologies into existing software platforms.** Increasing awareness among faculty is necessary to implement online student success tools. But it's equally critical for institutions to implement a "bottom up" approach for putting advising technologies into effect. Without buy-in from faculty and absent a perception that these tools are a value-add, the technologies will likely not be used often and will be seen as offering few tangible benefits to student success. Students already appreciate these tools, particularly students in underrepresented groups. Institutions need to capitalize on students' use of these tools and ensure that faculty have the appropriate tools seamlessly integrated into their advising activities.
- **Increase awareness among IT support services staff that quality services for faculty contribute to faculty's overall ratings of their technology experiences. IT support staff are first responders to faculty technology issues and can make a real difference in faculty experiences.** Ensuring faculty satisfaction in using remote-access software is an area where IT support services can improve faculty technology experiences. In addition, engagement with help desk services is associated with faculty's overall satisfaction with technology experiences at their institution.
- **Facilitate faculty professional development on integrating technology into teaching.** Promote professional development for faculty on effectively incorporating mobile technologies into their classrooms. Bans on all technology devices in the classroom will likely decrease student engagement. These bans disproportionately affect minority students and students with disabilities needing accommodations. Quash the "devices in the classroom" debate by leveraging mobile technologies in students' hands to increase engagement and learning.
- **Increase faculty awareness of student needs and accessibility support services, particularly among non-AA institutions.** Disability disclosure rates remain low among students, limiting faculty awareness and ability to address accessibility needs in the classroom. When faculty use accessibility support services, however, they report high levels of satisfaction with those services.

Introduction

In 2014, the EDUCAUSE Center for Analysis and Research (ECAR) began conducting research on information technology (IT) and higher education faculty. While the form, function, and findings of these reports have evolved over the years, the thread that binds them is a desire to understand how faculty are thinking about and using technology. Although IT units in higher education are the primary audience for this report, the findings and recommendations can be used by multiple organizations and individuals across campuses at every type of institution. Faculty, developers, course instructors across the disciplines, advisors, professionals in admissions and student affairs, disability service staff and advocates, student health staff, and scholars and researchers can all find information here that is relevant to their work with and about students and technology.

The content and organization of this year's report were selected to address issues related to student success and the student-centered institution, which were rated by IT professionals as No. 2 and No. 4, respectively, in the [Top 10 IT Issues for 2019](#). As colleges and universities work toward improving student outcomes through faculty use of technology, this report offers insight and suggestions that assist in understanding and meeting the technology needs of faculty and students alike, which contributes to student success. As a continuation of our diversity, equity, and inclusion (DEI) initiative, we also include faculty perspectives on accessibility services offered at their institution.

We have chosen to present and discuss the 2019 study of higher education faculty and IT to correspond with this year's companion study of undergraduate students and IT. In this way, the reports can be read in tandem, which offers readers an opportunity to explore each of the included topics through the perspectives of both learning and teaching.

In both this report and the student study, readers will find data and analysis related to the following topics:

- Teaching environment preferences
- Student success tools
- Technology experiences
- Technology use in the classroom
- Accessibility

For the 2019 report, 10,078 faculty from 127 institutions in 6 countries and 40 US states participated in the research. The quantitative findings in this report were developed using the 9,521 survey responses from 119 US institutions. This report

makes generalized statements about the findings based on the large number of survey respondents. Applying these findings, however, is an institutionally specific undertaking. The priorities, strategic vision, student populations, and culture of an institution will inevitably affect the meaning and use of these findings in a local context. Moreover, combining the findings reported here about faculty with ECAR's findings about undergraduate students can help institutions gain a better understanding of IT on campus in relation to many aspects of institutional operations. This report should therefore be seen not as the end of the discussion about faculty experience with technology use on campus, but only the beginning.

Teaching Environment Preferences

No substitute for seeing the look on someone's face?

Most of us can agree that the look on someone's face when they're doing what they love is contagious and inspiring. Keep reading and you'll find that faculty still prefer to see that look on a student's face when synapses are firing and connections are being made. This is true even though online education enrollment has increased¹ and is now identified as the fastest growing segment of higher education.²

Even with increased online course offerings, only 9% of faculty said they prefer to teach a class that is mostly or completely online. About half (51%) prefer to teach courses that are blended, i.e., face-to-face with some use of the online learning environment.³ Faculty still want to see the faces of their students, but they want to use the online learning environment to do the more mundane tasks, such as distributing syllabi (figure 1). As we found in 2017, previous teaching experiences continue to influence current teaching environment preferences.⁴ Faculty who taught only face-to-face courses in the past 12 months almost always preferred a face-to-face approach (73% completely and 19% mostly face-to-face). Even for those who teach online, the appeal of engaging students face-to-face remains quite strong. Among instructors who have taught at least one online course in the past 12 months, nearly twice as many prefer a mostly or completely face-to-face environment, compared to those who prefer a mostly or completely online engagement with their class. However, the more courses instructors teach online, the more comfortable they are teaching online and the greater their preference for blended learning and fully online environments.

