Embracing the Residential Learning Experience: A Learning Ecologies Approach to Course Design

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The higher-education market is reinventing what a university is, what a course is, what a student is, what the value is. I don’t know why anyone would think that the online revolution is about reproducing the classroom experience.


For more than a decade, discussions of course development among higher education faculty and administrators have focused on two major strategies: embracing new technologies and developing strategies to reduce costs. The heart of this dual strategy, notes Carol Twigg (2005a), is the potential of instructional technology to reduce the cost of delivering a course. “Since the major cost item in instruction is personnel,” she notes, “Reducing the time that faculty and others invest and transferring some of these tasks to technology is key” (p. 5). The growing number of institutions that have embraced this high-technology, cost-conscious approach—acting independently or in partnership with regional and national consortia—can point to measurable improvements in course effectiveness and significant reductions in the cost of course delivery (American Association of State Colleges and Universities, 2011; Bates, Baume, & Assinder, 2010; Turner, 2009; Twigg, 2005a).

More recently, efforts to develop massive, open, online courses (MOOCs) have shown promise for making education widely available to students inside and outside conventional higher education institutions. The certifications offered by initiatives such as MIT’s MITx, MIT and Harvard’s edX, Stanford’s Udacity, and Carnegie Mellon’s Open Learning Initiative offer an important new model of technology-supported instruction, one that is based, as Carnegie Mellon University President Jared L. Cohon (2012) observes, on a “detailed, science-based understanding of how students learn” and that can incorporate “the potential for data-driven continuous improvement into the course design itself” (3).

Efforts to use technology effectively—and perhaps more to the point, evidence that these efforts have been productive—have been accompanied by a growing number of critiques, commentaries, and reports that suggest that our efforts will inevitably lead to massive changes in the higher education landscape. As evidence, most critics point to decisions by many traditional colleges and universities to offer courses in blended and fully-online formats, dwindling state support for public higher education, and the rise of for-profit, distance-based institutions. It takes only a small leap in logic to conclude that post-secondary education faces a rocky future.

Call me a contrarian, but I suspect that reports of the death of higher education as we know it are premature. Consider the numbers. Between 2000 and 2009, the total number of students pursuing a...
college or university degree in the U.S. increased by more than 25 percent (National Center for Education Statistics, 2012). By 2009, roughly 20 percent of all students had enrolled in one or more online courses, and about four percent were enrolled in online degree-granting programs (Radford, 2011). Interestingly, although this growth in enrollment in online degree programs represents an increase from two percent in 2000, it also indicates a decline from five percent in 2006-2007. Moreover, since 2010, the majority of for-profit, private institutions have seen declines in the registration of distance students, largely as a result of new state and federal regulations governing financial aid processes and eligibility standards (Blumenstyk, 2010; Fain, 2011).

Consider, as well, that the technology-based, cost-conscious approach to instruction touted by critics has not come without complications. Growth in the use of blended course formats, frequently put forward as an improvement over traditional course formats (APLU 2011), has arguably led to reductions in direct student interaction with instructors, while efforts to lower the cost of course delivery have sometimes led to the partial or complete replacement of "expensive" senior faculty members with less experienced (and less well paid) instructors (Bowen et al., 2012) or even recorded video lectures (Perry, 2010).

In short, the data do not support forecasts of massive and disruptive change. Although we have certainly seen historic increases in the number of students pursuing purely online degrees, this growth is more accurately attributed to increased access to education offered through distance-based degree programs (the majority of students enrolled in such program are 24 year old or older) than it does a fundamental change in the needs and interests of traditional, college-age students—a population that has grown significantly over the past four decades.

Yet critics of higher education in its current form have a point. And our decision to embrace a high-technology, cost-conscious approach to course redesign sends a clear message that we recognize and embrace the need to change. Although many critics take that message farther than some of us might like, our actions continually emphasize our own recognition that higher education is in a constant state of change and renewal. The question is where our efforts to reinvent higher education will lead. Will it be a distributed, on-demand, needs-based certification system? Will it be virtual communities of learners linked more by common interests than by shared geographies? Will it be a technologically enhanced, but nonetheless recognizable version of the college campus that exists today? Will it be some combination of these (or other) visions?

