

**DOES ONLINE EDUCATION LIVE UP TO ITS PROMISE?
A LOOK AT THE EVIDENCE AND IMPLICATIONS FOR FEDERAL POLICY**

Spiros Protopsaltis and Sandy Baumⁱ

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Abstract

Technology has the potential to increase access to education, enhance learning experiences, and reduce the cost of providing high-quality postsecondary education. However, despite the explosive growth of online education, which has been disproportionately large in the for-profit sector, our review of the evidence shows that this potential has not been realized. Instead, on average fully online coursework has contributed to increasing gaps in educational success across socioeconomic groups while failing to improve affordability. Even when overall outcomes are similar for classroom and online courses, students with weak academic preparation and those from low-income and under-represented backgrounds consistently underperform in fully-online environments. Success rates are lower and employers—in addition to students, faculty, academic leaders, and the public—attribute lower value to online than to classroom degrees. A strong body of evidence, as well as industry best practices, have consistently emphasized the critical role of frequent and meaningful interaction between students and instructors for increasing the quality of the online educational experience and improving student outcomes and satisfaction. Weakening federal requirements for regular and substantive interaction between students and faculty in online courses would likely decrease educational quality, further erode employer confidence in the value of online credentials, increase barriers to postsecondary success, and expand opportunities for some institutions to exploit vulnerable students and federal student aid programs.

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ⁱ [Spiros Protopsaltis](#) is an Associate Professor and Director of the Center for Education Policy and Evaluation at George Mason University's College of Education and Human Development and served as a deputy assistant secretary for higher education and student financial aid at the U.S. Department of Education during the Obama administration. [Sandy Baum](#) is a fellow in the Center on Education Data and Policy at the Urban Institute and professor emerita of economics at Skidmore College.

Executive Summary

Predictions that technology will revolutionize postsecondary education have generated extreme optimism about the promise of online coursework for solving the problems of rising college prices, as well as unequal access and student outcomes. For the past couple of decades, the hope has been that students whose geographical constraints, financial limitations, and work and family obligations make it difficult for them to participate in brick-and-mortar classrooms will be able to enroll online and earn high-quality, inexpensive degrees.

Today, almost one-third of college students take courses online, with no in-person component. Half of these students are enrolled in exclusively online programs, while the remaining take at least one, but not all of their courses, online. This form of delivery is particularly prevalent in the for-profit sector: for-profit colleges enroll just 6 percent of all students, but 13 percent of students taking courses online and 24 percent of fully-online students.

However, more than a decade after Congress allowed online colleges full access to federal student aid programs, and despite a subsequent explosion in their enrollment, a growing and powerful body of evidence suggests that online learning is far from the hoped-for silver bullet. Online education has failed to reduce costs and improve outcomes for students. Faculty, academic leaders, the public, and employers continue to perceive online degrees less favorably than traditional degrees.

In a range of environments, the gaps in student success across socioeconomic groups are larger in online than in classroom courses. Students without strong academic backgrounds are less likely to persist in fully online courses than in courses that involve personal contact with faculty and other students and when they do persist, they have weaker outcomes. Not surprisingly, students with more extensive exposure to technology and with strong time management and self-directed learning skills are more likely than others to adapt to online learning where students can do the work on their own schedules. There is considerable danger that moving vulnerable students online will widen attainment gaps rather than solving the seemingly intractable problem of unequal educational opportunity.

Technology can add to the learning experience when it supplements, rather than replaces, face-to-face interaction. The outcomes of hybrid models employing this approach do not mirror the problems that emerge in fully online courses. But high quality courses are expensive to produce and maintain. It is inexpensive to post lectures online for large numbers of students to access, but high-quality courses with meaningful interaction among students and between students and faculty are not money savers.

A key theme emerging from the literature is the critical importance of student-faculty interaction in online settings. Researchers, as well as both proponents and skeptics of online education, emphasize the need to design online courses that facilitate robust interactions as an essential component for improving the quality of learning and student outcomes and satisfaction. Lack of sufficient interaction between students and faculty is likely online education's Achilles' heel. Both evidence about the cognitive components of learning and research on differences in outcomes in different types of courses confirm the central role of meaningful personal interaction between the instructor, who is the subject-matter expert, and the student.

As efforts to further expand online opportunities proceed, it is critical to design more interactive educational experiences that integrate regular, direct, and meaningful contact and communication through real-time class sessions and other synchronous interactions with peers and instructors. It is reasonable to believe that many of the problems with online learning—particularly for at-risk students—would be mitigated if these courses and programs consistently incorporated the frequent and substantive personal interaction that is central to the learning process.

In 2006, following several years of intense lobbying by online providers and the for-profit sector, Congress provided online programs with unrestricted access to student aid, but required them “to support regular and substantive interaction between the students and the instructor, synchronously or asynchronously.” This key distinction was meant to clearly distinguish online from self-paced correspondence programs, which rely on self-learning, do not provide such interaction, have limited access to federal student aid, and also have a long history of fraud and abuse.

The recent rise of competency-based education, a self-paced educational model the vast majority of which is offered online, along with a high-profile federal government audit of the nation’s largest competency-based education provider, has contributed to calls for weakening or eliminating the long-standing requirement for regular and substantive interaction. The House Republican proposal for reauthorizing the Higher Education Act would effectively eliminate this key requirement. This approach would not only be inconsistent with the significant evidence that clearly demonstrates the key role of faculty-student interaction in ensuring a quality online education, but would further erode employer, educator, and public confidence in its value.

Our review of the evidence demonstrates that:

- Online education is the fastest-growing segment of higher education and its growth is overrepresented in the for-profit sector.
- A wide range of audiences and stakeholders—including faculty and academic leaders, employers and the general public—are skeptical about the quality and value of online education, which they view as inferior to face-to-face education.
- Students in online education, and in particular underprepared and disadvantaged students, underperform and on average, experience poor outcomes. Gaps in educational attainment across socioeconomic groups are even larger in online than in traditional coursework.
- Online education has failed to improve affordability, frequently costs more, and does not produce a positive return on investment.
- Regular and substantive student-instructor interactivity is a key determinant of quality in online education; it leads to improved student satisfaction, learning, and outcomes.
- Online students desire greater student-instructor interaction and the online education community is also calling for a stronger focus on such interactivity to address a widely recognized shortcoming of current online offerings.

For some students the choice may be between online coursework or no coursework at all. Even if success rates are relatively low in online courses, the availability of these courses may allow students to enroll in more courses, leading to the accumulation of more credits for some students. Even low pass rates might increase graduation rates. But the greatest risk is that the rush to transform higher education will widen the gulf between the college education available to those who arrive at the door with ample resources and strong academic preparation and those who depend on postsecondary education to create a path to productive lives.

Creating access to programs is a step forward, but only if those programs succeed in providing meaningful educational opportunities to students with minimal levels of academic preparation who need to develop their self-discipline, time management, and learning skills—not just have access to a specific body of information. As we seek to improve the quality of online education and reverse its poor record in an effort to ensure that it not only serves more students, but also serves them well, it is critical to promote regular and substantive student-instructor interaction. Otherwise, we risk blurring the line between education and self-learning and further opening the floodgates for unscrupulous online colleges to prey on vulnerable students and exploit out federal student aid programs.

Predictions of a revolution quite clearly exaggerated the near-term prospects for change. But that does not mean we should give up on technology's potential to enhance college learning opportunities. It does mean we should be cautious about proponents of innovation who over-promise and we should create and maintain a regulatory environment that supports the use of technology to supplement and strengthen the intrinsically interactive nature of teaching and learning.

Introduction

Long-standing challenges facing higher education—runaway prices and inadequate student outcomes, coupled with persistent access and achievement gaps—have fueled widespread hope for transformative solutions that will bend the cost curve and increase educational attainment, especially for students with very limited financial resources and inadequate academic preparation. Predictions that innovations that will revolutionize higher education and increase educational attainment across demographic groups are just around the corner frequently rely on technology as a silver bullet.

The recent rise and fall of the dream that Massive Open Online Courses (MOOCs) would transform higher education has not weakened the hype and hope, born in the 1990s, that online learning will both lower the cost of providing education and ensure access to meaningful postsecondary credentials for broad segments of the population who are not well served by more traditional college and university programs.

The hopes are rooted in reasonable logic. Online education offers students flexibility and personalized learning opportunities. Proponents have long argued that it holds the promise to transform the higher education landscape by expanding access, improving instruction, and decreasing costs for underserved populations. Students who are not geographically mobile and who have work and family obligations that make it difficult for them to manage traditional class schedules can do online coursework on their own schedules. The lack of a physical campus or classroom facilities and the potential for larger class sizes without real-time professors could lower costs and reduce prices for students. If it can make college accessible to students with limited options and busy schedules, customize the learning experience, and reduce costs for both students and institutions, online education has enormous potential to positively “disrupt” the higher education landscape and boost student outcomes.

However, more than a decade after Congress allowed online colleges full access to federal student aid programs, and despite a subsequent explosion in their enrollment, a growing and powerful body of evidence suggests that online learning is far from the hoped-for silver bullet. Not only has online education failed to reduce costs and improve outcomes for students, its return on investment for both students and taxpayers has also failed to materialize. Online students are frequently being charged more, not less, than students in traditional programs. Employers continue to perceive online degrees less favorably than traditional degrees. Academic leaders and faculty remain skeptical about the quality of online learning and its pedagogical value.

High quality courses are expensive to produce and maintain. Students without strong academic backgrounds are less likely to persist in fully online courses than in courses that involve personal contact with faculty and other students and when they do persist, they have weaker outcomes. The students most likely to enroll in online courses—and those the postsecondary system is most challenged to serve well—suffer most from this learning format. In other words, moving vulnerable students online may be more likely to widen attainment gaps than to solve the seemingly intractable problem of unequal educational opportunity.

Researchers have conducted many studies in an attempt to evaluate the success of online courses. Unfortunately, the research is far from conclusive. While some studies suggest that overall, learning outcomes are similar to those in traditional classroom courses, a number of rigorous experimental studies have found lower completion rates for online courses and, of particular concern, even larger gaps in outcomes between at-risk students and those with strong academic preparation than those emerging in classroom courses.

In searching for factors that may explain such disappointing outcomes, a key theme emerging from the literature is the critical importance of student-faculty interaction in online settings. Researchers, as well as both proponents and skeptics of online education, emphasize the need to design online courses that facilitate robust interactions as an essential component for improving the quality of learning and student outcomes. A significant volume of research and recent surveys of students, faculty and employers demonstrate that lack of sufficient interaction between students and faculty is likely online education's Achilles' heel.

The combination of the temptation of developing programs that attract large numbers of at-risk students who have federal financial aid with the mounting evidence that fully online programs have not been productive routes for these students makes structuring a reliable regulatory environment critical. The 2006 lifting of the requirement that schools had to deliver at least half of their programs, or enroll at least half of their students, in physical classes in order to participate in federal student aid programs led to the proliferation of online-only institutions, particularly in the for-profit sector.

As the U.S. Department of Education prepares to revisit and revise the current regulatory environment and Congress prepares to reauthorize the Higher Education Act, it is important to examine the evidence on online education and understand how legislative and/or regulatory changes could have a major impact on educational opportunities and outcomes for students.

In this paper, we assess the evidence about whether online education lives up to the hype. After we examine the growth of online learning, especially in the for-profit sector, we provide an overview of the literature analyzing the strengths and weaknesses of online learning programs, with a focus on disadvantaged students' outcomes, and discuss the policy implications of the available evidence for safeguarding students and taxpayers and promoting quality educational opportunities.