Fifty-one percent of faculty prefer a blended teaching environment, i.e., one with online and face-to-face components. But 73% prefer a teaching environment that is either completely or mostly face-to-face. Only 9% of faculty prefer to teach mostly or completely online.

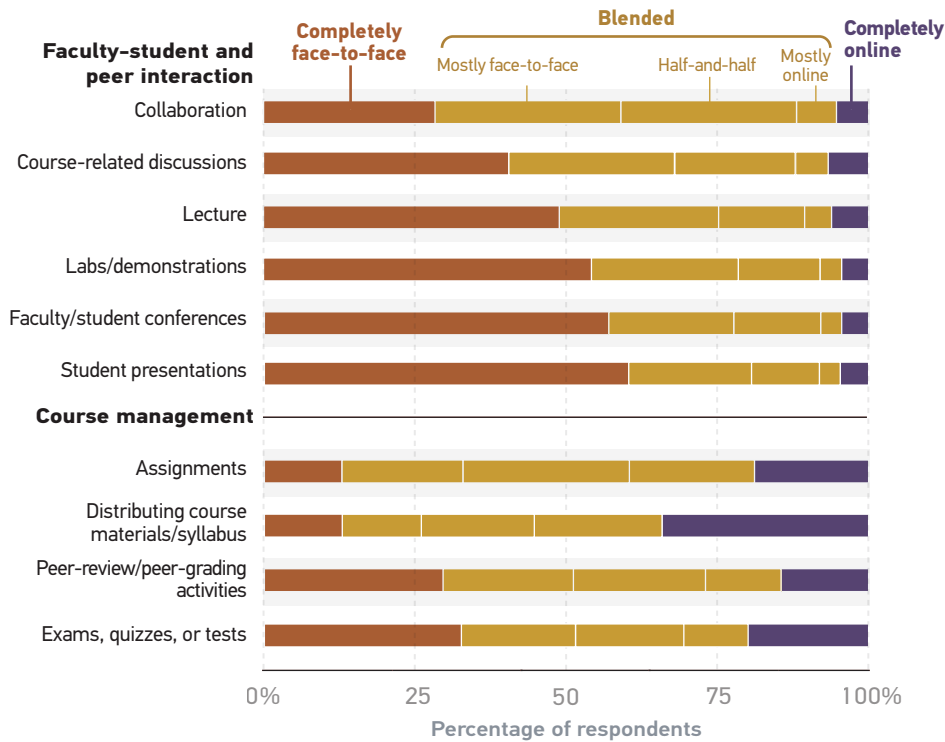


Figure 1. Teaching environment preferences for specific course-related activities and assignments

Older faculty also gravitate toward online courses. Baby Boomers and Gen Xers are about twice as likely as Millennial instructors to prefer teaching fully online. Why? It may be a matter of priorities. One of the most frequently cited barriers to online instruction is time commitment.⁵ Junior faculty may be more focused on conducting research, presenting at conferences, or finding external grants.⁶ A faculty member told us, “Give me more time to work on technology in my teaching role. Between teaching, college service, and other professional development, I don’t have time to learn what is available, how to use it, and develop content that uses it.” Tenured faculty may be seeking challenging, unique opportunities at their institution.⁷ And older faculty may be tenured and also likely free of the tyranny of teaching evaluations that often stifle pedagogical experimentation and creative approaches to teaching. Compared with younger tenure-track faculty or adjunct instructors who have professional (and personal) incentives to curry the favor of students, tenured faculty can (and should) leverage their positions of authority to serve as catalysts of change for their departments, institutions, and higher education writ large.⁸

Analysis of faculty teaching environment preferences for assignments and activities showed that preferences fall into two domains: activities or assignments

that would likely rely more on face-to-face interactions (i.e., “human centered”), such as discussion, lecture, or labs/demonstrations; and those more efficiently accomplished asynchronously (i.e., course management functions not needing direct interactions with instructors or peers). Our findings suggest that faculty may see online activities as functional time-savers: online quizzes increase class time, online syllabi likely decrease emails requesting another copy of the syllabus, and posted course guidelines may cut down on questions in class. Faculty are still highly invested in face-to-face environments for discussion, lectures, labs/demonstrations, conferences, and presentations (but less so for collaboration). Even here we find variation in preferences for particular assignments and activities. For example, labs/demonstrations (54%), faculty/student conferences (57%), and student presentations (60%) top the “human centered” activities for completely face-to-face preferences. But a majority of faculty prefer a blended teaching environment for collaboration (66%) and course-related discussions (53%). This suggests that although interactions in the classroom are prized, certain functions are better served by online components than by solely face-to-face approaches.

Positive outcomes for online learning are well documented,⁹ but few faculty want to use online learning environments for activities such as class discussions or collaborative activities. But what about faculty who receive support to use the online learning environment? A majority of these faculty still preferred face-to-face or primarily face-to-face learning environments. Even faculty who received technical support for online collaborative spaces (e.g., an LMS), professional development regarding the integrated use of technology in teaching, or individualized consultations for using technology in teaching—and who rated these services as good or excellent—still gravitated toward seeing their students’ faces in the classroom.