My expectation is that the college campus will endure, even as it reshapes itself to take advantage of advances in instructional and communication technologies, new approaches to staffing, and a thoughtful examination of the role campus-based resources can play in enhancing learning and teaching. The latter point—exploring campus-based resources—is of particular importance, since it allows us to consider our courses as elements of a larger campus learning ecology. By considering learning and teaching within a nested collection of instructional resources, we can take advantage not only of advances in instructional and communication technology and increased facility with the range of teaching strategies that we can use during class sessions, but also of additional opportunities—curricular
and co-curricular—available on our campuses to engage our students with the content, processes, and issues addressed in our courses.

Developing Courses within a Learning Ecology

>[G]iven what we know about learning and about the economics of teaching, how can we cost, design and operate courses in ways that maximise good student learning and lead to an equitable, appropriate and efficient allocation of staff time?

Imelda Batesa, David Baume, and Susan Assinder (2010)

If we are to succeed in educating our students, we must adopt a broad vision. We should focus on what we can do to help them travel the path from entering students to successful graduates and contributing members of society. We should ask what we want them to be able to do, how they might approach problems and issues, and how they might participate in the larger debates within their disciplines and society. We should be thinking first, that is, about our students’ overall education and then, through that lens, about their performance in their courses.

Certainly, many educators are involved in addressing these concerns. Initiatives and educational movements including problem-based learning, integrative learning, writing across the curriculum, and learning communities are responses to the same set of concerns. Those of us who focus on developing courses would be wise to consider the motivations underlying these initiatives. Like those who have championed these movements, we should strive to adopt a wide perspective, to engage students in critical thinking, and to prepare them to engage productively in debates about issues and ideas once they leave the college or university.

Looking beyond the individual course lends itself to viewing courses as part of a system—or, more to the point, as an ecosystem. Adopting this perspective allows us to view learning as it takes place within the classroom and within a larger campus (or, arguably, digital) learning ecology. In particular, it allows us to develop and apply an approach to course development that draws on and extends work on the learning ecology model put forth by John Seeley Brown (1999a, 1999b, 2002), George Siemens (2003), and others (see Barron, 2006; Barron, Martin, and Roberts, 2007; Richardson, 2002; Spires, Wiebe, Young, Hollebrands, & Lee, 2009; Williams, Karousou, & Mackness, 2011). Although the model has to this point been applied largely to the learning processes of individuals, my colleagues and I have found that it offers a useful framework for considering the contributions that can be made to course development by the campus learning environment in which those courses are embedded.

The learning ecologies approach to course development recognizes and builds on institutional resources beyond the classroom to extend and deepen student engagement with course content and processes and to increase the amount of time students spend working on the course. The learning ecologies approach also employs strategies that have proven successful in the development of courses offered in distance and blended formats, such as the use of instructional technologies to increase student engagement, provide timely feedback, enhance interaction among the members of a class, and reduce instructional costs. The approach shares similarities with Hubball and Burt’s (2004) integrated approach to developing learning-centered curricula (see also Hubbal and Poole, 2003), Twigg’s
supplemental and emporium models (National Center for Academic Transformation, 2008), Brown’s (2010) work-integrated learning approach, and the work of Dubetz et al. (2008) to use multiple instructional methods to address learners with diverse learning styles.

Although cost effectiveness is a desired outcome of the learning ecologies approach, it focuses primarily on enhancing student learning outcomes. In contrast to efforts that focus on reducing costs while achieving comparable learning outcomes (or even modest learning gains), the learning ecologies approach emphasizes improvements in student learning even in the face of modest cost increases. Improved student learning is pursued through four central strategies (see Figure 1):

1. increasing the level of challenge in a given course—and particularly in introductory courses—through the development of assignments and assessments that engage students in critical thinking activities appropriate to the course;

2. increasing student engagement with course content and processes, often through the use of interactive tools made available by recent advances in instructional technology but also through the judicious replacement of course lectures with active and often collaborative learning activities;

3. increasing the amount of time students devote to a course through the use of engaging out-of-class activities and assignments, the integration of tutoring and supplemental instruction into the course, and the development of connections between the course and high-impact activities such as service learning, undergraduate research, and learning communities; and

4. providing timely feedback to students on their progress through the course and, following the lead of the Open Learning Initiative, providing information about student progress to instructors and course designers.