Online Education's Explosive Enrollment Growth and Concentration in the For-Profit Sector

Enrollment in online education has exploded in recent years, consistently outpacing overall enrollment growth. Although the National Center for Education Statistics (NCES) did not begin collecting annual data until 2012, the NCES National Postsecondary Student Aid Study allows us to estimate the historical trend:¹

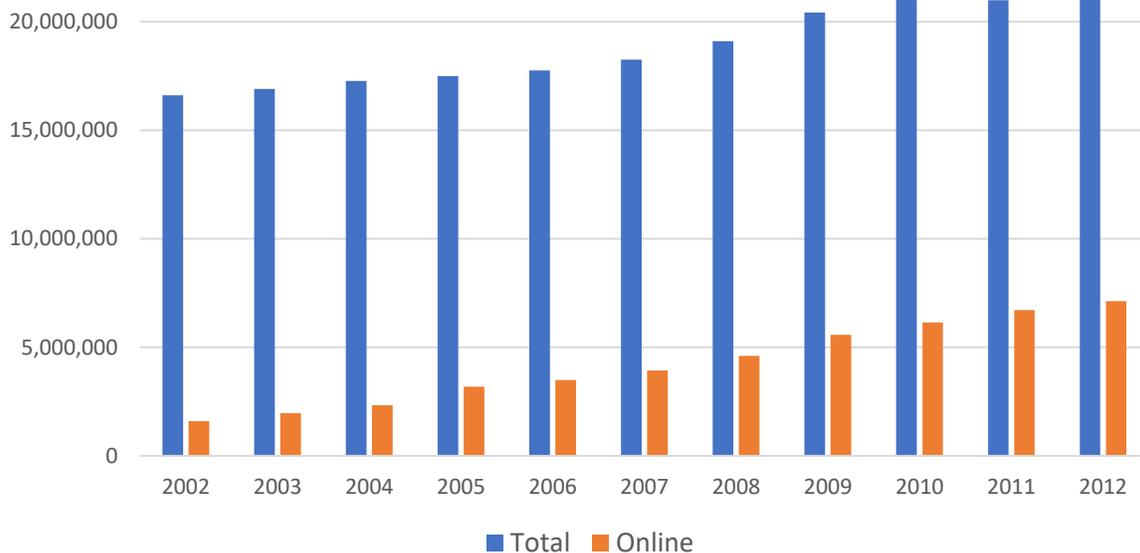
- Between 2000 and 2012, the share of undergraduates enrolled in online courses grew fourfold from 8 to 32 percent, while enrollment in fully online programs tripled from 2 to 6 percent.
- Between 2004 and 2012, the share of graduate students enrolled in online courses more than doubled, from 17 to 36 percent, while enrollment in fully online programs tripled from 6 percent to 18 percent.

This trend is further confirmed by the annual online enrollment data reported by the Babson Survey Research Group, which began collecting data in 2002. Specifically, from 2002 to 2012 (Figure 1):²

- Online enrollment (the number of students taking at least one online course) more than quadrupled (increased by 345 percent), from 1.6 to 7.1 million students, while overall higher education enrolment grew by 28 percent.
- The annual online enrollment growth rate ranged from 6 percent to 37 percent, outpacing overall enrollment growth every year.

By 2012, one third of all students took at least one course online, compared to less than 10 percent a decade earlier.

Figure 1: Total and Online Enrollment (2002-2012)

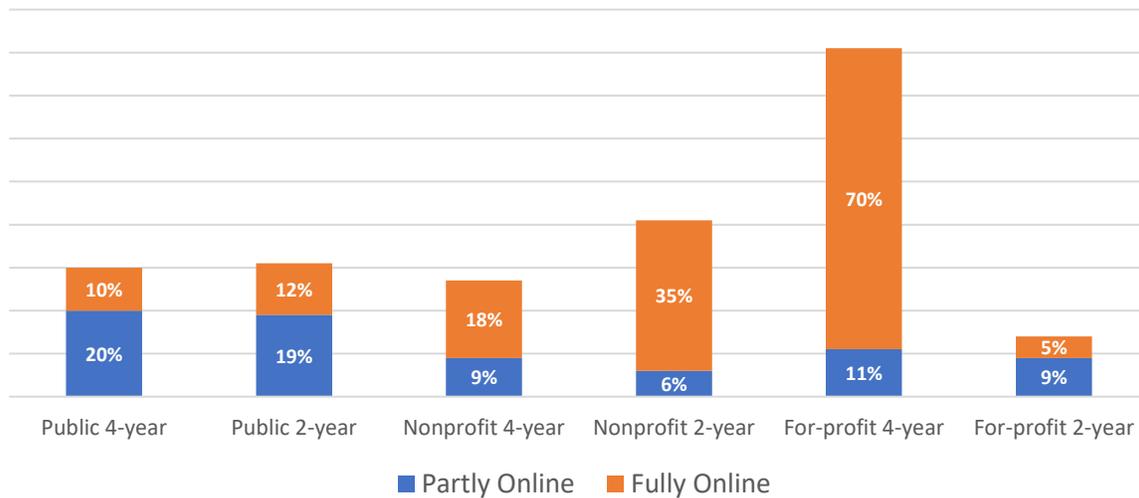


Source: I. Elaine Allen and Jeff Seaman (2014). [Grade Change: Tracking Online Education in the United States](#). Babson Park, MA: Babson Survey Research Group and Quahog Research Group, LLC. p. 33.

This growth trend has persisted in recent years, according to the NCES data. Between 2012 and 2016, online enrollment expanded by 16 percent, while total enrollment declined by 4 percent.³ Every year during this period online enrollment increased, while total enrollment decreased. Today, almost 1 in 3 college students (6.3 million or 32 percent) take courses online, with no in-person component. Half of these students (3 million or 47 percent of those taking any online courses) are enrolled in exclusively online programs (fully online), while the remaining take at least one, but not all of their courses, online (partly online). Online students represent a considerably higher share of enrollment in the for-profit sector (Figure 2):⁴

- For-profit colleges enroll just 6 percent of all students, but 13 percent of students taking courses online and 24 percent of fully online students.
- At four-year for-profit colleges, more than 80 percent are taking courses online, which is more than two-and-a-half times the rate at public (29 percent) and triple the rate at private nonprofit (27 percent) four-year colleges.
- At four-year for-profit colleges, 70 percent are fully online students, which is more than seven times the rate at public (10 percent) and three-and-a-half times the rate at nonprofit (18 percent) four-year colleges.

Figure 2: Online Share of Total Enrollment, by Sector and Type (2016)

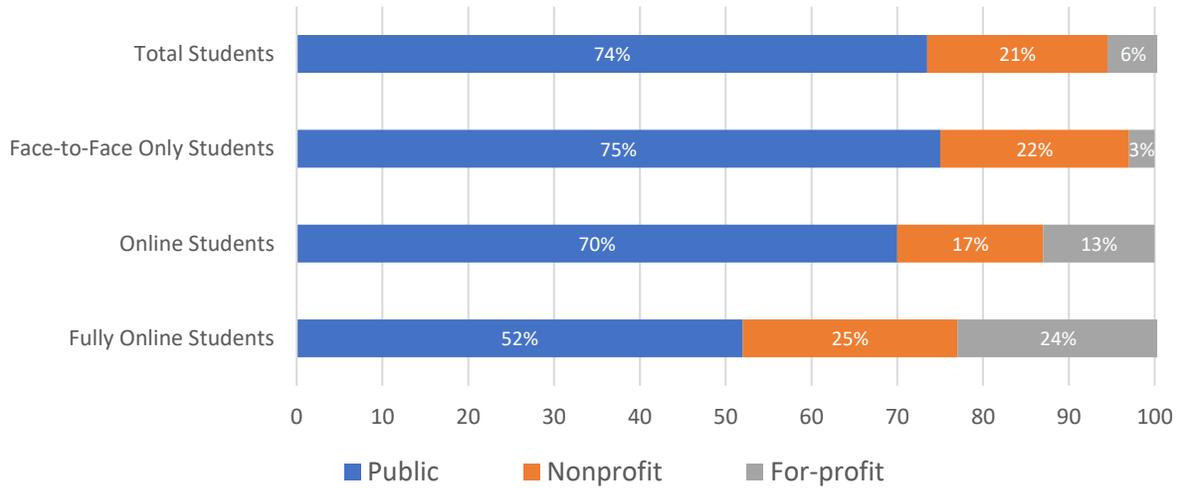


Source: National Center of Education Statistics (2018). [Digest of Education Statistics 2017, Table 311:15](#). Washington, DC: National Center of Education Statistics.

Comparing the distribution of face-to-face and online students across sectors shows clearly the concentration of fully online students in the for-profit sector (Figure 3):⁵

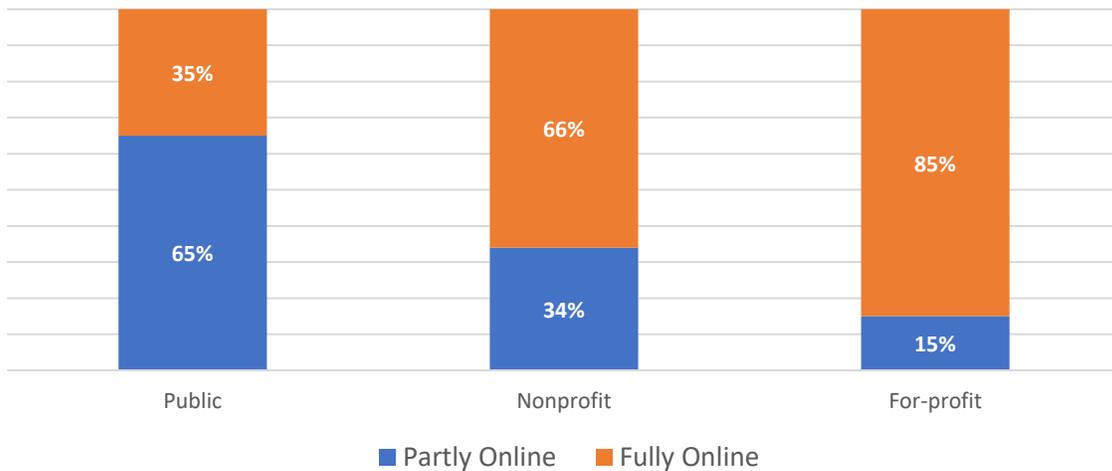
- Among 13.5 million face-to-face students, 75 percent attend public colleges, more than 22 percent attend nonprofits, and less than three percent attend for-profits.
- Among the 3.3 million partly online students, 85 percent attend public colleges, 15 percent attend nonprofits, and less than four percent attend for-profits.
- Among 3 million fully online students, 52 percent attend public colleges, 25 percent attend nonprofits, and 24 percent attend for-profits.
- Among online students the share of fully online students is 35 percent at public colleges, 66 percent at nonprofits and 85 percent at for-profits (Figure 4).
- In 2012, one in three undergraduate students at for-profit four-year colleges were enrolled fully online, a rate six times higher than for students at any other type of institution.⁶ By 2016, almost 60 percent of all students in the for-profit sector were enrolled exclusively online, compared with 11 percent in the public sector and 18 percent in the nonprofit sector.

Figure 3: Enrollment Distribution, by Online Participation and Sector (2016)



Source: National Center of Education Statistics (2018). [Digest of Education Statistics 2017, Table 311:15](#). Washington, DC: National Center of Education Statistics.

Figure 4: Online Enrollment Distribution, by Sector (2016)



Source: National Center of Education Statistics (2018). [Digest of Education Statistics 2017, Table 311:15](#). Washington, DC: National Center of Education Statistics.

Not only are fully online students disproportionately in the for-profit sector, a closer look at enrollment data indicates that a small number of large providers enroll the lion’s share. (Similarly, in the nonprofit sector, three institutions—Western Governors University, Liberty University and Southern New

Hampshire University—enroll about a third of the fully-online students, but overall a far smaller share of students in this sector are in such programs.):⁷

- Ten for-profit colleges⁸ enroll over 58 percent of the for-profit sector’s online students, 40 percent of the sector’s students overall, and eight percent of all online students.
- 15 for-profit colleges⁹ enroll more than 75 percent of the sector’s fully online students, 43 percent of the sector’s students overall, and 18 percent of all fully online students.