This is a challenging position for faculty to hold as higher education enrollments continue to decline.¹⁰ If institutions are increasing online offerings to grow enrollment, then assessment of faculty promotion must align with the changing nature of enrollment. To encourage instructors to teach in online environments, institutions need to help their faculty cultivate a culture of excellence surrounding the use of technology in teaching and learning. This includes offering a sustainable and ongoing learning community, incorporating expert mentoring (including peer mentoring), responding to instructors’ different levels of expertise, embracing the iterative and experimental nature of teaching practices, and evaluating the impact of these professional development programs.¹¹ It appears that faculty don’t want to lose sight of their students’ faces when they’re making connections with course material. And they don’t have to. But it’s important that institutions provide the necessary resources for faculty who wish to engage with blended or online learning or who are on the fence.

Student Success Tools

Faculty don't often use them—or see their value. Why?

It's the 21st century! What's in your institution's toolbox for student success? Open it up; check out all the new tools available to faculty. No universal translator or sonic screwdriver, but some tools in here are equally intriguing, if you're focused on student success. Advising technologies for counseling and coaching, education planning, and academic-risk targeting are increasingly being used in many institutions so that students can successfully map out their education paths and graduate.¹² For example, early-alert systems have been found essential for an institution's retention strategy¹³ and have also been deemed most helpful to minority students and students eligible for Pell Grants.¹⁴ All this reflects the prioritization of student success, which has remained near the top of the EDUCAUSE annual Top 10 IT Issues lists since 2013.¹⁵ When these tools are available, what are faculty's perspectives on integrating them into their advising?

This year we found that, for each tool we asked about, between 27% and 39% of faculty didn't use student success tools, while between 15% and 27% of faculty told us that these tools were not available to them. So how do faculty rate these tools if they (1) make it into their toolbox and (2) are actually used (figure 2)?

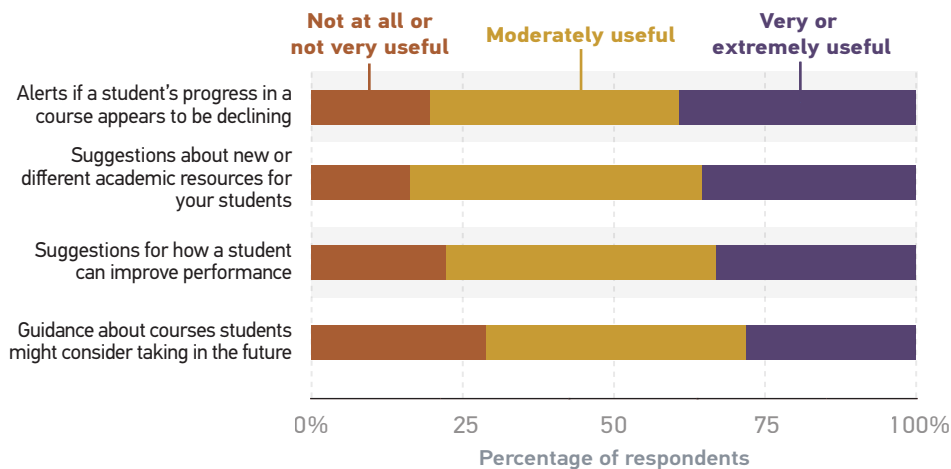


Figure 2. Faculty ratings of student success tools

Among faculty who told us they use the four student success tools in fig. 2, a solid majority find them at least moderately useful. And there doesn't seem to be much difference in ratings across tools: all are viewed as at least moderately useful, with early alerts getting slightly higher ratings than other tools. Meanwhile, students rated these success tools even more favorably than did faculty. Perhaps a step toward increasing student success is as simple as promoting awareness and use of these tools among both students and faculty, the latter being in the best position to get them into the hands of students. Faculty have reported that lack of awareness of these systems is an issue, so communication—particularly institution-wide communication to students¹⁶—is key when an institution seeks to implement these tools.¹⁷ Another key consideration for implementing these systems and gaining faculty buy-in is to involve faculty from the beginning of the initiative.¹⁸ Integrating these tools into software that faculty are already using, such as the LMS or the PeopleSoft platform, may also likely increase buy-in and use.¹⁹

Faculty have always played a key role in student retention. Today, a host of tools are available to support retention, many of which will be more effective if faculty actually use them. Student success initiatives should involve faculty from the beginning, to identify requirements, assess viable options, advise on usability, and generally help support the initiative.

How can we get faculty to use advising technologies?

- Faculty may not see a need for every available tool.
- Involving faculty from the beginning of the initiative is a key strategy in gaining faculty buy-in.
- Integrating student success tools—for example, early alerts—into software faculty are already using, such as the LMS, will decrease the need to jump from platform to platform and likely *increase* faculty use.

Further Reading

- Christopher Romano, “Culture Change First, Then Student Success,” *EDUCAUSE Review* June 18, 2018.
- Dale R. Tampke, “Developing, Implementing, and Assessing an Early Alert System,” *Journal of College Student Retention: Research, Theory & Practice* 14, no. 4 (April 9, 2013): 523–532.
- Alexander Mayer et al., “Integrating Technology and Advising: Studying Enhancement to Colleges’ iPass Practices,” MDRC, July 2019.