The learning ecologies approach emerged from observations and reflections about connections among course development projects, student learning and engagement programs, and faculty professional development initiatives conducted at the Colorado State University Institute for Learning and Teaching. Established in 2006, the Institute is designed to support collaboration across its several constituent programs. As we carried out our course design projects (one directed at lower-division core, foundational, and gateway courses and another directed at distance-education courses, primarily at the graduate or advanced undergraduate level), we began to explore connections among our course development efforts, our student learning and engagement programs, and our professional development programs.

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*Figure 1. Four strategies provide a foundation for the learning ecologies approach to course development.*
Our initial explorations of potential connections led to the integration of course development efforts with tutoring and supplemental instruction programs. We also explored, on a course-by-course basis, the suitability of involving staff from our service-learning, undergraduate research, academic integrity, and professional development programs in our course design efforts. As we reflected on the model, we elaborated it by considering how other aspects of the campus-wide learning environment might contribute to our efforts to improve our courses. We have also been influenced by work such as Twigg’s study of the impact of tutoring and academic success programs on learning among students who are members of underserved groups (2005b).

The learning ecologies approach offers an alternative to course redesign efforts that view the course as a thing in itself or even as an object embedded within a larger curriculum. By broadening our view, we can consider not only course goals and associated learning and teaching strategies, but also the learning activities and opportunities that shape student learning at an institution. That is, we can view it as embedded within a rich array of resources that support learning and teaching. Perhaps most important, we can build on and extend the interactions among these resources to enhance learning in ways not possible through traditional approaches to course redesign.

Approaching course redesign by focusing on the learning ecology within which a course is embedded allows us to create a community of redesign participants, among them instructors, curriculum specialists, instructional designers, learning and engagement program directors, tutors, study-group leaders, instructional technology specialists, and the students who take the course (for discussions of similar collaborative approaches, see Bovill et al, 2011; Burt 2008; Hubball and Burt 2004). Together, this course redesign community can work to

• replace traditional assessments (such as mid-term examinations and multiple choice quizzes) with assignments grounded in critical thinking processes,
• develop customized workshops supporting critical-thinking assignments,
• increase student engagement (and time on task) through Web-based instructional materials and activities,
• encourage students to participate in tutoring sessions and peer-led study groups, and
• create links between the course and engagement programs such as service learning, undergraduate research and artistry, and transitions programs.
Figure 2. The Learning Ecologies Model
The expected outcomes of adopting a learning ecologies approach to course redesign include increased student learning of content and skills, increased student awareness of learning and teaching resources, increased student retention, improved student progress toward graduation, and further professional development of faculty in the areas of course design and teaching effectiveness.

**Employing the Learning Ecologies Framework**

Little has been written on the actual processes currently used by faculty as they design courses, whether alone or collaboratively with other academic professionals. New models must be explored, and developed to help guide academic development in this area.

Donna Harp Ziegenfuss and Patricia A. Lawler (2008)

Following a series of efforts to use aspects of the learning ecologies approach in several course redesign projects, we recently launched a five-year initiative to redesign 100 courses. We expect that roughly three-quarters of these courses will be targeted at first- and second-year students. The remainder will consist of a mix of upper-division and graduate courses. Our initiative is predicated on four primary assumptions.

First, we proceed with an awareness that, although our students arrive on campus as ready and eager to learn as ever, their expectations and learning experiences differ in important ways from those of the students we taught as recently as a decade ago. We assume that our students expect—and benefit from—active and interactive learning experiences. We assume that they value critical engagement with the information, ideas, and processes they encounter in their classes. And we assume that they want to develop the critical thinking and problem solving skills that will serve them well beyond their college years. The first challenge we share with course instructors, as a result, is the need to develop strategies to provide more opportunities for active, engaged learning in our courses. Key issues related to this challenge include faculty expectations that the amount of time they can devote to a given course will remain roughly constant and administrative expectations that the strategies we adopt will enhance student learning without significantly increasing the cost of delivering the course.

