TECHNOLOGY TO THE RESCUE

Can Technology-Enhanced Education Help Public Flagship Universities Meet Their Challenges?

DEANNA MARCUM

Ithaka S+R

Over the last five months, Ithaka S+R has been engaged in a study of ten public flagship universities to understand their perspectives on technology-enhanced education and to learn more about their needs in this period of great change. We talked to 214 individuals, ranging from presidents and provosts to key administrative officers and staff, to department chairs and faculty.

Overall, we encountered a lot of excitement about technology-enhanced education and some highly innovative practices, tempered by real limitations. Administrators have pinned their hopes on technology as one solution to tightening budgets, but we saw few examples of coherent, university-wide planning to use it to "bend the cost curve." Faculty, meanwhile, endorse the idea of technology-enhanced education, and many have developed sophisticated courses, but there is also palpable trepidation about the prospect of losing instructional autonomy. In our report to the funder, Lumina Foundation, we described the promises of technology-enhanced education, as well as the challenges public universities meet in realizing that promise.

The full report will be made available by Lumina Foundation, but while the findings are so fresh, I am posting this much abbreviated Issue Brief to describe how budget declines and changes in students' consumption of courses and credits have motivated these universities to explore technology-enhanced education as a possible response, along with the challenges this approach presents.

CHANGES IN BUDGET MODELS AND STRUCTURES

Public flagships institutions have been impacted by the recent reductions in state support for all segments of higher education. Increasingly, funding at most of these institutions has come primarily from tuition and student fees rather than from state support. However, given pushback from students frustrated with rising tuition and—in some cases—a hard cap on tuition rates imposed by the state, universities have been forced to explore alternative revenue streams.

FEW ANSWERS TO INCREASING BUDGETARY PRESSURES

All of the flagship universities we visited face budgetary pressures that are primarily due to decreases in state funding. As a result, they are working to increase revenue while actively looking for ways to reduce their costs. Most of the budget-enhancing efforts are traditional in nature and where there is innovation, nothing has been particularly disruptive. For example, we heard about universities cutting administrative costs and centralizing services in search of greater efficiency. Some have raised tuition and increased the percentage of out-of-state and international students to increase revenue. Others have tried to cut departmental costs by requiring departments to revert all vacant faculty lines back to the university for review before they are returned, reallocated, or cut altogether. A few departments have attempted to increase revenues by developing new courses or programs and charging fees for supplemental services. Finally, we learned about a few examples of universities partnering up with private, for-profit institutions or vendors for funding.

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Most of the chief financial officers reported that they have exhausted or are close to exhausting their initiatives for bringing in additional revenue or cutting costs. There is also talk about the current model being "broken" and "unsustainable," but there is very little evidence of anyone actively working to institute anything significantly different at the university level. Even where state appropriations have been cut very significantly and where efforts to supplement on-campus teaching with a major online learning initiative (often cited as a cost-cutting or revenue generating effort) are farthest along, the primary focus of both administrators and faculty is on trying to do the traditional things as well as possible with more limited resources. In other words, thus far, efforts have been incremental—not the re-engineering that seems to be required for meaningful change.

All of the universities in our study continue to grapple with their budget models, but no university is taking steps to fundamentally re-engineer the production function for teaching and learning. A few feel that they will be able to sustain their current model for a bit longer, but most are looking for alternative models. At this stage, it seems that most shifts and efforts in budgets and cost structures, at both the university and department level, are occurring ad hoc and are experimental in nature. None of the universities we visited appear to have found a sustainable model for resolving worsening budget situations. In general, we did not see evidence of strategic plans to reassess how instruction is delivered at a systemic level.

STUDENTS AS CONSUMERS

As tuition costs have risen and the economy has turned down, students have become more aware of the costs and benefits of a university education. They want a degree from a public flagship university because of its value and national recognition, but they do not want to pursue it in the traditional way. Instead of spending four years at one institution, students are exploring alternative paths that include online and transfer credits. Students have begun to use these alternatives as a means of reducing costs and increasing convenience. In one emerging trajectory, students take lower-level, general studies courses "elsewhere" and then take higher-level courses at a public flagship, where they ultimately obtain their degree. Students today are also earning more credits by taking high school courses that count for college credit, as well as taking less expensive, often less challenging, and more convenient online courses in the summer and transferring those credits.

Several universities have articulation agreements in place with community colleges or institutional policies regarding the acceptance of transfer and AP credits. Most have seen some increases in the number of credits transferred, especially AP credits, though there was considerable range across the universities. Paradoxically, universities are finding that it is more expensive to educate students who transfer credits yet still opt for a traditional four-year experience. It is more costly to provide small upper level courses than the larger lower introductory courses that the students are completing

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elsewhere. This is an instance that requires deeper thinking by the administration and clearer communication with students and their families.

