Four Serious E Learning Problems That Will Not Go Away—Cost Is Only One of Them

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Abstract

A recent report by a Stanford economist offered evidence that distance learning courses cost more than traditional ones.[1] While there is considerable controversy over her methodology, it seems intuitively reasonable that she may be correct, since developing online courses requires additional faculty time for preparation, complicated hardware and software setups, and accommodation of students who may be unaccustomed to the process. Since there have been many other concerns over the past two decades, the recent emergence of cost as yet another visible point of controversy suggests that it might be useful to review the disadvantages and downsides of E learning. In this brief article four systemic problems are discussed: cost, institutional resistance, faculty pushback and perennial concerns. Each of these issues has a long history. Since the halcyon days of distance learning's meteoric rise, the trend line has flattened considerably, and there is even controversy about the Integrated Postsecondary Education Data System (IPEDS) data, questioning whether 6 million or 3 million students are actually learning at distance, out of the 20 million college students today. [2]

1 Cost

Almost concurrent with Stanford report mentioned above, the WICHE Cooperative for Educational Technologies (WICET) issued a summary of hundreds of interviews with individuals responsible for preparing distance learning offerings, which concluded that, especially for technology issues, (software learning management systems, teaching tools, etc.) online offerings are more expensive than "traditional" courses. [3] In the early days of online learning, there was a cost paradigm which suggested a returns to scale model that went roughly this way: once a popular course is perfected in its online version, it can be spread to a wider range of learners at an increasingly reduced unit cost. Stanford's Prof. Peter Norvig, in a famous TED presentation called “The 100,000 student classroom”, gave a vivid description of this idea, in the context of MOOCs. The best professors in the world, using the best software for transmission and dissemination, could deliver course material anywhere. [4] Countless other lectures and articles reprised a similar theme of increasingly lowered unit cost and superlative content being linked together, through massive open online courses (MOOC's). The concept of MOOC's is still powerful and the cost model has been developed in considerable detail. Roughly, MOOC's cost several hundred thousand dollars to develop but they can be delivered again and again, with minor modifications, suggesting the familiar business analogy of a breakeven point. The BEP for MOOC's is probably in the range of 250 students, so if a university or other institution had course demands that size or greater, they were good potential users of this technology. [5] Even though there are thousands of MOOC's now, and some of the best-known organizations, like ed X, Coursera and Udacity, have been distributing them worldwide to educational institutions as well as businesses hospitals etc., MOOC's represent a small part of the total distance learning ecosystem in postsecondary education. The typical online course is an individualized, non-MOOC, module developed by a faculty member and used exclusively in a specific course. These courses are sometimes aggregated into offerings that might span university or regional boundaries, like the programs offered by University of Massachusetts, Penn State University, and many other large institutions. One researcher suggested that this could result in an import/export paradigm, where one school with many useful, shareable course modules could be a net exporter of distance content, while others were net importers. [6]

2 Institutional Resistance—Failure of the NCAT Model

For the United States, where the total annual postsecondary budget is over $0.5 trillion dollars spread over thousands of institutions [7], it would seem that online learning would be a potential panacea for several education challenges, a way of potentially increasing the quality of instruction. While most universities continue to increase their commitment to online learning – recently a study indicated that 82% of all institutions are increasing their 2017 online learning budgets [8]– many of the changes have been piecemeal, and not systemic. The annual increase in E learning courses, formerly in the double digit range, is now at 3 percent, and seems to be trending downward. The number of students taking for credit courses on line continues to be in the 25 percent range and not growing. Why have institutions not been more energetic in E learning growth? Here is a useful case studyFor several decades there has been a determined effort, led by the National Center for Academic Transformation (NCAT) [9] and other affiliated groups like the National Center for Higher Education Management Systems (NCHEMS) aimed at course redesign. At large institutions where a relatively small number of courses accounts for a significant percentage total full-time equivalent (FTE), the idea is to concentrate on these frequently-taught courses and develop redesigned modules. The redesign process aims to achieve at least three goals: improved learning outcomes, increased student satisfaction with each course, and reduced overall expense. The NCAT approach has been used in dozens of courses at many institutions, including some of the largest in the United States. The results were so favorable that over a decade ago the leaders of NCAT predicted that aggregate annual institutional savings of approximately $10 billion could be achieved along with improvements in student learning and retention. [10] Some of the earliest and significant successes were "emporiums", where large numbers of online courses, often remedial math, statistics, and other introductory studies, were given in an environment that offered high levels of course management systems, individualized help for students who required additional assistance, and often availability of subject matter specialists including departmental professors on the site.[11] At Virginia Tech, where the emporium model has been operating for well over a decade, thousands of students use this approach every semester.[12] But universities have been reluctant to emphasize the cost redesign philosophy, despite its proven success in reducing costs and improving student outcomes. After these early projects, NCAT completed dozens more, but never was able to achieve even close to the coverage described in their goals. A major obstacle: most of the savings proposed and achieved, were in labor, that is, fewer, instructors were needed, never a popular recommendation. There are many other indicators that might predict relatively slow adaptation of new approaches to distance learning. In a research study called “The Economics of Online Postsecondary Education: MOOCs, Nonselective Education, and Highly Selective Education”, Stanford Professor Caroline Hoxby suggests that it may be possible for universities to concentrate on non-MOOC forms of distance learning and retain their unique attributes while also increasing the number of students [13] But there is little evidence that this outcome is currently being pursued.