Second, we begin our discussions about course redesign with the observation that a successful outcome does not necessarily require massive revision of course content. Certainly, extensive revision is sometimes needed. In general, however, faculty members have a clear idea of what students need to learn through a particular course and the sequence in which they want them to learn it. By calling attention to instructors’ knowledge of their disciplines—essentially, by showing them the respect their knowledge has earned them—we find it easier to shift the discussion to strategies we can use to challenge and engage students, to increase the amount of time they spend working on a course, and to explore options to enhancing feedback.

Third, we assume that we can meet our goals of challenging and engaging students while increasing their time commitment to a course by looking beyond the course to the larger learning ecology in which it is situated. Our course development efforts, as a result, necessarily involve a range of partners across our campus, partnerships that range from the conventional and expected (such as those with our library faculty, technology specialists, and tutoring and academic skills programs) to those that
depart from the norm (such as our partnerships with the Writing Across the Curriculum Program, the Geospatial Centroid, and the Little Shop of Physics). We approach each course development project with the expectation that the course will encourage student use of our tutoring programs, study groups, or academic skills workshops. We also involve library faculty on each development team in the expectation that additional resources can be made available to support course activities and assignments. In addition, however, we have created a strong partnership with faculty from our Writing-Across-the-Curriculum Program, in particular because of their expertise in using writing to support student learning of course content and engagement in critical thinking. For the same reasons, we involve faculty and staff from the Geospatial Centroid, a center that focuses on the use of GIS tools to support data modeling and visualization, in efforts to develop datasets that can be used in assignments in disciplines as varied as economics, history, religious studies, life sciences, and engineering. Similarly, depending on the needs of a given course development project, we involve faculty associated with the Little Shop of Physics, a group that has led the development of engaging and interactive classroom activities within our College of Natural Sciences, in efforts to develop engaging classroom activities for our courses.

Fourth, we assume that assessing the effectiveness of a course development project must involve more than measuring student recall and understanding. It should also measure student engagement in activities such as application, analysis, evaluation, and creation. Certainly, the ability to recall and understand information and concepts is of critical importance, and any evidence that we can do as well or better than traditional approaches is welcome. A college or university education should prepare our students to do more, however, than simply master facts and concepts. Taking a cue from those assessment studies that have looked at student use of a wider range of critical thinking skills, we involve faculty in determining how well our courses prepare students to engage in those thinking activities.

These assumptions drive a course development process that takes advantage of proven strategies for improving teaching and learning even as it points the way to the development of partnerships with campus resources and groups that, in other contexts, might not be considered central to course improvement. Our focus on finding ways to increase student engagement and time-on-task through the use of tutoring and study groups is not, in and of itself, unusual. What is unusual, however, is the philosophy that drives the use of campus resources to enlarge the environment in which learning takes place. Our approach recognizes the wealth of resources available within a campus learning ecology to deepen the learning experience within a given course—and employs a range of strategies to enlist those strategies to take advantage of those resources.

The use of those strategies begins during our requests for proposals to our competitive development program and continues throughout our meetings with the faculty whose proposals have been selected for funding. In our initial meetings with faculty, we work to gain an understanding of their goals for their courses and students, the resources they might bring to the process, and the limitations that might shape their work on the project. With this information in mind, we move on to discussions of how we might use resources within the larger campus learning ecology to enhance the course. These discussions provide a basis for clarifying expectations and establishing a development schedule.
Throughout the design process, we use the model of the learning ecologies approach (Figure 2) and a diagram that highlights key faculty activities (Figure 3) as guides for discussion. These tools help us direct the attention of course instructors to the key concepts of challenging students, developing engaging activities, increasing the time students spend working on a class, and providing feedback to students, instructors, and instructional designers. These concepts, in turn, serve as touchstones for considering the potential contributions of various parts of the larger campus environment to the learning experiences that will be designed for students.

Figure 3. Faculty Activities in the Learning Ecologies Course Design Process

Sustaining Course Improvements

Most faculty did not enter the academy to take risks, and academic freedom provides an excellent excuse not to change. In addition, lecturing is a wonderful pedagogy for the lecturer. It is very difficult to give up the role of disseminator of wisdom to become instead a facilitator of learning.