Faculty do not widely share undergraduates' enthusiasm for transfer credits. They worry that the average preparation for advanced-level courses is not the same as that of students who earn all of their credits at the flagship campus. Faculty complain that they cannot be certain of the knowledge base of students who earned credits elsewhere, and they sometimes feel as if they teach two separate groups in a single class. Several faculty who expressed these concerns have begun to work with administration, their local community colleges, and high schools in the state to coordinate curricula and to help teachers orient to the flagship's standards. All of these polices have affected the cross-subsidization models for funding the provision of service or general education courses.

Students are becoming more entrepreneurial in the way they consume college credits, and in an effort to respond to the public's demand for more affordable higher education, some states have enacted legislation that facilitate mixing and matching of transfer and AP credits. In other instances, institutions have enacted policies and developed collaborative agreements with other institutions in their states to achieve the same ends. All of these policies have affected the cross-subsidization models for funding the provision of service or general education courses.

STUDENTS WANT MORE FLEXIBILITY AND OPTIONS

Quite apart from any consideration of online learning, students simply want greater flexibility in planning their educational programs. This concern is particularly acute in graduate and professional schools, as many of the students work or have family obligations. Such students often look for flexibility in scheduling to determine the feasibility of taking certain classes to advance their careers.

CAN TECHNOLOGY-ENHANCED EDUCATION HELP?

Administrators have no illusions about the necessity for change in higher education, and nearly all faculty recognize that the old models of instruction are rapidly giving way to new, more interactive forms of learning. All faculty describe the need for better forms of student engagement. And yet, systematic efforts to take advantage of technology-enhanced education have been stymied by numerous impediments. In our study, we focus on the four challenges that arise with technology-enhanced education and that seem to be of greatest concern to the ten campuses we visited: the intrinsic conflict between research and teaching missions; ambiguous terminology for online learning; faculty roles and institutional barriers; and the shortage of funding and state financial support.

The possibility of a significant expansion of online learning raises all of these macro-level questions for a flagship university (not to mention many more micro-level questions). How—and how clearly—the leadership of the university answers those questions can have a significant effect on the pace and the ultimate success of any such initiative. In the case of online learning, we found a general lack of awareness on many

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campaces about what the university was trying to accomplish in that area and why it should invest its own time and energy in that effort. Answers varied considerably and included some of the following reasons:

- To increase revenue by expanding into new markets;

- To serve a population of students that it was previously unable to reach;

- To improve retention and completion rates by making courses available online to regularly enrolled students who have trouble taking or completing a face-to-face course because of scheduling issues and/or other problems;

- To improve learning outcomes and teaching effectiveness by using technology, especially in hybrid classes, to flip the classroom and increase active learning; and

- To cope with increased enrollments, a reduction in teaching staff, or a lack of additional classroom space.

INSTITUTIONAL BARRIERS TO TECHNOLOGY-ENHANCED EDUCATION

Faculty attitudes towards online learning are not always positive. Some of this negativity stems from unfavorable reactions toward MOOCs, which are what many faculty think of when asked about online learning. These negative feelings about MOOCs have bled over to other types of technology-enhanced education. In some cases, negative attitudes towards online learning are due to pre-conceived notions, miscommunications, and lack of exposure. But many faculty expressed concrete concerns, based on their experience with technology-enhanced education. For example, some worry that MOOCs and other forms of online learning lack the interaction, tailored information, and faculty communication needed for a quality undergraduate experience. Some faculty expressed concern that students will not do the work required outside of class, and in fact, many professors of hybrid courses mentioned that they require much more work and independence from students than traditional classes. In any event, regardless whether they are based on speculation or experience, the negative attitudes and resistance to participating of some faculty have slowed down or made more difficult the online initiatives suggested by administrations.

Faculty time is probably the most significant impediment to integrating technology into the classroom. Faculty obligations toward research often take precedence over their other activities, which include pursuing any type of teaching initiative. Because integrating technology into the classroom requires more time and attention than traditional forms of instruction, the opportunity cost is quite high. The additional effort required by an online course includes time to deconstruct a course and rethink its approach and delivery, to learn about the latest trends in technological tools and applications that might be relevant to the course, and to create the online and digital materials. Online courses are new to many, and so there is also a learning curve that does not exist for methods that are familiar.

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A common consequence of these time constraints on tenured and tenure-track faculty is that non-tenure-track faculty are the major initiators of technology-enhanced education. As a way to deal with the limited time and multiple roles of faculty, a number of departments have hired lecturers to help support the teaching loads. Nearly all of the universities in this study have, whenever possible, moved away from adjuncts (who have been traditionally hired by rapidly-growing departments facing heavy student demands for introductory courses) to professional teachers under contract for a fixed period of multiple years who feel more connected to the university and to the students. These semi-permanent lecturers, or instructors, often have a great deal of interest in pedagogy, more time, and more of an incentive to develop innovative teaching than research faculty. Accordingly, they appear to be responsible for developing many of the online courses at institutions we visited.