Others have also described this online concentration in both the for-profit sector and among a handful of colleges within the sector.¹⁰ A major 2012 Senate investigation of the for-profit college industry, which included an in-depth look at 30 of the largest companies, described the rapid expansion of online enrollment and found that the sector engaged in aggressive recruitment and marketing and produced poor student outcomes, including higher dropout rates. In particular, when comparing the outcomes of on-campus and online students at the same institution, in addition to paying higher prices, the latter experienced a 39 percent higher dropout rate (64 vs. 46 percent).¹¹ That same year, a paper by Deming et al. (2012) concluded that from 2000 to 2009 online for-profit colleges “increased from almost nothing to become the largest part of the sector.”¹² More recently, Deming et al. (2016) found that “the 23 largest for-profit institutions, owned by publicly traded companies and offering postsecondary degrees entirely online, enrolled more than 1.1 million students in 2012 and accounted for nearly 20 percent of the growth of US bachelor’s degrees (BAs) from 2002 to 2012.”¹³

In 2013 more than half of all students enrolled in institutions that are part of a for-profit chain were studying fully online, compared with about 1 percent of those attending selective public and private nonprofit four-year institutions. Non-selective public and private nonprofit colleges and universities and independent for-profits fell between these extremes.¹⁴ Moreover, at-risk students are disproportionately taking advantage of online coursework. Online students are more likely to be older, employed, female, independent, with children, and enrolled part-time,¹⁵ which are student characteristics most prevalent in the for-profit sector.¹⁶

In 2015-16, when 11 percent of undergraduates were studying entirely online, 15 percent of black students were in fully online programs. Only 1 percent of students with no risk factors for failing to complete a degree and 3 percent of those with one risk factor were enrolled fully online. A quarter of students with four or more risk factors were in these programs.¹⁷ In addition, the share of fully online students is negatively correlated with high school GPA. For example, 14 percent of students with high school GPA between 1.0 and 1.4 were enrolled fully online in 2015-16, compared with 4 percent of those with GPA of 3.5 or higher.¹⁸

Online student characteristics, which are associated with an increased dropout risk and lower completion rates, combined with the trends discussed above and the for-profit sector’s poor record in affordability and student outcomes, represent a significant challenge in ensuring quality educational opportunities for disadvantaged students pursuing online degrees.

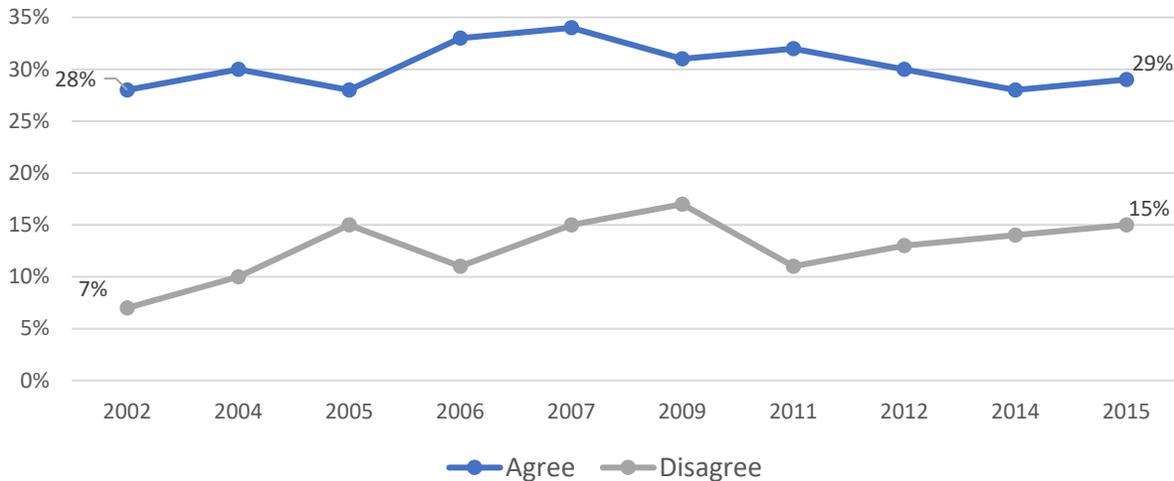
Perceptions of Online Education’s Quality and Value

Despite the dramatic growth of online education, there is significant skepticism about the value of online education among faculty, academic leaders, employers, and the public.

Often cited by proponents as “a major barrier” to the adoption of online education, faculty have been and remain apprehensive about its promise and potential.¹⁹ In ten national surveys of chief academic officers by the Babson Survey Research Group during the 2002-2015 period, no more than about a third ever

reported that faculty accept the value and legitimacy of online education, ranging from a low of 28 percent in 2002, 2005 and 2014, to a high of 34 percent in 2007 (Figure 5).²⁰ Most tellingly, in 2015, which is the latest year of available data, just 29 percent reported faculty acceptance, just one percent higher than in 2002, indicating no change in perception over a 13-year period. As the survey report concluded, “a continuing failure of online education has been the inability to convince its most important audience— higher education faculty members—of its worth.”²¹

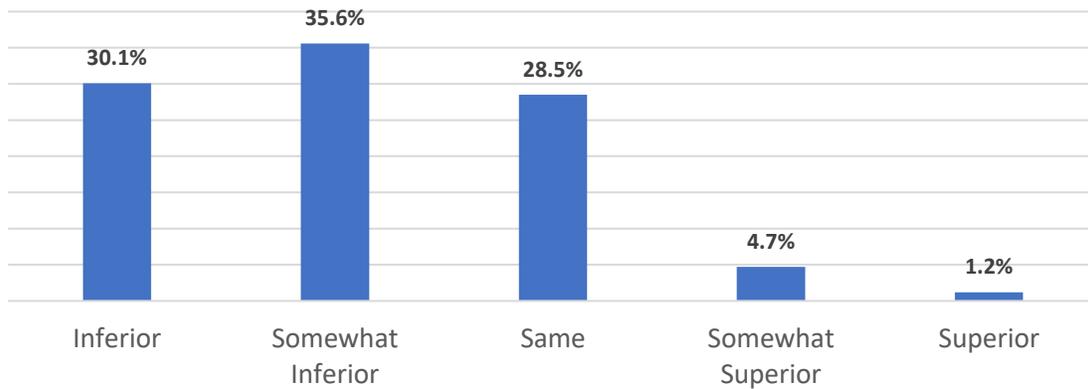
Figure 5: Faculty Acceptance of Online Education's Value and Legitimacy (2002-2015)



Source: I. Elaine Allen, I. Jeff Seaman, Russell Poulin, and Terri Taylor Straut (2016). [Online Report Card: Tracking Online Education in the United States](#). Babson Park, MA: Babson Survey Research Group and Quahog Research Group, LLC. p. 47.

In a separate 2012 survey of a nationally representative sample of more than 4,500 faculty, 2 out of 3 (66 percent) reported that online learning outcomes are “inferior or somewhat inferior” to face-to-face courses, compared with just six percent who said they were “superior or somewhat superior” (Figure 6). Also, 6 out of 10 faculty (58 percent) reported “more fear than excitement” about online learning, and fewer than half (47 percent) agreed that “online education can be as effective in helping students learn as in-person instruction.”²²

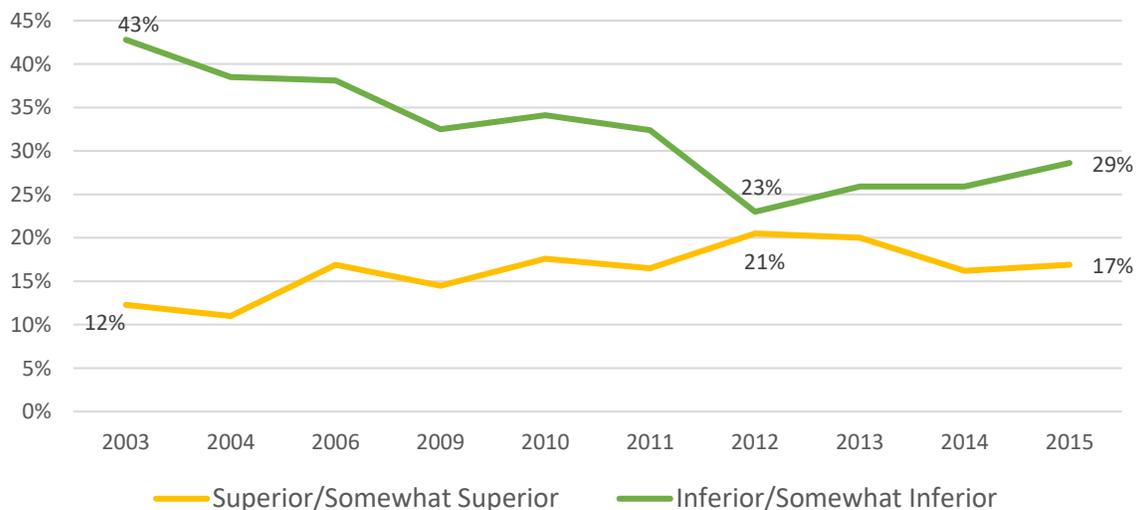
Figure 6: Faculty Opinions on Online vs. Face-to-Face Learning Outcomes (2012)



Source: I. Elaine Allen, Jeff Seaman, Doug Lederman, and Scott Jaschik (2012). [Conflicted: Faculty and Online Education, 2012](#). Babson Park, MA: Inside Higher Ed, Babson Survey Research Group and Quahog Research Group, LLC. p. 31.

Such skepticism is not confined to faculty. When asked to rate the relative quality of the learning outcomes for online courses, the share of academic leaders reporting that online courses were “inferior” or “somewhat inferior” to face-to-face courses declined from 43 percent to 23 percent between 2003 and 2012, but increased to 29 percent by 2015, indicating persistent doubt (Figure 7).²³ Moreover, the share of those who believed online education is “inferior” (as opposed to “somewhat inferior”) almost doubled in recent years, from five percent in 2012 to nine percent in 2015. In sharp contrast, three-and-a-half times as many respondents believed that blended/hybrid courses hold promise as saw promise in purely online courses (42 vs. 12 percent) in 2015.

Figure 7: Chief Academic Officer Opinions on Online vs. Face-to-Face Learning Outcomes (2003-2015)



Source: I. Elaine Allen, I. Jeff Seaman, Russell Poulin, and Terri Taylor Straut (2016). [Online Report Card: Tracking Online Education in the United States](#). Babson Park, MA: Babson Survey Research Group and Quahog Research Group, LLC. p. 47.

This uncertainty about the value and legitimacy of online education may also be fueled by growing concerns about the difficulties with student retention. During the 2004-2014 decade of online enrollment expansion, the share of chief academic officers who reported that student retention was a greater problem in online than in face-to-face courses increased from 27 to 45 percent.²⁴

Outside academia, the general public also remains skeptical about online education. A 2013 Gallup poll found that “Americans’ overall assessment of Internet-based college programs is tepid at best.”²⁵ While they recognize the broader range of options and value offered compared with a traditional face-to-face education, most reported that it provides lower quality instruction and less rigorous grading and testing, and is less credible to employers. Moreover, “despite lots of media and industry buzz about the personalized nature of online instruction, Americans still view traditional, classroom-based education as better tailored to each individual.”

Potentially contributing to negative perceptions of online education are recent government investigations and lawsuits that have raised concerns about the quality of such programs. A 2011 GAO undercover investigation of 15 online for-profit colleges documented significant issues with academic quality, including three out of four colleges admitting students with fake high-school diplomas and half of the colleges who enrolled such students failing to take action for substandard student performance, including failure to attend class, failure to submit assignments, submission of objectively incorrect assignments, submission of unresponsive assignments, and plagiarism.²⁶ For example, two colleges knew assignments were plagiarized but took no action, another college gave a passing grade to a student who submitted photos of celebrities and political figures in lieu of essay question responses, and another college awarded points for incomplete assignments.