3 Faculty Pushback

One of the most significant challenges since the beginning of distance-learning in postsecondary institutions has been the consistent reluctance of full-time faculty to embrace the technology. Again and again, the annual Babson report has shown that less than a third of college faculty support distance-learning, The faculty approval figure has hovered between 25 and 35 percent since fall 2002. In the most recent report the number is 29.1 percent. [14] Incidentally, for administrators it’s the reverse – close to two-thirds are positive about distance education, considering it a critical component of long-term strategy. In one of the Babson reports 82 percent of provosts and academic vice presidents and other administrators responded that distance outcomes are either superior to or the same as face-to-face courses. Ninety percent of academic leaders believed that it is “Likely” or “Very Likely” that a majority of all higher education students will be taking at least one online course in five years’ time. [15]Since this trend is so persistent, it seems likely that a significant number of online courses will continue to be taught by part-time or contract faculty. In an article in the Communications of the Association for Computing Machinery George Schell noted that there were no rewards for online teaching, and actually several severe

penalties, particularly for tenure-track faculty.[16] If Professor Schell is correct, there will have to be some significant changes in the faculty rewards and guidelines for e-learning to increase long-term.

4 Perennial Problems

There are a number of impediments that have always been associated with the online learning experience**,** perennial problems that seem impossible to alleviate. Sunil Kumar lists five: literacy, technology, motivation, time management, and adaptability. [17] Literacy refers to knowledge of the basic rudiments of working with a computer-based environment, hardware, software, ambient classroom or office conditions, etc. It encompasses far more than knowing word processing or graphic programs. For online learning literacy requires a level of sophistication that is more than mechanical; it requires a degree of comfort with the automation milieu that is often lacking. Without the inherent sophistication that computer literacy offers, users will be frequently frustrated, delayed, and possibly disconnected from online learning. Technology includes the complete array of hardware, software, keyboards, screens and other mechanical devices that are part of the computer milieu. Time management challenges can be a problem in "normal" traditional classroom situations, but are exacerbated in the online environment. For the student who is moderately challenged in handling the stresses of the face-to-face environment, with frequent deadlines can be overwhelming. Adaptability in this context refers to the ability to switch from a traditional lecture and study system with face-to-face teaching to an environment that is drastically different. The switchover to online learning can be a serious strain on a student's ability to maintain a sense of comfort and confidence. And there are many other perennial problems, like equality of access for including availability for the blind, deaf, and other disabled students. Another one that is surprisingly difficult to measure is drop out rate.