The institutions have not given up on promoting instructional innovation by tenure-track faculty entirely, however. In an attempt to align faculty incentives, some universities are providing faculty with additional funds for transforming or updating courses to an online format or a partial release from other teaching obligations while they create such courses.

OWNERSHIP OF TEACHING MATERIALS

On all of the campuses we visited, it was clear that faculty view ownership of "their courses" as critical to their teaching role. This is a deeply entrenched aspect of the culture at every research university we visited, and it contributes to some of the best and most devoted teaching at those institutions. However, the downside of this "system" of decentralized ownership of courses is that no one is in a position to mandate—or even to suggest, in most cases—that a course should be taught differently. If the leadership believed there was a pedagogical change that should be implemented broadly across the university, they would almost have to sell that idea department by department, faculty member by faculty member.

Furthermore, online courses cannot be implemented by one faculty member alone. Because online courses can require a combination of pedagogical, technological, and production skills, the faculty member conveying the knowledge is often dependent upon others to make the course a reality. Online courses also raise a number of questions about intellectual property given the complex ownership structures, shared governance and faculty compensation. Moreover, administrators become involved to prioritize and allocate financial, infrastructure, and support staff resources. As a result, no one faculty member has full control over an online course. Faculty have always had—and still have—sovereignty over what to teach, but the options offered by technology with regard to how to teach a course complicate the determination of who is involved in "making a course" and who is responsible for making decisions about the course.

The level of centralization of technology support services varies across universities. There is no single model that can describe all institutions; each has their disadvantages and advantages. Many universities have launched initiatives within the provost's office

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to centralize the support necessary for advancing technology-enhanced education, in order to achieve greater efficiency and provide resources that some colleges may not be able to afford. However, some universities have stuck with the decentralized model. These models afford the colleges and departments more autonomy over the type of support they provide, provide easier access for faculty, and may enable them to work more closely with support staff knowledgeable in the field of study.

CONCLUSIONS

Our study was carried out in the context of those institutions in the Public Flagships Network (PFN), which was formed to share ideas, best practices, and policy solutions to common institutional challenges related to educational productivity and excellence. The findings, though, are relevant to all public universities that are struggling to increase access to higher education and to lower costs of higher education, and, in most cases, experiencing a decline in state funding. In responding to their many challenges, public universities are turning to technology-enhanced education, as it appears to offer great promise for improving student learning, improving institutional efficiency, and enabling and sustaining new business models that are consistent with the educational and research missions of America's leading public research universities. The opportunities to make real and lasting changes in the delivery of higher education are enormous, but these changes will need to be bold and purposeful to be successful.

There are some steps that public institutions can take immediately to begin to stimulate transformational change.

- Clear Communication. Administrators can clearly communicate the value of technology enhanced education to students and faculty while being honest about both the costs (including the loss of cherished traditional practices) and the true institutional drivers for online learning. A few schools have undertaken broad-based communication efforts on their campuses, but much more is needed. Faculty need to see evidence of successful programs, and they need to understand what the tradeoffs are. Among departments, we noticed that those that are most enthusiastic about experimenting with technology-enhanced education tended to also collaborate more within the department and share best practices (through brown-bag seminars, for example), while the less enthusiastic departments were more likely to emphasize more individualization at the instructor level.

- Incentives to Innovate. Create clear and meaningful incentives for faculty and departments to innovate with technology. Currently there are more disincentives—primarily in terms of the faculty time required and the lack of any "credit" for either the individual faculty member or the department—and the incentives are unclear. Where specific incentives have been offered, they are often too small to have any meaningful impact. Incentives can be financial (more important for the department than for individuals), but institutions would do well to consider other incentives such as recognition and respect, especially for the non-tenure track instructors.

- Strategic Planning. Develop and promulgate clear plans for implementing online learning in both its stand-alone and hybrid forms. Even if it is tentative about many of the details, a plan can be effective if it sets clear goals, explains the reasons for pursuing them, lays out the incentives and rewards for at least the first phase of the plan, and identifies some number of pilot projects. The absence of any clear statement from leadership about what it hopes can be accomplished makes it easy for everyone else to fill in the blanks based on their own personal biases or, worse, to opt out.

- Resources and Infrastructure. Provide the resources needed to facilitate an easy transition to online learning. This includes developing the university infrastructure as well as support services that faculty will need. The Public Flagships Network may be able to collaborate on determining the best way to facilitate the transition and to provide some of the resources or information faculty seek.