More recently, following a 2016 lawsuit against George Washington University by a group of former online students who argued that they had paid a higher price but received a lower quality education than their on-campus peers,²⁷ and specifically cited a lack of instruction by and limited interaction with faculty,²⁸ a Faculty Senate task force investigation of the university’s online education programs revealed “lack of oversight, unclear course requirements and large student-faculty ratios.”²⁹

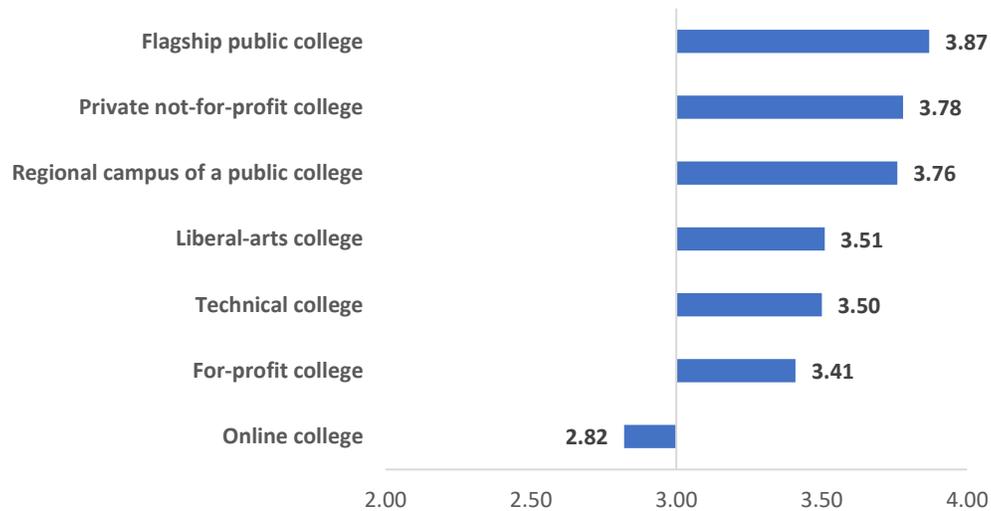
Arguably though, the most important perception is that held on the demand side of the labor market. Employers are the ultimate arbiters of the value of online education since they are best positioned to compare the skills, knowledge, and overall employability of online graduates. Several studies prior to 2010 examined employer perceptions of online degrees and reached the same conclusion: employers view candidates’ online degrees as inferior to or less desirable than degrees obtained through traditional, face-to-face instruction.³⁰ A 2012 comprehensive literature review of representative studies published between 2005 and 2010 in scholarly, peer-reviewed journals that covered a wide range of disciplines that are overrepresented in online education and the for-profit sector and corresponding job markets (including health and business)³¹ concluded that “there is a much greater likelihood that a candidate with an online degree would be viewed less favorably for employment purposes compared to the candidate with the face-to-face degree.”³² The primary concern cited by employers about online learning was the lack of interaction, and in particular face-to-face communication between students and faculty.

Similarly, a 2010 survey of 449 randomly selected human resource professionals by the Society for Human Resource Management (SHRM) found that half viewed candidates with online degrees less favorably than those with traditional degrees and that online degrees were far less acceptable for higher positions in an organization.³³

Given the online enrollment trends, one would expect that more recent evidence would find a shift to more favorable employer perceptions; however, that is not the case. A major *Chronicle of Higher*

Education survey in 2012 found that employers had negative associations with online colleges and this was the only type of college found to be undesirable, including for-profit colleges (Figure 8).³⁴

Figure 8: Employer Desirability of College Type (2012)



Mean Rating: 1=Very undesirable; 3=Neutral; 5=Very desirable

Q: How desirable would it be for you to hire a recent graduate with a bachelor’s degree from each of the following types of colleges and universities?

Source: Chronicle of Higher Education (2012). [The Role of Higher Education in Career Development: Employer Perceptions.](#)

A 2013 survey concluded that “employers perceived a traditional or hybrid modality more credible than a purely online modality across multiple industries” and confirmed previous studies documenting the hesitancy among employers to hire candidates with online degrees.”³⁵ Another 2013 survey of 116 health care recruiters from across the nation found that job applicants with traditional degrees were clearly most favored while those with online degrees from for-profit institutions were perceived the least favorably. The study concluded that “the return on education for students earning college degrees online or from for-profit colleges may be inhibited by employer perceptions regarding the quality of credentials earned in these environments.”³⁶ The same year, a survey of 656 human resources professionals found that 42 percent believe students learn less in online-only programs and 39 percent believe online-only degrees are easier to complete than more traditional ones.³⁷ Unsurprisingly, 56 percent prefer applicants with traditional degrees from an average university over those with an online degree from a top university, while 82 percent believe that a hybrid education model provides the best education.

A 2014 study of hiring managers and employers found that there is still a strong preference among employers for traditional degree holding candidates, with 40 percent of respondents agreeing that an online degree was of lesser quality than a traditional degree.³⁸ The same year, 38 percent of academic leaders reported that “lack of acceptance by potential employers was a “very important” or “important” barrier for the adoption of online education.”³⁹

A 2016 study of employer perceptions of online accounting degrees also found that employers are significantly more willing to offer employment to an entry-level job applicant whose baccalaureate degree was obtained in a traditional (on campus) or hybrid (blended learning) environment rather than an online

environment.”⁴⁰ Employers appear more accepting of online degrees for lower-level than for upper-level positions, consistent with findings in the 2010 SHRM survey.

In the field of education, two recent national surveys of high school principals found that applicants who had taken coursework in a traditional/residential setting were overwhelmingly preferred over applicants holding a degree earned partly or wholly online. Lack of personal interaction was the primary concern, as “online courses were perceived as not presenting sufficient opportunity for students to develop important social skills through interaction with other students and mentors.”⁴¹

Finally, a 2016 experimental study of the value of online degrees in the labor market found that a business bachelor’s degree recipient from a for-profit online institution is 22 percent less likely to receive a callback than one from a nonselective public institution.⁴²

Regardless of the actual quality of the learning in fully online programs, students who earn these degrees will have limited labor market opportunities as long as these strong views persist among employers.

Online Student Outcomes

Several studies have attempted to aggregate the findings of a wide range of earlier studies on the effectiveness of online learning.⁴³ These meta-analyses pre-date much of the more recent rigorous experimental work in the field. More than one summative investigation has judged that the research does not yield conclusive evidence of a systematic difference in learning outcomes between online and classroom courses, but that the variation in findings across the body of existing work is so great as to make it impossible to generalize. When hybrid models that blend face-to-face interaction with technology are classified as online course work, results are more likely to favor the online option. The variation in results is due to differences in methodology, the environments studied, and the nature of the courses examined.

Some of the meta-studies include only rigorous peer-reviewed studies. Others explicitly include a wider range of studies, many of which are based on simple comparisons of outcomes across small groups of students. For example, the Tallent-Runnels et al (2016)⁴⁴ review of research on online teaching and learning includes primarily descriptive and qualitative studies. The consensus that emerges is that learning outcomes appear to be the same as in traditional courses, but students with prior training in computers are more satisfied than others with online courses. Well-designed experimental design studies may yield insights not emerging from less rigorous methods.

Some studies focus on specific courses in economics or statistics, while others examine courses in a wide range of disciplines. In most cases, it is difficult to know much about the actual pedagogical methods, either in the classroom or online. It is hardly surprising that synchronous online courses with intense faculty involvement and courses consisting entirely of recorded lectures have different outcomes or that students in developmental education courses fare differently from those in master’s degree programs.

Measuring course completion rates will not necessarily yield the same conclusion as comparing test scores of course completers. This distinction underlies some of the ambiguity in the research findings on the success of online coursework, with measures of learning tending to yield more positive outcomes than successful course completion rates for online coursework.

Are hybrid classes included in the online category being evaluated? How diverse are the students in the study? These issues are particularly important, since there is broad consensus that classroom outcomes can be strengthened when technology supplements traditional teaching methods and that online learning

is more successful when combined with some amount of face-to-face interaction. In other words, it is not always easy to draw a clear line between online and classroom teaching and placing hybrid models on one side or the other for evaluation purposes can significantly alter the results.

Equalizing Opportunity?

A 2017 *Boston Globe* editorial posited that “Online learning can ease economic inequality.” The opinion piece, relying on insights gleaned from a recent conference, argued that colleges should increase affordable, for-credit online offerings in order to create opportunities for at-risk students.⁴⁵ Perhaps this vision will eventually be realized, but for now, this suggestion creates a significant potential threat to efforts to make meaningful progress in narrowing gaps in educational opportunities and outcomes across demographic groups.

Much of the research finding comparable outcomes for online and classroom courses, as well as the studies synthesizing that research, is more than a decade old. Despite the ambiguous findings from the large body of research comparing general learning outcomes for online and classroom courses, more recent studies using rigorous experimental techniques and focusing on the role of student characteristics have found that fully online courses have a significant negative impact on outcomes for at-risk students. In some environments, grades and other outcomes measures may be similar overall for purely online and classroom courses, but online courses appear to have significant disadvantages for less-prepared students and for those from under-represented groups. A number of studies at community colleges have found that students who take on-line classes do less well in subsequent courses and are more likely than others not only to fail to complete these courses, but to drop out of school.⁴⁶

Online courses, particularly those where students can do the work on their own schedules, may require more self-discipline and time management skills than traditional classroom courses. Interesting evidence on this issue emerged when two economists announced, but did not enforce, a deadline for registering for a MOOC they offered. Students who applied on time had higher grades and completion rates than those who applied late, differences plausibly related to self-discipline.⁴⁷

Purely online courses are also likely to limit opportunities for networking and interacting with instructors and peers, potentially hampering the educational process.⁴⁸ These realities make it unsurprising that students without strong academic skills and preparation struggle without the classroom structure—even if some students thrive.

Gladieux and Swail (1999)⁴⁹ raised concerns about online learning increasing socioeconomic gaps in educational outcomes twenty years ago and multiple studies confirm these findings about outcomes for vulnerable populations. Not surprisingly, students with more extensive exposure to technology, and with strong time management and self-directed learning skills are more likely than others to adapt to online learning.

Recent rigorous studies of community college systems have been discouraging. Smith Jaggars and Xu (2010) analyzed data on nearly 24,000 students in 23 institutions in the Virginia Community College system. They concluded that students had a greater likelihood of failing or withdrawing from online courses than from face-to-face courses and that students who took online coursework in early semesters were somewhat less likely to return to school in following semesters. Students who took a higher proportion of credits online were slightly less likely to attain a credential or transfer to a four-year institution.

Similar conclusions emerged from the Washington State Community College System (Xu & Smith Jaggars, 2011).⁵⁰ Analyzing data from more than 51,000 students in 34 community and technical colleges, the researchers found that although students with better educational preparation were more likely to enroll in online courses, these students were significantly more likely to fail or withdraw from these courses than students who took traditional face-to-face classes. Students who took more online courses were also slightly less likely to complete a degree or transfer to a four-year college than those who took fewer online courses. All types of students in the study performed worse in online courses, but some groups of students had particular difficulty adjusting to online learning, including males, students with lower prior GPAs, and black students. Performance suffered more in the social sciences and the applied professions such as business and nursing than in other fields, but the performance gaps that existed among these subgroups in face-to-face courses became even more pronounced in online courses in all subject areas.

According to this research from the Community College Research Center, the differences were even greater for developmental courses than for college-level courses. In online developmental English, failure and withdrawal rates were more than twice as high as in face-to-face classes. Students who took developmental courses online were also significantly less likely to enroll in college-level gatekeeper math and English courses. Of students who did enroll in gatekeeper courses, students who had taken developmental education online were far less likely to pass than students who had taken it face-to-face.⁵¹

Similarly, Kupp (2012)⁵² found that in California community colleges, students enrolled in online classes had, in the aggregate, lower completion rates and lower success rates than their peers in face-to-face classes. The authors found that online instruction significantly increased the achievement gap between Latino students, who experienced particularly large differences in success rates, grades, and withdrawal relative to their performance in face-to-face sections of the same classes, and white students. Interviews with Latino students enrolled in online courses provided insight into the importance of relationships to Latino student success. Students identified the absence of a strong student-instructor relationship as the key difference between their face-to-face and online educational experiences.

These findings are not limited to community colleges. A large study of students at a for-profit institution that offered courses with the same syllabus, instructors, requirements, and assessments found consistently worse outcomes for students taking the courses online. They earned lower grades in the courses and had lower grades the following term, particularly in the same subject area or courses for which the course in question was a pre-requisite. Students were about nine percentage points less likely to remain enrolled the semester after taking an online course than after taking a similar course in a classroom. Of particular note, the online classes reduced grades by more for students with below-average GPAs prior to the course.⁵³

In a study based on the random assignment of students in a large introductory microeconomics course at a major research university to either live lectures or watching these same lectures in an internet setting, Figlio et al (2010)⁵⁴ found no significant difference for students with high GPAs coming into the course. But those with low GPAs had more difficulty adapting to the online context and their performance suffered. Instruction, supplemental materials, and other course elements were the same for both groups. The results were particularly strong for Hispanic students, male students, and lower-achieving students, confirming other research finding at-risk students particularly likely to suffer from fully online courses.