Technology Experiences

Faculty satisfaction declines, but IT support is valued.

When was the last time IT support staff heard, “I appreciate you”? Without the support they need, faculty’s technology experiences may be a continual headache, regardless of whether they have the most up-to-date hardware or seamless network connectivity. But hey, no pressure, IT help desk staff. There are, in fact, clear ways to ensure that services are provided effectively—for example, by training IT staff at all stages in their career.²⁰ The good news is that faculty are appreciating the support services they receive, and the quick fixes and deep dives IT support provides are paying dividends for institutions.

This year we found that an institution’s support services play a significant role in faculty’s campus technology experiences. Overall, a majority (64%) of faculty told us that their technology experiences at their institution were good or excellent, but this is a slight decline from faculty’s 2017 ratings (71%).²¹ And 19% rated their experiences as poor or fair, reflecting similar rates of negative experiences from 2017 (16%) and 2014 (21%).²² The majority of faculty reported using their institution’s help desk (56%). These help desk users more often rated their overall technology experience as good to excellent compared with their colleagues who didn’t contact their help desk for assistance. IT units could leverage faculty user rates into deepening the relationships with other IT service providers, such as instructional designers. If faculty know that their IT department has their back, this could increase their interest in implementing new technologies in their classroom or using classrooms equipped with technology. This may suggest that classroom technologies have to support a diverse set of faculty needs—and provide for these needs rapidly, maybe even right before a class begins. Because IT tries to be everything to everyone, the overall classroom tech experience draws a resounding “meh” among faculty. This may also reflect a lack of faculty training; without appropriate guidance on how to leverage these technologies, faculty may be dissatisfied with what is available in their classrooms.²³

When looking at specific services on campus, a majority of faculty rated communication technologies good or excellent (figure 3). However, ratings for remote access to commercial software were less positive than for other technologies. These levels of dissatisfaction may be driven by software platforms that need frequent updates, which can increase barriers to effective and rapid access for faculty.²⁴ A change to a clientless remote access solution, for example, decreased help desk calls by 90% on one campus.²⁵

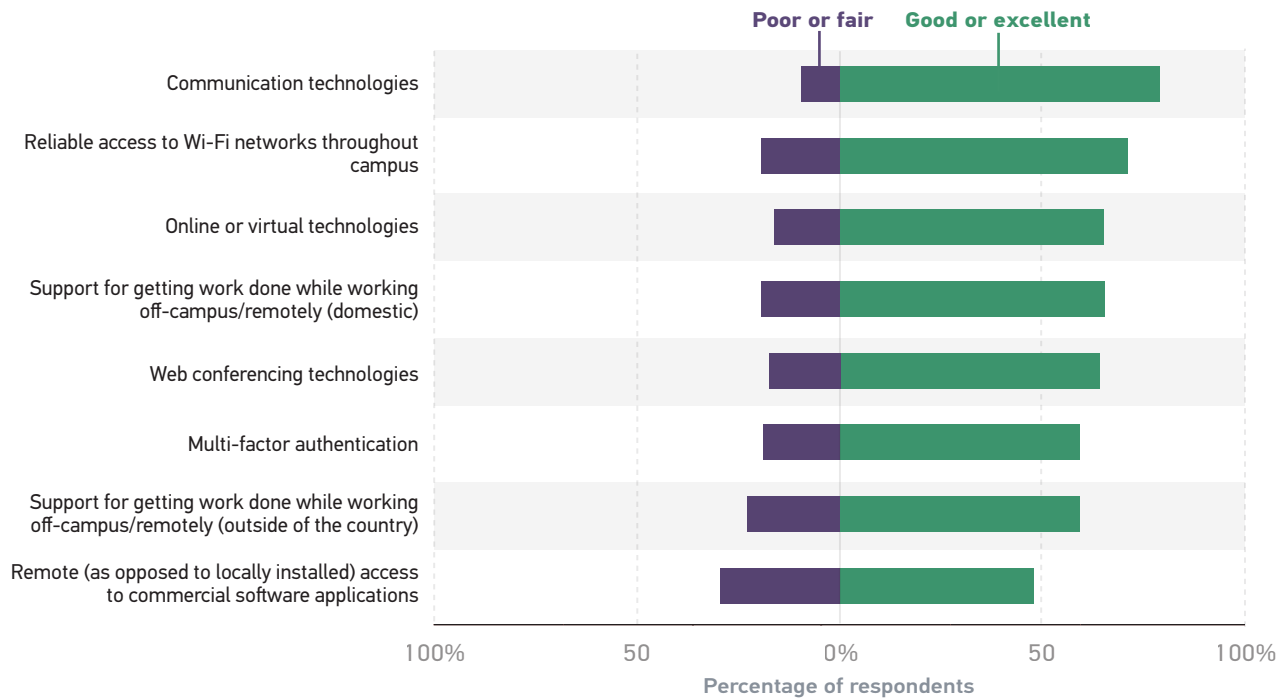


Figure 3. Faculty ratings of connection and communication resources

Although faculty training is important to effectively implementing these technologies in the classroom, faculty still rely on IT support services to make this magic happen in the classroom. We found that 67% who reported good or excellent technology support also reported that they were satisfied with their classroom technologies. This indicates that IT support is a linchpin in faculty technology experiences and satisfaction. What this also tells us is that IT support, when effectively addressing faculty needs, is positively correlated with overall and specific satisfaction with faculty’s campus technology. You have faculty who appreciate the work you do, and it’s making a difference in their technology experiences.