Do students drop out of e-learning courses at a higher rate than the courses? A scan of the academic literature over the past five years (for example, Google Scholar and JSTOR) indicates a dramatically high concentration of research about dropout rates and many other related issues for Massive Open Online Courses (MOOC's), while the data for the non-MOOC courses is relatively sparse. Long ago there was a debate called the **"**no significant difference phenomenon**"** [18] which argued on both sides of the issue of traditional versus online courses, giving about an equal number of examples of positive and negative comparisons, on many dimensions, including dropout rates. The extensive attention to MOOC's, which almost by definition and structure predict very low completion rates, may have tilted the discussion away from traditional, non MOOC online courses. For most MOOCs the evidence is relatively clear-dropout rates are very high. Many detailed reports indicate completion rates of 10 percent or less, often indicating dramatically low levels of participation after the first few lessons.[19] But the vast majority of online courses are not MOOC offerings, so it is more difficult to generalize about what might be called "traditional" e-learning offerings with respect to attendance and dropout rates. William Bowen and his colleagues, in an article called “Interactive Learning Online at Public Universities: Evidence from a Six-Campus Randomized Trial”, concluded that the overall outcomes, including completion rates, were roughly equal. [20] But other studies indicate that completion rates are significantly lower, especially in community colleges. In that study, British researchers did a longitudinal analysis of a large number of students and courses in the community college environment and found that overall participation rates were low, indicating that distance learning needed to be more carefully examined before any increases in programmatic planning, at least in this environment.[21] Dropout rates for online courses, then, are meticulously described for MOOC's, but much harder to determine for the vast majority of online courses, those which are not MOOC's

5 Conclusion

While online course offerings still increase from year-to-year overall, the numbers are gradually approaching steady-state, and it appears that long-term participation will be characterized this way: about 25 percent of students taking at least one course on line; faculty approval ratings of online offerings about 30 percent; many courses taught by adjunct or part-time personnel, and increasing reliance on data-rich MOOC's statistics for insights about non-MOOC courses. The leveling off of e-learning participation should not be surprising. The four problem areas just described seem to predict a participation limit or cap

soon. While there is considerable controversy about the cost statistics, it seems likely that this subject will continue to gain more prominence, especially since, as mentioned previously, there is now more controversy about the IPEDS participation statistics—possibly the 25 percent participation figure is drastically overstated. With respect to administrators' views, generally positive, the lack of systemic approaches to distance learning, epitomized by the failure of NCAT's course redesign approach to gain traction, indicates that steady-state E learning trend lines are likely to continue. And the problems with full-time faculties' general disapproval, chronicled since 2002 in the Babson reports and elsewhere, surely does not bode well for increased participation by the key instructional component at a university. Finally, the general difficulties associated with any kind of online program, described here as perennial challenges, do not seem likely to change much in the coming years. Added to these is the unknown, but undoubtedly high, cost of remediation. Since large segments of incoming college classes require additional learning just to bring them up to standard on math, writing, etc., the additional cost of remediation for gaining proficiency in using online methods adds to the complexity of the problems.

What can be done? An agenda for action would certainly include elements like: clarification of IPEDS participation statistics to facilitate better baseline analysis of e-learning participation; better cost analysis procedures to clarify the break even point of popular courses, whether MOOCs or non-– MOOCs; modifying the academic reward system in order to encourage full-time tenured and tenure-track faculty to participate more in e-learning; rationalizing the remediation cost for bringing students to the right level of e-learning proficiency. The result of these kinds of actions could be greater participation and more cost-effective use of e-learning. Further, although MOOC's are only a small portion of the total e-learning offerings, the databases developed from MOOC's are a tempting target for academic analysis, since they are a far richer source of course information than that typically obtained from traditional online offerings. More non-–MOOC's information needs to be gathered so that it represents a larger segment of the current e-learning literature.

Finally, it's important to remember that there are positive examples everywhere-- opportunities to capitalize on existing, successful implementations, where reduced cost, positive faculty and administrative support, plus high levels of student participation take place. Possibly the most successful is the computer science masters degree at Georgia Tech, which charges about $8000 for a full degree program, compared to the $36,000 cost of the face-to-face degree. Hundreds of students successfully complete this online degree program every year. [22] Is this too good to be true? Or will it succumb to the daunting challenges that have just been described in this article? For now, at Georgia Tech a thousand students have been through a top-notch academic program at a great university and paying less than a third of the tuition required in the face-to-face version of the course, and reporting high levels of satisfaction. Several new courses of this type are being proposed at Georgia Tech, including one in data analytics through Ed X, costing $10,000 for the full degree program online.[23] And the University of Illinois is offering three similarly configured Masters programs, mostly MOOC-oriented, in computer science, business administration, and accounting. [24] In this Georgia Tech and Illinois experience, there is extensive cooperation and collaboration among crucial elements at the institution: senior administrators, deans and faculty of several academic units, industrial partners, and many more. Could this be the wave of the future?

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