Evidence about gender differences is mixed, despite the fact that overall, women have higher success rates in higher education than men. Several studies have found no differences between males and females in terms of their learning outcomes in online courses,⁵⁵ but others have found that women perform significantly better than men.⁵⁶

Johnson and Mejia (2014)⁵⁷ found that students at California community colleges were less likely to complete online courses and when they completed them, less likely to pass them. This result was

consistent across all groups of students, many fields of study, and most colleges in the system and persisted over the 10-year period for which data were available. Controlling for student characteristics, including prior academic achievement levels, increased the gap in success rates between the two types of courses. Online course success rates were between 11 and 14 percentage points lower than success rates in classroom courses. Of particular note, gaps across racial/ethnic groups were larger in online courses. The authors found that younger students, African Americans, Latinos, males, students with lower levels of academic skill, and part-time students were all likely to perform markedly worse in online courses than in classroom courses. The success gaps were smaller for students who already had a college degree, those who were following paths to transfer to a four-year institution, and students with GPAs above 3.0.⁵⁸

However, Johnson and Mejia (2014) suggest that, contrary to the findings from the Community College Research Center, the impact of the online format on long-term outcomes may differ from the impact on success in individual courses. A study by Shea and Bidjerano (2014)⁵⁹ supports this idea. Using data from the Beginning Postsecondary Student Survey, a nationally representative sample of students who began college in 2003-04, the authors found that in the nation as a whole, controlling for relevant background characteristics, students who enrolled in some online courses during their first year at a community college were more likely than similar students who did not take any of these courses to complete a credential by 2009. Online courses can provide needed flexibility, particularly to students struggling to combine school with family and work responsibilities. Even if success rates are relatively low in online courses, the availability of these courses may allow students to enroll in more courses each term, leading to the accumulation of more credits. Even low pass rates might increase graduation rates.

Online technology and pedagogy have developed considerably since many of the studies of this mode of delivering college courses were conducted. There is every reason to be optimistic that outcomes could improve over time as faculty and institutions have more experience. An interesting recent study examines the experiences of students at small private nonprofit colleges, which developed online courses in advanced humanities fields. The courses served students on multiple campuses and faculty found that, in an environment where personal interaction is central to the academic experience, incorporating students from other colleges was challenging. The difficulty of developing personal relationships with students was the main reservation instructors had. However, attrition rates were low and all measured outcomes improved as instructors gained experience when the courses were offered a second time.⁶⁰

The Critical Role of Student-Instructor Interaction

Since the early days of online education, interaction has been identified as the key element for quality. Almost 30 years ago, in defining distance education, University of Calgary professors Randy Garrison and Doug Shale argued that interaction is “education at its most fundamental form”⁶¹ and that student-instructor interaction in particular was “regarded as essential by many educators and highly desirable by many learners.”⁶² They emphasized the importance of student-teacher communication as essential to active learning. Even when online education was in its infancy, researchers had identified two-way and interactive communication as a key feature of distance education, and considered interpersonal communication and feedback as well as interaction among the seven critical competencies for online instructors.⁶³

This important realization about the centrality of interaction was also shared by the online education industry. In 2006, the U.S. Distance Learning Association stated that “distance education refers specifically to learning activities within a K–12, higher education, or professional continuing education environment *where interaction is an integral component*” [emphasis added].⁶⁴ A review of the relevant evidence certainly confirms that interaction is essential for ensuring quality and student success in online education.

Two major theories have been advanced to understand the effectiveness of online learning and both place a premium on instructor interaction and presence.⁶⁵ Transactional Distance posits that interaction is critical as it minimizes the pedagogical distance between students and instructors, while Community of Inquiry argues that teaching presence helps to provide structure and direction in the online environment, including “design and organization, facilitating discourse and direct instruction.”⁶⁶ Both online and face-to-face classroom instructors fulfill three basic roles: (a) educational experience designer, (b) facilitator to guide learning, and (c) subject matter expert.⁶⁷

In essence, the literature argues that learning is an active, dynamic process, and that social isolation is a risk factor associated with higher dropout rates. Instructor presence is integral for achieving interpersonal interaction and activities that emulate those of a “real person.”⁶⁸ Personal interaction increases student satisfaction, and by extension, motivation to learn and succeed.⁶⁹

Interpersonal interaction is a key feature of contemporary online learning and research over the past 20 years has consistently shown that strong student-instructor interaction increases student achievement.⁷⁰ The following section summarizes a number of peer-reviewed studies related to this issue, all of which confirm the importance of personal interaction in strengthening the student experience.

A 1999 survey of 1,406 State University of New York online students found that student–teacher interaction was strongly related to student satisfaction and perceived learning.⁷¹ Students with low levels of interaction had the lowest levels of satisfaction and learning and vice versa. The study concluded that “the results clearly indicate that instructors’ activity is an important factor in the success of online learning” and point “to the critical importance of active, authentic, and valued discussion to students’ perceptions of satisfaction and learning in online courses.”⁷² According to the study, frequent and constructive student-instructor interaction, along with clear course structure and vibrant discussion, is consistently associated with the success of online courses.

Another survey of 390 online MBA students between 1999 and 2001 at the University of Wisconsin Oshkosh found that instructor efforts to interact personally with students were positive predictors of student learning and course satisfaction.⁷³ An extensive review of online learning literature in 2002 similarly concluded that quality online learning largely depends on plentiful student interaction with instructors, as well as with other students, and content.⁷⁴ The following year, another literature review reached a similar conclusion about the central role of interaction to online learning and recommended its expansion in order to become as effective as face-to-face interaction.⁷⁵

A 2003 survey of more than 200 online students at a private university also found that, consistent with accepted theories, student-instructor interaction was a significant contributor to student learning and satisfaction, and that students valued additional interaction with instructors and peers.⁷⁶ The next year, another published survey of 199 online students, which investigated their views of online instruction, found that they wanted instructors who established trusting relationships and were actively engaged with students and their learning.⁷⁷

A 2005 case study of an online MBA program offered by a top business school, which included interviews and focus groups with faculty and students as well as a survey of more than 100 students, found that both instructors and students viewed such interaction as a key factor in high quality online programs and an effective tool for learning.⁷⁸ A 2006 survey of 131 undergraduate online students at Indiana State University concluded that interacting with instructors was most beneficial.⁷⁹ Yet another survey of 186 online students from 38 courses on six campuses in the Midwest found that instructor-student communication was strongly correlated with student engagement and urged instructors to provide multiple and meaningful paths for such interactions in order to create presence, which is an integral component of a successful online course.⁸⁰

In examining what specific instructor actions are most important in online student-instructor interactions, a survey of 32 online instructors and 170 students from their classes at a large public university and a private online university found that, among 19 actions identified by research,⁸¹ all but two were considered important or very important by more than 60 percent of the instructors, while all 16 actions were rated as highly by the students.⁸² The previously cited 2006 Tallent-Runnels comprehensive review of 76 studies in online education also concluded that student-faculty interaction must be both regular and substantive and reflect a clear understanding of the content, in order to truly promote learning.⁸³ The review concluded that faculty should promote interaction with students to help them construct knowledge, participate in discussions, and provide scaffolding.

Another meta-analysis of 74 studies on the role of interaction in distance education in 2009 found that the literature unequivocally supports the integral role and importance of interaction and concluded that stronger interaction and the greater engagement it promotes is associated with improved achievement and stronger outcomes.⁸⁴

More recent peer-reviewed studies further confirm the significance of student-instructor interaction as a key component of quality that leads to higher student satisfaction and achievement. A 2011 study of 23 online courses at two community colleges found that such regular and effective interaction encourages online students to commit more and perform better academically.⁸⁵ This is unsurprising, according to Jaggars and Xu, given that “nearly every published online quality framework has emphasized the importance of interpersonal communication and collaboration.”⁸⁶ Specifically, in high-interaction courses, instructors posted more frequently, sought student questions and feedback through various modes, responded to students faster, and incorporated student feedback. Overall, interpersonal interaction was the only design element that predicted student grades (unlike organization, objectives, and technology) and students valued and were concerned more about their interactions with instructors than with their peers.

A 2013 survey of 223 graduate and undergraduate students found that student-instructor interaction was a significant predictor of student satisfaction, and also confirmed previous research⁸⁷ about its centrality in the online course experience and its potentially strong impact on student outcomes and satisfaction.⁸⁸ Another survey of online students during 2013-14 found that students perceive student-instructor interaction and teaching presence as the most important factors for learning. Specifically, 82 percent rated such interaction to be most/somewhat essential and 88 percent rated teaching presence to be more/somewhat essential to their learning.⁸⁹ A 2013 case study that examined the performance of two instructors across six fully online courses also confirmed the instructor’s impact on student satisfaction, as well as on teaching and social presence, and by extension, learning quality.⁹⁰

A 2014 survey of 60 graduate online students found that online students believed they learned more in courses with high student-instructor connections, confirming once again that students learn better when both students and instructors actively participate. Students wanted a high degree of interactivity and communication, including feedback and mentoring, and deeper relationships with instructors.⁹¹ The authors warned that limited student-instructor online interaction leads to a disconnection and contributes to a poor learning experience.

In exploring the factors contributing to the low student retention rates in a fully online environment, driven in part by learner demotivation, researchers have suggested that live student-instructor interactions can have a positive effect in creating a better learning environment and recommend designing courses that foster more student-instructor and peer social interaction.⁹² Similarly, an earlier study also found that the absence of a live component was very detrimental to online learning.⁹³

Finally, student-instructor rapport also seems to be a key factor for student success. A survey of about 140 online undergraduate and graduate students at a medium-sized state university replicated the positive

correlation between student-instructor rapport and positive student outcome measures that has been found in traditional settings, pointing to the need for a greater focus on student-instructor interaction behaviors that build rapport, an important component of teaching.⁹⁴

Beyond peer-reviewed research studies, the online education community has also emphasized recently the importance of student-instructor interaction for ensuring quality. Since 2012, Learning House, a major online education services provider, and Aslanian Market Research have conducted an annual national survey of 1,500 prospective and actual online students to measure their perceptions, attitudes and behaviors on a wide range of topics and issues. In its inaugural report, the authors argued that increased interaction is a key competitive advantage of online education as a delivery method.⁹⁵

Online learning not only allows institutions to serve more students at a lower expense, but it also improves teaching methodologies, enhances the learning experience, and increases interaction among students and instructors, sometimes even beyond the interaction possible in a traditional classroom.

The same year, Learning House published a “Best Practices in Online Faculty Development” white paper, which focuses heavily on the integral role of interaction and lists leadership of the discussion forum, response to student assignments, and other classroom interactions as being among the core online faculty responsibilities, in their effort to engage and motivate online students.⁹⁶ The paper describes best practices in student-instructor online interactions:

For example, most of the faculty-student interaction occurs in a discussion forum where the faculty member responds to individual student posts. He or she provides feedback, refers the student to other posts and readings, probes for additional insights, draws parallels and helps students connect concepts. Faculty members react and respond to student comments rather than give a lecture or demonstration. The skill of presenting a compelling lecture doesn't apply to the online classroom; there, it is replaced with the skill of stimulating student thinking and learning through multiple, short comments.

Moreover, the white paper argues that, regardless of the delivery method, “the faculty member is still the key ingredient for an effective class and meaningful student experience,”⁹⁷ and urges institutions to require robust interaction with students as a key pedagogical strategy:⁹⁸

Institutions should set the most important expectation for faculty members--the tone and type of interaction with students. Faculty member–student interaction occurs in three basic ways: discussion forum participation, feedback on assignments, and e-mail exchanges. Generally, the tone of the interaction should be supportive and encouraging so students feel motivated to apply themselves. The type of interaction should be both penetrating and expansive. Students often need to think more deeply, consider alternative points of view, and gather more knowledge on a topic. Faculty members' comments and questions in grading and discussion forums can stimulate these practices in students.

Not only is student-faculty interaction a critical component of a quality online education, but the paper argues that such interaction must be both frequent and substantive:⁹⁹

Occasionally, people argue that quality is more important than quantity and so it is inappropriate for academic leaders to set minimum expectations for faculty participation in the classroom. They make the point that high-quality feedback once or twice a week is better than minimal feedback four or five times a week. However, this issue should not be a question of frequency or quality. The participation should be both frequent and high

quality for the optimal student experience. Both are important for a good learning experience.