Technology Use in the Classroom

Faculty continue to ban student-owned devices, but is there a middle ground for effective learning?

Have you ever talked with a colleague who doesn't quite remember VCRs, fax machines, phonebooks, or the dot matrix printer?²⁶ Well, consider this: Generation Z²⁷ has never known a time without smartphones, and their device habits follow them into the classroom.²⁸ This likely lays the foundation for the debate over mobile device use in the classroom. Many students want to use them ("it helps me learn"), some faculty discourage their use ("they're digital distractions—grades suffer"), and some faculty try to leverage these devices to aid in students' learning. We do know that the use of technology in the classroom is not going away, perhaps simply because these devices have become so ingrained in the fabric of students', faculty's, and, well, everyone's lives. Research has suggested that the debate over students' use of devices in the classroom center more on students' digital literacy skills (including the ability to access, manage, and evaluate digital resources)²⁹ than on students' need for autonomy or instructors' needs to manage the classroom.³⁰ And faculty should be provided with tools to effectively integrate mobile devices into their classroom.³¹ With that said, this year we found that faculty are still largely discouraging mobile device use in their classrooms (figure 4).

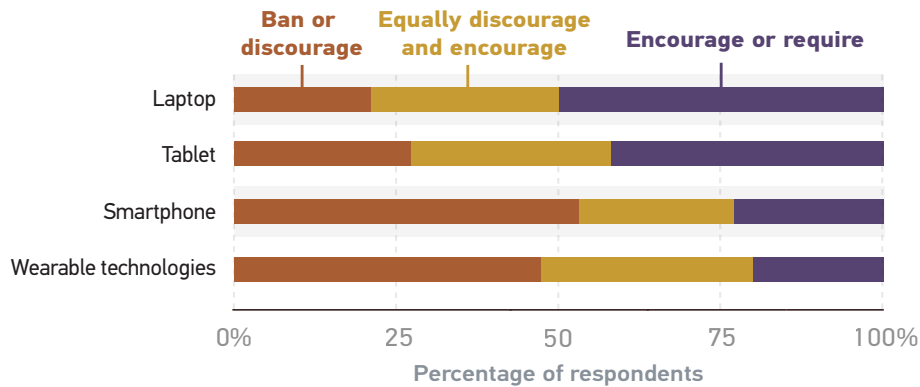


Figure 4. Faculty classroom policies on mobile devices

Fifty percent of faculty encourage or require laptops. But about half of faculty don't want smartphones and wearable technologies in their classrooms. Some empirical data support faculty's bans. We know students may use their devices to cheat on exams,³² and unstructured use (e.g., texting, using social media) of devices (laptops, smartphones) is associated with lower grade point averages and

lower grades for in-class assignments.³³ Even receiving messages during class affects academic performance.³⁴

But faculty appear to already have the solution for us. This year around 50% of faculty reported that greater skill in integrating smartphones and laptops as learning tools for course-related activities would make them more effective instructors. And they are right. Professional development on using technology in the classroom can aid faculty in harnessing the tools already in the hands of their students. Faculty who are able to take advantage of professional development opportunities to facilitate the integration of technology into teaching ban or discourage student mobile technologies in the classroom less than faculty who don't receive such training. For example, among faculty who engaged in professional development in the use of technology for teaching and who rated that training as good or excellent, fewer than half (47%) banned or discouraged the use of smartphones, compared to those who did not receive this training (63% banned or discouraged smartphones). Even faculty who rated those professional development experiences as poor or fair reported implementing policies that ban or discourage smartphone use in the classroom less often than those who did not receive such training. It would appear, then, that any professional development that helps faculty learn to integrate technology into their teaching—even professional development that isn't rated highly—is better than no professional development at all in terms of changing classroom technology policies.

For example, a faculty member suggested to us, “Have consistent expectations of all professors to integrate technology in a way that enhances student learning and is done in a planned way, not just to use technology for technology's sake.”

Promotion of the on-task use of devices³⁵ can offer opportunities for class discussion by asking students to perform specific assignments, such as using classroom response systems that rely on students' mobile phones. Instructors can also allow students to use their devices in ways that work best for them, and not solely under the instructors' direction and guidance.³⁶ Faculty may experience tangible benefits in the classroom, such as increased student engagement, when allowing the use of devices rather than eliminating them.³⁷ Most students recognize the need for restraint when it comes to devices in the classroom, but outright bans may be perceived by students as limiting their autonomy, which creates an unnecessary conflict.³⁸ Across-the-board bans may also single out students with accommodations, who might need the use of a mobile device for their learning. Increasing faculty skill sets and engaging students with the technology in their hands is a way out of this heated debate, even if it means faculty (and students) need to concede some ground. We can look at mobile devices in the classroom as a positive if we harness their potential for learning. We just need to support our faculty in leveraging the tools currently in their students' hands.