Phillip Turner (2009)

Once a course has gone through our development process, we are faced with a critical challenge: ensuring that effective instructional strategies are preserved. Over the past five years, we’ve encountered an all-too-common scenario. Typically, we’ve seen gains in student learning and academic
success when the faculty member who was involved in redesigning a given course is the lead instructor for the course. In cases where that faculty member has moved on to teach another course, however, we have often seen those gains lost as a new faculty member chooses to use more traditional methods to teach the course.

With this situation in mind, we’ve entered into long-term partnerships with key departments on our campus. These partnerships have involved groups of faculty within a department working with the support of departmental leaders. The goal has been to redesign a group of courses, typically offered during the first and second year, in ways that reflect general agreements about course goals and instructional strategies. In essence, we have worked to develop a shared way of thinking about a set of courses. This shared approach, informed by an awareness of the value of looking at new ways of engaging students in the learning process, is intended to gain wider acceptance of appropriate strategies for engaging and challenging students.

Conclusions

Instead of courses, designers need to see learning as an activity without beginning or end. Instead of programs, learning needs to be viewed as an activity that occurs within an ecology. In many types of learning, the task of the designer is to create the right environment for continued learning (i.e. design the ecology).

George Siemens (2005)

For several years, we have heard that higher education must change. It must become more flexible, more customer oriented, and above all more efficient. All of this is true—although I would prefer to substitute “student” for “customer.” (Metaphors make a difference, and the persistent focus on business models has tended to shift our focus from learning outcomes to cost structures. For one critique of the impact of commercial metaphors, see Lambert, Parker, and Neary, 2007.) Unfortunately, the suggestions for change that have emerged from the debates about the future of higher education have tended to overlook the distinctive contributions that can be made to student learning by residential colleges and universities. Proponents of change have seemed all too willing to view the college campus as “so Twentieth Century” and to point instead to a future in which students learn online and on-demand, a future in which the only ivy covered walls or campus quads they are likely to see will come courtesy of course banners and screen savers.

Fortunately, and for a variety of reasons, the march toward this vision of higher education is unlikely to be as inevitable as some of its proponents seem to believe. New technologies have and will continue to shape higher education, but rather than completely transforming our courses, they will have a remediative effect (Bolter and Grusin, 2000). Consider that, all early claims to the contrary, television did not replace radio and the Web has not replaced print. Instead, they co-exist. The emergence of new technologies has had profound influences on older technologies, but older technologies continue to play important roles in our lives.

My own discipline—composition and rhetoric—offers instructive examples of dramatic (and ultimately inaccurate) claims about the likely effects of new technologies. In the late 1980s and early
1990s, for instance, we saw a number of claims about the inevitable decline of the novel—and indeed, nearly all linear text genres—in the face of interactive fiction, a form of programmable hypertext. Today, sales of novels continue to grow, albeit with a significant number in eBook formats. And while interactive fiction has not replaced the novel, we are seeing slow but steady growth in the development of “books” that can be read only in digital formats—books that embed video, audio, images, and animations, that can be navigated in much the same way we navigate the Web, and that have some of the elements envisioned by proponents of interactive fiction. We can also see the influence of interactive fiction on the rapidly growing gaming industry, which last year eclipsed Hollywood in total sales. Yet the growth of the Web and gaming has not led to the decline of the novel or of publishing in general. Instead, the new technologies exist alongside the old, influencing each other, remediating each other in a manner consistent with the predictions made by scholars such as J. David Bolter.

It seems likely that residential colleges and universities will continue to play an important role in higher education. They can do so, however, only to the extent that they are willing to adapt to changing conditions—in the students they attract, the strategies they use in their courses, and the resources they draw on to support learning and engagement. Following this path, however, does not require residential institutions to repudiate the values and practices that have for centuries brought people together in learning communities. Instead, higher education leaders and faculty should consider how programs of study, individual courses, and the people who learn and teach those courses can benefit from new developments in instructional and communication technologies—and how those technologies will remediate, rather than replace, traditional approaches to learning and teaching.

References