Similarly, a 2012 discussion paper by the Heritage Foundation promoting online education also describes the important role of student-instructor interactions in all delivery modes: “It would appear, then, that student interactions with professors can be meaningful either in person or online. The medium does not determine the outcome; rather, the quality of interaction depends on how the medium is used.” The argument is that interactions with online instructors and classmates, together with ongoing personal relationships in the student’s community should be a substitute for an on-campus social life.”¹⁰⁰

More recently, commenting on research that highlights the importance of quality interpersonal interaction, the Online Learning Consortium (formerly the Sloan Consortium), which is “dedicated to integrating online education into the mainstream of higher education,” agrees that instructor feedback promotes student engagement and concludes that interaction is a critical area that online education needs to work hard to provide: “Computers can distribute information and technology can make it snazzy, but the crucial element of interpersonal relationships may be harder to perfect without face-to-face contact.”¹⁰¹

This conclusion is largely supported by an analysis of the seven reports published to date on the annual “Online College Students” surveys, which confirms that students strongly value opportunities for interaction with instructors and lack of such interaction is online education’s major shortcoming, despite the above suggested best practices and aspirations.

In 2012, online students cited lack of direct contact and interaction with instructors and students (37 percent) and inconsistent or poor contact and communication with instructors (24 percent) as the top two greatest disadvantages of online education, which, as the report concludes, supports the high level of importance students give to having easy and open access to their instructors. The authors then recommend that online education providers set expectations for the quantity and quality of faculty interaction with students and provide appropriate faculty support and guidance. The surveys have also found that, when selecting a program, offering “real-time” class sessions that facilitate synchronous student-instructor interactions is an important programmatic feature that students look for when selecting an online program.¹⁰²

In 2015, almost one-third of students surveyed (29 percent) preferred the instructor-led model of instruction, “where an instructor takes students through their learning activities,” while more than a third (36 percent) would like to meet (virtually) regularly with a faculty member from their field of study to discuss courses and schedule. The authors observe that online students would like more interaction with faculty members. They argue that setting expectations for faculty interaction and using faculty members as advisors would improve student satisfaction and probably retention. In 2016, the survey found that for students, the opportunity to meet with classmates and instructors on campus was an attractive programmatic feature of online programs.¹⁰³

The key finding of the 2017 survey was that students want to be part of a community, with 57 percent of students citing the importance of being able to regularly engage with classmates and instructors during online classes, 27 percent desiring more contact with the instructor, and 22 percent asking for more facilitated engagement among students in the class. In addition, more than three out of four students (76 percent) find optional virtual office hours held by instructors attractive. Once again, the authors recommend a renewed focus on increased interactivity in online settings: “Set expectations and provide training for faculty members who teach online courses to encourage and lead class discussions, as well as engage with students outside of class time, whether via office hours, email, or other means.”

In summary, the surveys find that prospective and actual online students clearly demand a more interactive educational experience, which includes regular and direct contact and communication with instructors, easy access to instructors, real-time class sessions, and other synchronous interactions such as virtual office hours and meetings, instructor-led learning, and a sense of community through engagement with peers and instructors. In other words, for online education to reach its potential, a renewed focus on and commitment to regular and substantive student-interactions is essential for student satisfaction, achievement, and success. It is reasonable to believe that many of the problems with online learning—particularly for at-risk students—would be mitigated if these courses and programs consistently incorporated the personal interaction that is central to the learning process.

Return on Investment

Public policy should be based on reliable information about the value of investing in different types of postsecondary education both for individual students and for society as a whole. Much of the motivation for making education available to a wide range of students is that it opens doors to more rewarding lives and to higher earnings for individuals and also increases the productivity of the nation's labor force.

All other things equal, producing education using fewer resources will increase the rate of return to the investment. But if the quality of the education suffers, this will not necessarily be the case. Even if we can produce online education more cheaply than classroom education, if the savings are not passed onto the students and if there are higher failure rates, less learning, and weaker labor market outcomes, it could mean a long-run loss.

It is never easy to measure the value of education produced, but interesting insights come from a study by Caroline Hoxby (2018) based on integrated data from the Internal Revenue Service and the Department of Education. Hoxby examined earnings outcomes for all students who engaged in postsecondary education that was wholly or substantially online between 1999 and 2014.¹⁰⁴

Like other forms of postsecondary education, fully online learning does appear to increase the rate of growth of income, but not enough to make up for the cost of the education or even, in most cases, the cost to the individual student. The 10-year returns to fully online enrollment do not cover the direct costs to society. The same is true for students enrolled substantially, but not entirely, online. In particular, students who persist for short periods of time see very low returns—making the evidence of reduced persistence rates for fully online students even more of a problem.

Hoxby concludes that the vast majority of online postsecondary enrollment generates earnings benefits that never cover social costs and probably do not even cover students' private costs. Moreover, her data do not support the idea that online education shifts people into higher productivity industries such as more technical fields.

Some of these results may be related to the concentration of online study in for-profit institutions. In 2015-16, when 8 percent of undergraduates at degree-granting institutions were enrolled in the for-profit sector, 30 percent of those studying exclusively online were enrolled in this sector.¹⁰⁵ This enrollment pattern might raise questions about how overall performance in online learning relates to institutional type. However, most of the studies showing poor academic outcomes, particularly for vulnerable students, compare students experiencing different modes of learning within individual institutions. As noted, the concerning findings are consistent across sectors.

Reducing Costs

Theoretically, teaching more students with fewer instructors can make a big dent in the cost of providing higher education. Rather than paying three professors on campus to lecture in halls seating 100 students, a university can pay one professor to give one lecture reaching an infinite number of students at the same time. Beyond the lecture approach, students can access pre-packaged on-line courses with exercises that allow them to progress at their own pace, relieving faculty members of repeated interactions with individuals and small groups. Also theoretically, those savings can then be passed on to students in the form of reduced tuition.

The Hoxby study cited above found that exclusively online schools spend less than others on instruction, but do not have significantly lower overall costs, possibly because of the expense of curriculum development, administrative services, legal and fiscal operations, and other activities. It also found that online colleges charged students more than classroom-based colleges with similar offerings.

Hoxby's findings raise two important questions: whether online courses are really likely to reduce the resources required to produce education and whether any savings will lead to more affordable education, one of the main goals of proponents of the expansion of online education. The focus is usually on reduced labor and facilities costs. But it is possible that additional non-instructional staffing time required will at least partially compensate for savings in this area—not to speak of the technology costs for both institutions and students. Moreover, the importance of integrating personal interaction into online courses may limit the feasible reduction in instructional costs.

Another issue is that the vision of low marginal costs for online courses usually assumes that courses can be developed once and ongoing costs will be low. There are, however, several reasons to question this vision. Bringing new faculty into the process will continue to be time-consuming and resource-demanding and many faculty face steeper learning curves than for classroom instruction. In a survey of faculty asking how much time it took to plan and develop online courses relative to a comparable face-to-face course, 100 percent of respondents answered about the same time or greater, including 80 percent who answered more time or much more time.¹⁰⁶

Online courses cannot just be created and left alone any more than lecture notes can. In most fields, new developments and new insights arise frequently. Moreover, as technology evolves, the forms of online learning will change. One advantage of technology is the possibility of collecting data about what works best for students and using those data will inevitably lead to course revisions. All of this requires both faculty time and support from others, including assessment experts, course designers, and technical experts. Western Governors University spends between 25 and 35 cents in each of the subsequent three years for every dollar invested to launch an online course.¹⁰⁷ After reviewing the relevant evidence, McPherson and Bacow (2015) concluded that high-quality online courses are expensive to deliver—at least as expensive, if not more, to develop and staff than traditional face-to-face courses.¹⁰⁸ In contrast, a recent case study report estimated cost savings between 3 and 50 percent of average credit hour costs in four of the six institutions examined in depth.¹⁰⁹

Marketing is arguably a major cost driver and tuition inflator for online education, which may go a long way in shedding light on the cost question. According to John Katzman, founder and CEO of major education companies (The Princeton Review, 2U, and Noodle): “Tech, spread out, becomes less expensive. But recruiting the 300th student is more expensive than the 299th and every added student is more expensive. And the two work against one another.”¹¹⁰

A critical issue is how online education has affected costs to students. A 2017 survey of about 200 online education colleges by WICHE Cooperative for Educational Technologies found that more than half (54

percent) charged their online students more in tuition and fees than on-campus students and that nine out of 21 cost components were higher for online education, while the rest were the same, thus challenging the “mythology, unrealistic expectations, and unfulfilled promise regarding the economics of distance education courses.”¹¹¹ These findings were consistent with earlier surveys.¹¹²

A 2016 report by major investment advisor firm BMO reached a similar conclusion: “While conventional wisdom holds that an online degree may cost less than one obtained at a bricks and mortar school, that may not necessarily be the case...the average per credit, in-state cost for an online bachelor's program was \$277, compared with \$243 per credit at brick-and-mortar schools.”¹¹³ Similarly, a 2017 survey of 182 chief online officers found that although a 2.5-to-1 majority views online programs as “revenue generators” rather than as “a drain on resources” (45 vs. 18 percent), three out of four (74 percent) charge the same tuition as the on-campus rate and 23 percent of programs charge their online students more.¹¹⁴ Interestingly, large online programs with more than 7,500 fully and partly online students, are the most likely (59 percent) to call online programs revenue generators and are almost four times as likely to charge higher tuition for these courses (57 percent vs. 15 percent). Among the top reasons cited for charging online students more were online instruction and support services, online course and program development, online program marketing costs, pricing headroom for high-demand programs, and meeting revenue goals.

Overall, the available evidence undermines the argument that online education has significant potential to reduce costs for students. Whether due to the high technological and instructional costs required to provide and maintain a quality educational experience, the need for large marketing budgets, or simply because savings are turned into profits or used to subsidize other programs, online education has yet to bend the cost curve in higher education and offer an affordable option.

Online Education and Federal Policy: The Regular and Substantive Interaction Requirement

The law provides access to federal student aid for two types of programs that involve students being separated from instructors: correspondence and online education. From 1992 through 2006, both types were treated equally for purposes of federal student aid, with significant restrictions placed on them compared with traditional face-to-face programs. In 2006, Congress changed course and began to treat online programs similarly to traditional programs, thus providing unrestricted access to student aid. However, in doing so, the law specifically required online education to provide “regular and substantive interaction” (RSI) between students and instructors, unlike correspondence programs. The history behind the RSI requirement is critical for understanding the current debate about its significance and whether it should be revised.

In “direct response to the costly fraud, waste and abuse that resulted from the participation”¹¹⁵ of correspondence programs in federal student aid, in 1992 Congress implemented the “50 percent rule,” prohibiting higher education institutions from offering more than 50 percent of their programs through, or enrolling more than 50 percent of their students in, correspondence or telecommunications (online) programs.”¹¹⁶ In addition, Congress placed significant restrictions on correspondence education in regards to student aid access and amounts.¹¹⁷

After intense lobbying from online education providers and for-profit colleges,¹¹⁸ in 1998 Congress created the Distance Education Demonstration Program, which provided waivers from the 50 percent rule to about 30 institutions, primarily for-profits such as the University of Phoenix, but also including the newly established Western Governors University (WGU) and University of Maryland University College, both among the largest online universities in the nation today. As the program was set to expire, and following another lobbying blitz,¹¹⁹ in 2006 Congress exempted all online programs from the 50 percent

rule in a deficit-reduction bill, thus providing them full access to federal student aid, but preserved the rule for correspondence programs.¹²⁰ In the next four years, online enrollments more than doubled.¹²¹

However, the 2006 change created a potential problem: there was no way to clearly distinguish between the correspondence and online delivery modes. For example, a correspondence course could use technology so that a correspondence course using “minor e-mail contact between students and a grader or instructional assistant (who may or may not have subject matter expertise)” could gain full access to federal student aid, and circumvent the 50 percent rule.¹²² Therefore, recognizing that “Quality standards for electronically-delivered education emphasize the importance of interaction between the instructor and student,” the Department’s final regulations implementing the 2006 change added the RSI requirement to clearly distinguish online from correspondence education.¹²³

In the 2008 reauthorization of the Higher Education Act, Congress codified into law this key distinction: in order for a program to be classified as “distance education” (online) it must use technology “to support regular and substantive interaction between the students and the instructor, synchronously or asynchronously.”¹²⁴ In other words, to be eligible for full access to federal student aid and avoid the 50 percent rule, online programs must provide RSI, rather than simply self-learning, which correspondence courses offer. Absent RSI, a program would be classified as a correspondence program, subject to student aid limitations and the 50 percent rule. Accordingly, federal regulations specify that in correspondence education “interaction between the instructor and student is limited, is not regular and substantive, and is primarily initiated by the student” and courses are typically “self-paced,” while distance education uses technology “to deliver instruction to students who are separated from the instructor and to support regular and substantive interaction between the students and the instructor, either synchronously or asynchronously.”¹²⁵

In 2014, the Department further clarified through non-regulatory guidance that student-faculty interaction cannot be “wholly optional or initiated primarily by the student” or occur solely “upon the request of the student.”¹²⁶ Moreover, given the lack of a statutory or regulatory definition of instructor or faculty, the Department clarified that students must interact with “institutional staff who meet accrediting agency standards for providing instruction in the subject matter being discussed.” Otherwise, an IHE could conceivably label any individual, regardless of their qualifications, as “faculty” for the purposes of meeting this requirement. Given that accrediting agencies are responsible for academic quality assurance in federal student aid programs, they are also responsible for determining or approving instructor qualifications. To summarize, according to the RSI requirement, in online education:

- Interaction between students and instructors occurs regularly as a required part of the program.
 - Interaction that is wholly optional, initiated primarily by the student, or occurring only upon the request of the student (either electronically or otherwise) is insufficient.
- Interaction must be provided by institutional staff who meet accrediting agency standards for providing instruction in the subject matter being discussed.
 - Interactions between students and personnel who don’t meet accrediting agency standards for providing instruction in the subject area are not substantive.
 - The amount of faculty resources dedicated to the program must be sufficient in the judgment of the accrediting agency.
- Educational models that involve different instructors performing different roles¹²⁷ may be used to ensure regular and substantive interaction between students and instructors, but an institution must still comply with the above requirements.