Among faculty who receive professional development regarding the use of technology in teaching and who rate that training as good or excellent, 47% ban smartphones. By contrast, 63% of faculty who did not receive this professional development ban those devices.

“Have consistent expectations of all professors to integrate technology in a way that enhances student learning and is done in a planned way, not just to use technology for technology's sake.”

Accessibility

Faculty appreciate support services, when they use them.

When the term “diversity” is used, we often think of factors that contribute to our life experiences, e.g., gender, ethnicity, and age. But a characteristic that is sometimes overlooked when considering diversity is disability status. An estimated 12.7% of the US population—almost 50 million people—have a disability,³⁹ yet their needs often go unrecognized and thus unmet. People with disabilities add to the diversity on college and university campuses and beyond, and their perspectives can help catalyze innovative ways of examining the world and solving problems. As Pete Denman, lead UX design researcher at Intel, has said, people with disabilities “who process differently are often our most creative thinkers because of this difference, not despite it. We need more of [this] kind of [thinker].”⁴⁰ Denman, who designed the speech software used by Stephen Hawking, has both a physical and a learning disability and deeply understands the positive impact accessible tools can have on learners. Providing effective, quality support for faculty that enables them to make their courses accessible is a key component for empowering these thinkers and cultivating inclusive campus environments.

A little more than half (54%) of our faculty respondents said they had used the technology support services on their campus for making courses accessible to students with disabilities (figure 5). Among the faculty who had used these services, 60% rated their experience good or excellent, while about a quarter (22%) told us it was poor or fair. Positive ratings were fairly consistent across Carnegie class among faculty who had used the services, but associate’s (65%) and public master’s (63%) institutions reported the highest marks. Of all the AA participants in this year’s study, only about a quarter (23%) reported they had *not* used these services in the past year. This is good news for two-year and community colleges, as more students with disabilities attend these institutions,⁴¹ and this signals that instructors are taking advantage of the technologies that can make their courses more inclusive at institutions where students who most need accommodations are enrolled. (Another 2% reported their institutions do not offer these services.) In contrast, far more faculty at private institutions (MA 55%, DR and BA tied at 70%) reported they had not used support services for making their courses accessible for those with disabilities.

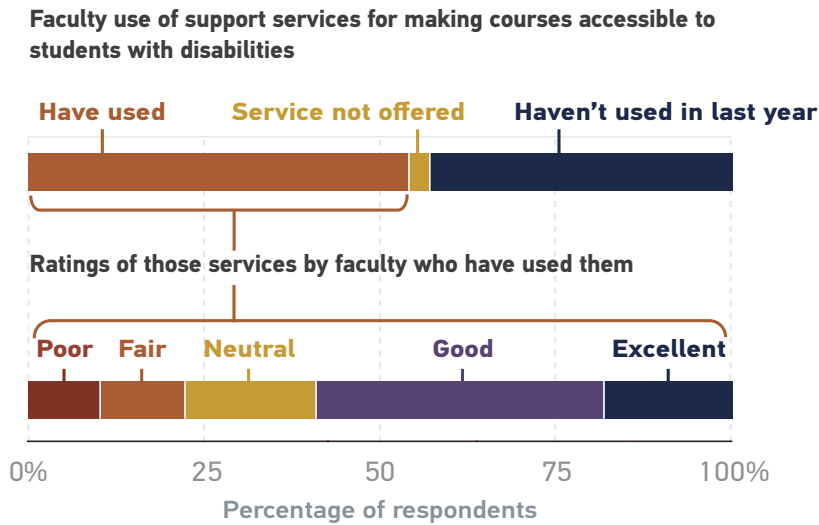


Figure 5. Faculty use and ratings of support services for making courses accessible to students with disabilities

These low usage numbers for support services at these institutions could be related to a lack of faculty awareness about the specific needs of students with disabilities. Although research has shown that 19% of undergraduate students enrolled in colleges and universities have a disability,⁴² we also know that many students who are eligible for accommodations due to a disability choose not to disclose their needs for a number of reasons, including the social stigma, fear of being singled out or questioned about their need for accommodations, fear of being penalized by instructors, and/or being unaware of available services.⁴³ According to the 2019 student study, only 5% of students identified as having physical, learning, or both physical and learning disabilities that require accessible technologies or accommodations for their coursework, while 3% declined to answer. Faculty may not perceive a need for these services if they have not received notification about a specific student’s technology requirements or if a student’s condition is not apparent. Others may not be aware of how universal design for learning (UDL) can benefit all students, while those who *are* aware may lack the time and/or skills to integrate UDL practices into their courses.