Overall, federal law, regulations and guidance make it clear that RSI is a key distinction that separates online education from correspondence programs, which are subject to limitations to student aid and the long-standing “50 percent” institutional eligibility rule.

Emergence of Online Competency-Based Education and Calls for Change

As evidenced by the explosive growth of online education, RSI has not hindered the expansion of distance education programs. However, recent developments in higher education, particularly the emergence of competency-based education (CBE) have fueled calls for revising RSI.

Despite its 50-year history in higher education,¹²⁸ there is no consensus definition of CBE,¹²⁹ not even among CBE institutions,¹³⁰ nor is the term defined in federal law or regulations.¹³¹ There also is no uniform CBE model or approach.¹³² A major Department of Education study of the field in 2002 defined “competency” as “a combination of skills, abilities, and knowledge needed to perform a specific task” and described CBE as “defining, teaching, and assessing competencies.”¹³³ In 2015, the Council of Regional Accrediting Commissions (C-RAC), comprised of the seven regional accrediting agencies, issued a common CBE framework that included the following definition:¹³⁴

In general, competency-based education (CBE) is an outcomes-based approach to earning a college degree or other credential. Competencies are statements of what students can do as a result of their learning at an institution of higher education. While competencies can include knowledge or understanding, they primarily emphasize what students can do with their knowledge. Students progress through degree or credential programs by demonstrating competencies specified at the course and/or program level. The curriculum is structured around these specified competencies, and satisfactory academic progress is expressed as the attainment or mastery of the identified competencies. Because competencies are often anchored to external expectations, such as those of employers, to pass a competency students must generally perform at a level considered to be very good or excellent.

In recent years, CBE programs have experienced significant growth and attracted considerable attention in the higher education and policymaking communities, in large part due to their potential to provide a more accessible and affordable route to postsecondary education for non-traditional students, such as older and working adults, and to improve student outcomes. In 2014, a total of 52 colleges either offered (34 colleges) or had announced plans to launch (18 colleges) CBE programs. All colleges with active CBE programs offered Prior Learning Assessments (PLA) that grant credits to students for knowledge and skills previously mastered through experiential learning (professional, military or life experience).¹³⁵ In 2014, a group of colleges offering CBE programs was formed, which today includes 30 colleges and universities and four public systems with 82 campuses.¹³⁶ By 2015, 600 colleges were either offering, actively creating, or designing CBE programs, reflecting remarkable growth.¹³⁷

The RSI requirement has major implications for CBE for three reasons: First, while CBE can be offered either online, on campus, or both, the vast majority of programs are online, including those offered by the largest and most well-known providers. Second, as a self-paced educational model, similar to correspondence education, CBE often involves instructors performing different roles as “no single faculty member is responsible for all aspects of a course or competency,” which is often described as the “unbundling” of faculty roles.¹³⁸

Finally, recent compliance findings involving online, mostly CBE, programs have fueled speculation about RSI having a chilling effect on its growth,¹³⁹ despite no such evidence to support such concerns.¹⁴⁰ The Department of Education’s Office of Inspector General (OIG) has identified several RSI violations:

- In 2012, the OIG found that Saint Mary-of-the-Woods College, a small private liberal arts college in Indiana, had violated the 50 percent rule because its online courses did not provide RSI and thus should have not received more than \$42 million in federal funds between 2005 and 2010.¹⁴¹

- In 2014, the OIG raised flags about approvals of CBE programs. Citing lack of RSI, the OIG said such programs “are really correspondence programs.”¹⁴² For example, in reviewing one of the approved school’s applications, the OIG found no evidence of either *regular* or *substantive* interaction, neither was interaction with *faculty*, as required by law, described. Instead, “coaches” replaced faculty.¹⁴³ The Department relied on the accrediting agency’s approval of the program, but the OIG’s review of the accreditor’s standards for faculty found that “the accrediting agency’s definition of faculty and the definition of a coach in the school’s application did not match.” In response, the Department issued the 2014 guidance mentioned earlier.
- In 2015, the OIG released a final audit of the Higher Learning Commission (HLC), a regional accrediting agency, related to its reviews of CBE programs that found significant problems with how it applied its standards in determining the delivery methods and measurements of student learning, including whether CBE programs provided RSI. HLC approved applications for “self-paced programs” that “did not clearly indicate that the programs would include regular and substantive interaction between students and school employees who met” its definition of faculty.¹⁴⁴
- In 2016, the OIG released an audit of another regional accreditor, the Western Association of Schools and Colleges (WASC) and found similar problems, concluding that its “control activities did not provide reasonable assurance that schools properly classified the methods of delivery for competency-based education programs,” including that WASC failed to evaluate whether they were designed to ensure “faculty-initiated, regular, and substantive interaction between faculty and students.”¹⁴⁵

In response to the 2015 and 2016 audits, C-RAC urged accreditors to consider compliance with RSI when evaluating CBE programs.¹⁴⁶

However, the most high-profile OIG audit was released in 2017. After several years of trying to determine whether WGU, the nation’s largest and most well-established online CBE provider, complied with various aspects of federal law and regulations, the OIG concluded that about two-thirds of the 102 online courses required for its three largest programs did not meet “the key” RSI requirement.¹⁴⁷ The OIG applied the following RSI test:

- Interaction that was not primarily initiated by the student
- Interaction with someone who instructs or provides knowledge about the subject matter of the course (instructor)
- Interaction relevant to the subject matter (substantive), and
- Interaction occurring with some reasonable frequency considering the school-suggested length of the course (regular)

Specifically, 32 course materials described no substantive interaction with an instructor, 27 courses described a single substantive interaction, while 10 courses described two substantive interactions. In other words, more than 6 out of 10 WGU students were enrolled in one or more of 69 courses that met the definition of a correspondence, not distance education, course, thus causing WGU to violate the 50 percent rule. As a result, the audit recommended the return of \$713 million in federal student aid for the two-year period examined, plus funds received thereafter.

Of particular importance, the audit report concentrated on the issue of who qualifies as an instructor in an unbundled faculty model, such as that employed by WGU and many other online CBE providers. The

OIG determined that out of the five groups of faculty (student mentors, course mentors, evaluators, product managers, and council members) only student interaction with course mentors, who provided instruction, and evaluators, who provided detailed course content feedback, qualified for the RSI requirement, as the rest of the faculty were non-teaching faculty. Moreover, the audit found interaction with course mentors was on an “as-needed basis and typically initiated by the student.”

The audit report also described some interactions that do not meet the RSI requirement, including computer-generated assessment feedback; recorded webinars, videos, and reading materials; and contact with non-instructional faculty. In contrast, the OIG provided examples of substantive interactions, such as requiring the student to contact an instructor or participate in an online discussion board moderated by an instructor, or an instructor providing feedback to students on their performance tasks. Overall, the audit arguably sets a low bar for meeting the RSI requirement, both in terms of frequency and type of interactions.

Recent Policy Developments

Following the OIG audits, and especially after the release of WGU audit report, online and CBE education proponents have called for eliminating or revising RSI, arguing that it acts as a barrier to innovation¹⁴⁸ by applying “an obsolete, 20th-century definition to a 21st-century” educational model¹⁴⁹ and “has to go.”¹⁵⁰

In both Congress and the Department of Education, RSI is now under threat. The Department of Education not only took no action on its OIG audit recommendations; it also announced a new regulatory effort that will reexamine RSI.¹⁵¹ The Republican proposal in the House to reauthorize the Higher Education Act would also gut both requirements by:

- Repealing the definition of and, by extent, the RSI requirement for, online education;
- Further weakening the definition of correspondence education; and,
- Adding a new CBE definition that has a severely weakened, and largely unenforceable, requirement for “substantive instructional interaction, including by faculty, and regular support by the institution.”

While the repeal of RSI requires statutory change, the upcoming negotiated rulemaking provides an opportunity to either strengthen or weaken it. One route that may be explored will be to adopt the approach embedded in a Department of Education CBE experiment that was announced in 2014 to learn, among other research questions, “how institutions ensure regular and substantive interaction between students and instructors,” in which 30 institutions currently participate.¹⁵² The guidance restated the 2014 policy, but also provided additional flexibility, which is a core feature of such experiments. Specifically, it specified a two-part RSI test, one concerning access to faculty and one regarding program design:¹⁵³

- Access to qualified faculty: “must be available to students who are struggling...or for any reason when the student wants to interact with a faculty member.” Moreover, “Learning coaches, online tutoring, and other support can be offered and used and may even count for the majority of students’ support (and success),” with faculty access required “at least when students need or want it.” The letter then notes that when “a faculty member is not the primary monitor of student engagement with learning (as in traditional instructional models), the institution must have some combination of staffing and systems to monitor student engagement, level of performance, and to provide proactive support.”

- Program design: The letter defined “regular interaction” as “periodic contact” that “can be event driven,” including “through the use of email or other social media,” but “should be understood as predictable regularity and built into program design” and “must create the opportunity for substantive interaction.” The letter clarifies that “while an automated system for initiating contact with students could be one aspect of program design, such a system in and of itself could not meet the requirement for regular and substantive interaction.” However, the letter then states that “contacts with students that create the opportunity for relevant discussion of academic subject matter could qualify as substantive interaction.” Moreover, while acknowledging that assessment “takes on particular importance in outcomes-focused programs like CBE,” the letter “does not require that faculty administer and/or grade all assignments, though faculty feedback on student assignments may be a very effective form of substantive interaction.”

The Watchdog Is Barking, but Who Is Listening?

In the past 15 years, the OIG has repeatedly warned the Department and Congress about the “the unique risks inherent in the distance education environment” and several audits, investigations and special projects have identified numerous instances of fraud and widespread vulnerabilities, including problems with verifying student identity, determining attendance, and determining cost of attendance.¹⁵⁴

Specifically, the OIG has concluded that, as “the fastest growing segment of higher education,” distance education “creates unique oversight challenges and increases the risk of school noncompliance with the law and regulations,” and has called on the Department, accrediting agencies, and states to adequately monitor schools for compliance. In recent years, each OIG annual management challenges report to the Secretary of Education and each semi-annual report to Congress highlights distance education as an area that poses significant risks to the integrity of federal student aid programs. Moreover, its 2015 audit found major weaknesses in the Department’s oversight of online education

In March 2018, the OIG submitted to Congress detailed comments and recommendations for needed changes in the upcoming reauthorization of the Higher Education Act.¹⁵⁵ Unsurprisingly, several of its recommendations were focused on online education, and the OIG raises serious concerns about the elimination of RSI, as well as the definition of “distance education,” in the House PROSPER Act. In particular, the OIG argues that their elimination, coupled with the amended definition of correspondence education that includes “interaction between the institution and the student is limited and the academic instruction by the faculty is not regular and substantive,” will render meaningless the RSI requirement and thus allow programs without any substantive interaction between subject-matter experts and students to have full access to financial aid:

A significant difference from the former definition of distance education is that “instructor” is replaced with “faculty.” Faculty could include mentors or counselors that lack subject matter expertise in the courses a student is taking. Removing the definition of distance education and replacing “instructor” with “faculty” in correspondence education would allow a school to qualify for full participation in the Federal student aid programs based on e-mail contact between students and faculty on matters unrelated to the subject matter of a program. There will be no assurance that programs provide the level of interaction Congress previously expected with instructors for full funding of distance education. Distance education funding would only be restricted in the unlikely event the programs qualify as correspondence education.

The OIG then urges lawmakers to retain the clear distinction between correspondence and distance education by leaving intact the current definition of distance education, including the RSI requirement

between instructors and students, and calls for improved oversight by the Department, accrediting agencies, and the States.

An Evidence-Based and Responsible Path Forward

In many ways, these efforts to loosen the requirements resemble the 2006 change Congress made to exempt distance education from the 50 percent rule, despite warnings by GAO and others about the risks involved,¹⁵⁶ thus opening the floodgates of federal student aid to fully-online schools.¹⁵⁷ Interestingly, WGU was at the center of those efforts as well. As in 2016, the narrative is the same: federal law and regulations are standing in the way of innovation, which could expand access and reduce costs for students.¹⁵⁸ As documented, the greatest beneficiaries of the 2006 change were for-profit colleges,¹⁵⁹ which enroll almost one-third of all fully-online students, but less than ten percent of all students, and distance education has not reduced costs for students.¹⁶⁰ Before we go down this path of “deregulation for innovation” again, it’s important to heed the lessons of history and avoid the same consequences, both intended and unintended.

Our review of the evidence clearly demonstrates that, on average:

- Online education is the fastest-growing segment of higher education and its growth is overrepresented in the for-profit sector.
- A wide range of audiences and stakeholders—including faculty and academic leaders, employers and the general public—are skeptical about the quality and value of online education, which they view as inferior to face-to-face education.
- Students in online education, and in particular underprepared and disadvantaged students, underperform and experience poor outcomes. Gaps in educational attainment across socioeconomic groups are even larger in online than in traditional coursework.
- Online education has failed to improve affordability, frequently costs more, and does not produce a positive return on investment.
- Regular and substantive student-instructor interactivity is a key determinant of quality in online education; it leads to improved student satisfaction, learning, and outcomes.
- Online students desire greater student-instructor interaction and the online education community is also calling for a stronger focus on such interactivity to address a widely recognized shortcoming of current online offerings.

The implications of the above for federal policy are significant. First, do no harm. Weakening RSI would not only be inconsistent with the evidence that clearly demonstrates the key role of faculty-student interaction in ensuring a quality online education, but would also further erode employer, student, educator, and public confidence in and perceptions of its comparative value.

For example, adopting in federal law the flexibility provided in the ED experiment, as some recent proposals advocate, would severely undermine the substance and intent of the RSI requirement:

- By requiring “access to qualified faculty,” only for students “who need or want it,” this new approach would allow students who are not struggling or do not initiate interaction to progress through a program without such access, as is the case in correspondence courses, in which interaction is “limited” and “primarily initiated by the student.”
- By allowing institutions to “have some combination of staffing and systems to monitor student engagement, level of performance, and to provide proactive support,” when a “faculty member is not the primary monitor of student engagement with learning,” as is typical in CBE and other

unbundled programs, this approach would allow an institution to use a combination of 99 percent technology and/or non-qualified staff and 1 percent qualified faculty to perform these key instructional duties.

- By interpreting “regular” interaction as “periodic contact” through email and social media and “event driven” (“completion of certain key competencies, a percentage of competencies, or the submission of assessments”), this approach would allow occasional online chat rooms or virtual office hours that “create the opportunity for substantive interaction” to meet the requirement.
- By defining “substantive” as “interaction, or the opportunity for interaction, with a student that is relevant to the academic subject matter in which the student is engaged,” this flexibility would conceivably allow a student who does not take advantage of an interaction “opportunity” to progress through a program without engaging substantively with faculty.
- Finally, assessment is at the heart of CBE. While acknowledging that “assessment takes on particular importance in outcomes-focused programs like CBE” and “faculty feedback on student assignments may be a very effective form of substantive interaction,” this new approach would allow non-faculty to “administer and/or grade all assignments.” Once again, by exempting qualified faculty from this core component of the CBE educational experience, this approach would further render the RSI requirement meaningless.

The flexibility provided by ED in the experiment should be rigorously evaluated prior to considering embedding it in law or regulations. The purpose of such experiments is to inform potential policy changes through the study of research questions. Adopting such a dramatic change without first studying its impact on a small scale infuses unnecessary risk into our federal student aid programs with potentially wide-ranging implications. Furthermore, deferring to accrediting agencies to define “instructor” and “faculty” is unavoidable, at least under the current triad system in which accrediting agencies are the authorities tasked with quality assurance. This was reaffirmed in the flexibility ED provided, which required accreditors to determine which faculty have “the appropriate academic credentials and experience in the applicable knowledge domain.” Finally, we must avoid any possibility of a student progressing through an online program, whether CBE or not, without ever interacting with faculty. Reforms that simply require “the opportunity for interaction” should be off the table, as they would set a bar even lower than correspondence education.

A responsible path forward would reflect the evidence reviewed in this paper. RSI should be preserved, if not strengthened, and vigorously enforced. Unbundled faculty models that have difficulty complying should make changes to match the law instead of changing the law to match the needs of such models. Interaction must be with subject-matter experts, not just anyone labeled “faculty” by an institution. It is in the best interest of online providers to pursue the strategies recommended by the industry to increase interaction and thus improve their quality, student outcomes and satisfaction, and employer confidence in the value of their credentials. Not only is RSI a student and taxpayer safeguard, it is also an essential element of a successful and sustainable business model.

Online education’s failure to yield cost savings for students and taxpayers, as well as the high concentration of online students in the for-profit college sector, which has a well-established and long record of predatory behavior and compliance troubles, should raise oversight concerns for policymakers and the Department of Education. The incentives for a quick profit through lower production costs and high tuition prices, subsidized by the federal government through aid, combined with an environment of deregulation, further amplifies the repeated and urgent warnings of the OIG about the significant risks in online education, which call for stronger monitoring and enforcement in this area of higher education.

Finally, it is imperative to keep in mind that RSI applies to all online programs, not just CBE programs. While the impetus for additional “flexibility” is largely driven by the rapid growth of CBE programs and the recent WGU audit, the key distinction should be maintained between correspondence and online

education, regardless of the educational model employed, whether CBE or some other alternative. Online education, including CBE, has thrived while complying with the RSI requirement, so rather than changing the law or regulations to accommodate particular online education models, which already face criticism about their quality, Congress and regulators should instead focus on the evidence, which is clear: student-instructor interaction is a key component of quality and strong student outcomes.

Conclusion

Continuing efforts to strengthen educational opportunities and learning outcomes for under-prepared students and to reduce the cost of offering high-quality experiences are critical. But the evidence is clear that much of the existing online coursework is moving this effort in the wrong direction. Students need access to education, which involves meaningful interaction with faculty and other students—not just exposure to materials that move them through a collection of information and exercises.

The greatest risk is that the rush to transform higher education will widen the gulf between the college education available to those who arrive at the door with ample resources and strong academic preparation and those who depend on postsecondary education to open the doors to productive lives. Creating access to programs is a step forward, but only if those programs succeed in providing meaningful educational opportunities to students with minimal levels of academic preparation who need to develop their self-discipline, time management, and learning skills—not just have access to a specific body of information.

The intuition behind the idea that online learning has the potential to increase educational opportunities and reduce costs for students with limited time, geographical mobility, and money is clear. But the evidence reviewed in this paper raises significant questions about whether the promise of online education has been realized to date. The type and quality of online learning accessible to students—especially those with limited academic preparation and limited resources—is critical. Mounting evidence suggests that although the outcomes of hybrid learning environments that mix online and classroom experiences are similar to those of traditional classrooms, the same is not generally true of purely online courses, particularly for at-risk students attending at-risk institutions.¹⁶¹

Undoubtedly technology will continue to progress and strategies for improving learning in classroom, hybrid, and online settings will surely emerge. It is likely to become more feasible, for example, to provide optimal course pacing and content to fit each student's needs. The latest “intelligent” tutoring systems not only assess students' current weaknesses, but also diagnose why students make their specific errors, adjusting instructional materials to meet their needs.¹⁶² But these innovations are likely to be most effective as supplements to—not replacements for—meaningful educator-student interaction.

The negative findings about outcomes in online learning come from fully online courses. Hybrid courses do not create the same burdens for students. Taking an asynchronous class without an engaged instructor requires high levels of self-motivation, self-regulation and organization.¹⁶³ Hybrid courses that integrate technology into face-to-face classrooms generally yield similar or improved outcomes relative to standard classrooms.¹⁶⁴

Both the aggregate data on online learning and most studies of its effectiveness at individual institutions focus primarily on for-profit or broad-access public institutions. But selective universities and liberal arts colleges are also incorporating technology into their curricula. In many cases, these institutions are using technology to enhance, rather than replace, traditional classroom experiences. Some of the better news about online programs comes from efforts targeting students who have already proved their ability to succeed in advanced academic work. Georgia Tech's widely cited computer science master's degree program is getting very positive reviews and appears to be opening opportunities to new students, rather

than diverting them from face-to-face programs.¹⁶⁵ Since this is a graduate program, all of the students have already earned bachelor's degrees, and in the case of Georgia Tech, passed rigorous admission standards. Evidence about success in MOOCs confirms the reality that students from higher-income, more educated backgrounds are most likely to participate and succeed in these courses.¹⁶⁶

Some students, particularly older students with work and family responsibilities and those in rural areas may be choosing between purely online education or no postsecondary education at all. But there is a real risk that both cost-cutting efforts and well-intentioned moves to expand access to higher education could lead to greater numbers of disadvantaged students being relegated to cheap and ineffective online instruction, with detrimental results, both in terms of outcomes and student loan defaults. The findings discussed in this paper should act as a cautionary note for efforts like California's new wholly online community college, which will be designed for adults seeking new labor market opportunities and will offer only certificates and short-term credentials. It will take careful and innovative planning and design if there is to be a reasonable prospect of delivering meaningful college-level work—as opposed to just the transmission of information—through this route,

As McPherson and Bacow (2015) argue:¹⁶⁷

If technology is used in broad access institutions to drive cost down without regard to quality, and at the same time is used in elite higher education to further increase the cost and restrict the availability of the “best” education, we will wind up with a society both more unequal and less-productive than it could be.

In 2011, the year Sebastian Thrun began the MOOC revolution with his course on Artificial Intelligence, Clayton Christensen predicted in *The Innovative University* that half of all colleges and universities would go bankrupt within 10–15 years as alternative providers replaced them. Technology would enable an entirely new business model to take hold. Writing with Michael Horn in 2013, Christensen explained that students would soon gravitate toward less expensive options. “Unbundling” of higher education would allow students to customize their own educational experiences. Students could still access face-to-face interaction when they need it, but that would no longer be the norm.¹⁶⁸ These predictions of a revolution quite clearly exaggerated the near-term prospects for change. But that does not mean we should give up on technology's potential to enhance college learning opportunities. It does mean we should be cautious about proponents of innovation who over-promise. We must carefully analyze the results of new strategies that are implemented with the goal of broadening access and/or reducing costs without compromising the quality of education. At a minimum, we must proceed with extreme caution when revising the current statutory and regulatory environment governing online education to ensure that students and taxpayers are protected from poor student outcomes that come at a very high cost.

Arguably everyone wants higher education to be more “innovative,” to cut costs and improve quality for students. Technological advancements and new models of education, like online CBE, offer the potential to advance these shared goals. At the same time, when paying for an educational program, both students and taxpayers expect that teaching is involved in the provision of educational services. The RSI requirement is a key safeguard intended to ensure that online education does not become self-learning with full access to federal aid.

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