To increase faculty use of support services for accessible technologies, campus units such as IT, disability services, assistive technology centers, and teaching and learning centers can partner to share information about this lack of disclosure and use it as a springboard into conversations with instructors on implementing UDL and Web Content Accessibility Guidelines (WCAG). Training faculty on the technologies that can make an activity or classroom resource inclusive from the ground up offers opportunities to see how UDL and WCAG can have positive

effects for *all* students, not just those who require accommodations. For example, while video captioning is a necessary accessibility tool for students who are d/Deaf and hard of hearing, it also greatly benefits English-language learners and students with learning disabilities such as dyslexia, because they can view words as they are spoken. Broader still, numerous studies have shown that captions can increase attention while improving understanding and memory of the video content for all types of learners.⁴⁴ In a national survey of college students on captioning, nearly all said captions are helpful, and more than three-quarters of students without hearing difficulties reported using them at least some of the time.⁴⁵ For practical purposes, captioning makes watching videos easier for any learner who must view them in noisy environments—on the bus, in the student union, or at home surrounded by family or roommates.

Recommendations

- **Promote benefits and strategies for engaging in online teaching through mentoring and the creation of sustainable learning communities. Academic departments need to consider changes to their tenure requisites to reward faculty who choose to engage in course development and online instruction.** Faculty report strong preferences for face-to-face learning environments, but with increasing offerings and enrollments in online classes, institutions need to provide professional development to faculty who have the interest and skills to teach online.
- **Communicate to faculty and students the benefits of advising technologies. Gain buy-in by understanding faculty needs and advising processes, and integrate these technologies into existing software platforms.** Increasing awareness among faculty is necessary to implement online student success tools. But it's equally critical for institutions to implement a "bottom up" approach for putting advising technologies into effect. Without buy-in from faculty and absent a perception that these tools are a value-add, the technologies will likely not be used often and will be seen as offering few tangible benefits to student success. Students already appreciate these tools, particularly students in underrepresented groups. Institutions need to capitalize on students' use of these tools and ensure that faculty have the appropriate tools seamlessly integrated into their advising activities.
- **Increase awareness among IT support services staff that quality services for faculty contribute to faculty's overall ratings of their technology experiences. IT support staff are first responders to faculty technology issues and can make a real difference in faculty experiences.** Ensuring faculty satisfaction in using remote-access software is an area where IT support services can improve faculty technology experiences. In addition, engagement with help desk services is associated with faculty's overall satisfaction with technology experiences at their institution.
- **Facilitate faculty professional development on integrating technology into teaching.** Promote professional development for faculty on effectively incorporating mobile technologies into their classrooms. Bans on all technology devices in the classroom will likely decrease student engagement. These bans disproportionately affect minority students and students with disabilities needing accommodations. Quash the "devices in the classroom" debate by leveraging mobile technologies in students' hands to increase engagement and learning.
- **Increase faculty awareness of student needs and accessibility support services, particularly among non-AA institutions.** Disability disclosure rates remain low among students, limiting faculty awareness and ability to address accessibility needs in the classroom. When faculty use accessibility support services, however, they report high levels of satisfaction with those services.

Methodology

The ECAR faculty technology study is conducted in the same manner as the annual ECAR student technology study. Both rely on respondents recruited from institutions that volunteer to partner with ECAR to conduct technology research in the academic community. ECAR works with an institutional stakeholder (the survey administrator) to secure local approval to participate in the research. Once the institutional review board process is successfully navigated and a sampling plan is submitted, ECAR provides each survey administrator with the survey link for the current year's research project. The survey administrator then uses the survey link to invite participants from that institution to respond to the survey. Data were collected between January 15, 2019, and April 5, 2019, and 10,078 faculty from 127 institutional sites responded to the survey (see demographic breakdown of institutions in table M1 and respondents in table M2). ECAR issued \$100 or \$200 Amazon.com gift cards to 20 randomly selected faculty respondents who opted into a drawing offered as an incentive to participate in the survey. Colleges and universities use data from the EDUCAUSE Technology Research in the Academic Community (ETRAC) [student and faculty surveys](#) to develop and support their strategic objectives for educational technology. With ETRAC data, institutions can understand and benchmark what students and faculty need and expect from technology. There is no cost to participate. Campuses will have access to all research publications, the aggregate-level summary/benchmarking report, and the institution's raw (anonymous) response data.

Table M1. Summary of institutional participation and response rates, by institution type

	Institution Count	Invitations	Response Count	Group Response Rate	Percentage of Total Responses	US Percentage
AA	43	15,070	1,815	12%	18%	19%
BA public	2	329	91	28%	1%	1%
BA private	3	946	170	18%	2%	2%
MA public	26	12,489	1,760	14%	17%	18%
MA private	11	6,245	1,016	16%	10%	11%
DR public	28	49,824	4,320	9%	43%	45%
DR private	3	2,654	257	10%	3%	3%
Other US	3	839	92	11%	1%	1%
Total US	119	88,396	9,521	11%	94%	100%
Outside US	8	5,184	557	11%	6%	–
Grand total	127	93,580	10,078	11%	100%	–

Table M2. Demographic breakdown of survey respondents

	US Institutions	Non-US Institutions	All Institutions
Basic Demographics			
18–34 years old	11%	9%	10%
35–49 years old	38%	46%	39%
50–65 years old	41%	39%	41%
66 years or older	10%	6%	10%
Male	46%	50%	46%
Female	54%	50%	54%
White	83%	–	–
Black/African American	3%	–	–
Hispanic/Latinx	4%	–	–
Asian/Pacific Islander	6%	–	–
Other or multiple races/ethnicities	4%	–	–
Faculty Profile			
Percentage of respondents who work with undergraduate students	85%	89%	85%
Percentage indicating experience with technology for teaching and learning	96%	94%	96%
Percentage indicating experience with technology for research	47%	59%	48%
Five+ years of full-time teaching experience	63%	70%	63%
Five+ years of any teaching experience	79%	81%	79%
Median years in a full-time faculty position	8	11	8
Mean years in a full-time faculty position	11	12	11
Full-time faculty member	77%	83%	77%
Part-time faculty member	22%	16%	22%
Full-Time Faculty Status			
Professor	26%	27%	26%
Associate professor	24%	17%	24%
Assistant professor	23%	20%	23%
Instructor	14%	9%	13%
Lecturer/senior lecturer	7%	21%	8%
Adjunct	1%	2%	1%
Clinical professor	2%	0%	2%
Research professor	1%	0%	1%
Research associate	1%	2%	1%
No academic rank	1%	1%	1%

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	US Institutions	Non-US Institutions	All Institutions
Teaching/Research Areas			
Agriculture and natural resources	3%	3%	3%
Biological/life sciences	9%	11%	9%
Business, management, marketing	9%	12%	9%
Communications/journalism	5%	2%	5%
Computer and information sciences	6%	8%	6%
Education, including physical education	10%	15%	10%
Engineering and architecture	5%	11%	6%
Fine and performing arts	5%	4%	5%
Health sciences, including professional programs	17%	12%	17%
Humanities	13%	15%	13%
Liberal arts/general studies	9%	4%	9%
Manufacturing, construction, repair, or transportation	1%	0%	1%
Physical sciences, including mathematical sciences	9%	10%	10%
Public administration, legal, social, and protective services	2%	1%	2%
Social sciences	14%	17%	14%
Other	9%	6%	9%

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Appendix: Participating Institutions

A.T. Still University of Health Sciences
Abilene Christian University
Adams State University
Alexandria Technical & Community College
Anoka Technical College
Anoka–Ramsey Community College
Appalachian State University
Arcada University of Applied Sciences
Arcadia University
Auburn University at Montgomery
Baker University
Bemidji State University
Broward College
Brown University
California State University, Dominguez Hills
Campbell University
Central Lakes College
Century College
Chadron State College
Clemson University
Cleveland State Community College
Collin County Community College District
Dakota County Technical College
Eastern Kentucky University
Eastern New Mexico University
Elon University
Evergreen Valley College
Fond du Lac Tribal and Community College
Forman Christian College University
Fort Lewis College
Franklin W. Olin College of Engineering
GateWay Community College
Georgia College & State University
Hennepin Technical College
Hibbing Community College
Inver Hills Community College
Itasca Community College
Ithaca College
King University
Lake Superior College
Louisiana State University
Loyola Marymount University
Madison Area Technical College
Marshall University
Mesabi Range College
Metropolitan College of New York
Metropolitan State University
Michigan State University
Middle East Technical University
Minneapolis Community and Technical College
Minnesota State College Southeast
Minnesota State Community and Technical College
Minnesota State University, Mankato
Minnesota State University Moorhead
Minnesota West Community and Technical College
Montana State University
Montgomery County Community College
Muskingum University
New Jersey Institute of Technology
Normandale Community College
North Hennepin Community College
Northern State University
Northland Community and Technical College–Thief
River Falls
Northwest Technical College
Northwestern University
Oakland University
Pacific University
Palm Beach State College
Pellissippi State Community College
Pine Technical and Community College
Portland State University
Rainy River Community College
Ridgewater College

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Riverland Community College	University of Maryland, Baltimore County
Rochester Community and Technical College	University of Michigan–Ann Arbor
Saint Cloud Technical and Community College	University of Michigan–Dearborn
Saint Mary’s University	University of Missouri
Saint Paul College, A Community & Technical College	University of Missouri–Kansas City
Salt Lake Community College	University of Nevada, Las Vegas
San Jose City College	University of New Mexico
Sauk Valley Community College	University of North Carolina, Pembroke
Scottsdale Community College	University of North Carolina, Wilmington
South Central College	University of North Dakota
Southwest Minnesota State University	University of Northern Iowa
St. Cloud State University	University of Richmond
St. John’s University	University of Texas at Arlington
Stony Brook University	University of Texas Rio Grande Valley
SUNY Broome Community College	University of Trinidad and Tobago
Texas Woman’s University	University of Washington
The University of Memphis	University of Wisconsin–Superior
The University of South Dakota	Vermilion Community College
Trinity Western University	Virginia Tech
Truman State University	Wayne State University
University of Alberta	West Chester University of Pennsylvania
University of Arkansas	Western Carolina University
University of Central Florida	Western Washington University
University of Delaware	William Paterson University of New Jersey
University of Eastern Finland	William Peace University
University of Kentucky	Winona State University
University of Maryland	Young Harris College

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