

# RETHINKING UNIVERSITY TEACHING IN THE

**T**he nature of teaching has remained virtually unchanged for centuries. The transmission model—that is, the passing on of knowledge or information—has prevailed throughout fundamental innovations including writing, books, computers, and the Internet. The teaching professions have adopted each of these technologies, but thus far only in service of the transmission model. Diana Laurillard, professor of educational technology and pro-vice-chancellor at the Open University, UK, emphasizes the pressing need for higher education to meet the demands of the knowledge society by taking full advantage of the possibilities technology presents to move teaching and learning into a new era.



"Yliaster (Paracelsus)," Marsden Hartley. Smithsonian American Art Museum, Washington, DC

# DIGITAL AGE

## THE ROLE OF UNIVERSITIES IN THE DIGITAL AGE

Colleges and universities worldwide are feeling pressure to expand access to higher education. The knowledge society needs more graduates, and those graduates increasingly return to study as lifelong learning takes its place in both work and leisure time. Moreover, knowledge industries are creating for themselves the means by which their employees can acquire the immediate skills and knowledge they need, generating competitive pressures for established institutions and bringing into question the benefits of a university education, particularly in light of its cost.

Universities play a unique role in society, which in 1997 the British National Committee of Inquiry into Higher Education defined as being “to enable society to maintain an independent understanding of itself and its world.” This broad mission for universities readily distinguishes them from competitors in the knowledge industries and the for-profit realm, which operate according to significantly more limited roles. This difference is key: universities will maintain their competitive edge against the knowledge industries through their core values, which must include research-based teaching and a curriculum that provides for the long-term cognitive needs of individuals.

## DOES UNIVERSITY TEACHING MEASURE UP TO ITS ROLE?

Teaching methods have not evolved sufficiently for universities to fulfill their missions. At this point, a radical shift from the standard transmission model is needed. The higher education community must redefine what counts as higher learning by moving beyond

a curriculum that teaches *what is known* to one that teaches *how one comes to know*. Conditions for the latter include engagement on many levels for both the individual and the learning community. Students’ active participation with practitioners, working together on common projects, makes them part of the process of creating knowledge. Students learn by doing and gain the experience necessary to reason, strategize, and make sense of situations that will arise in practice, during their future careers, where they will be called upon to think beyond the facts and rules imparted in a typical classroom setting.

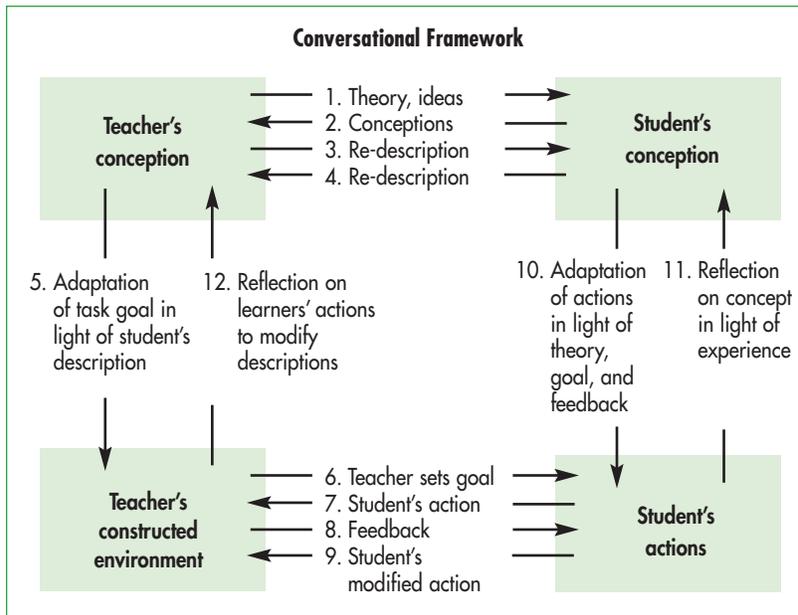
Today, universities reward good research far more than good teaching. Academics, who must divide their time between the two, inevitably emphasize research. The result is that while research flourishes, teaching languishes, and the curriculum does not adequately support development of long-term high-level cognitive skills. To remedy this, universities must adopt a professional approach to teaching that parallels that for research. They must realign research and teaching and aspire to teaching methods that help students acquire the skills of scholarship.

## WHAT IS POSSIBLE?

How might we progress beyond the predominant transmission model of teaching? The *conversational framework* for learning diagrammed in Figure 1 presents a new approach, an iterative dialogue between teacher and student that operates on two levels: the discursive, theoretical, conceptual level and the active, practical, experiential level. These levels are bridged by each participant engaging in the processes of adaptation (of practice in relation to theory) and reflection (on theory in light of practice).

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Figure 1.



The conversational framework describes the irreducible minimum for academic learning. The interplay between theory and practice—that is, making the abstract concrete through a reflective practicum—is essential, as is the continually iterative dialogue between teacher and student. The transmission model is just one part of this much more complex model for learning as shared understanding.

This framework can be used to test how various applications of technology measure up to the requirements of a more progressive teaching model. We can readily see that many of the most ubiquitous technological forms—such as lecture notes on the World Wide Web or CD-ROM-based digital resources—offer no more than do traditional lecture and print media in service of the transmission model.

Technology-based courses at the Open University are designed to offer different combinations of activities within the conversational framework. Design is driven by the learning objectives and aspirations of the course rather than by the capabilities of various technologies. For each subject, the communicative, interactive, and adaptive capabilities of the technology facilitate different types of iterative dialogue between teachers and students. The practical exercises of investigating and analyzing resources and running simulations are combined with

theoretical and conceptual discussions within the learning community, either synchronously or asynchronously.

Figures 2 and 3 present examples of technology-based science and literature courses. The first shows a complex environment of reservoirs through which a carbon atom moves via transformational processes such as burning (from land plants to atmosphere) or absorption (from atmosphere to sea) and so on. The task goal is to move the atom through all 12 reservoirs in the environment. Figure 3 shows the beginning of a course for investigating relationships between literary sources from the Homeric poems and artifacts from archeological sites

of ancient Greece. Each week's work defines a set of investigation activities, such as "compare the mortal characters in *The Iliad* and *The Odyssey*," or "investigate the kind of society in Mycenae."

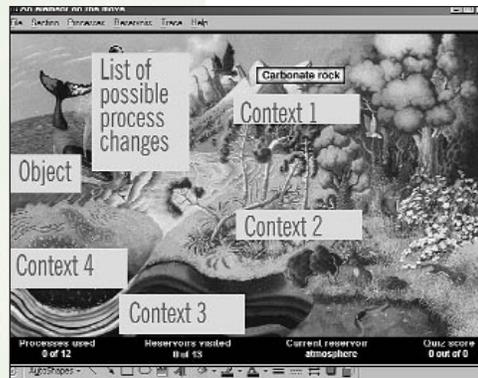
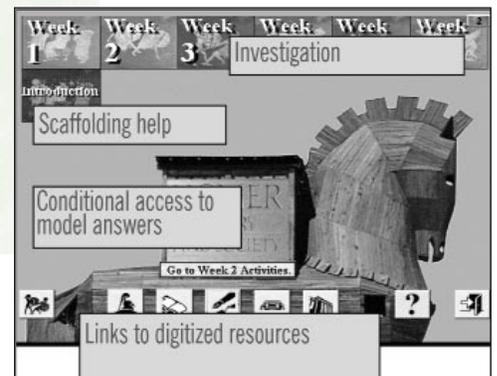


Figure 2.

Figure 3.



Clearly, development of these types of courses entails a tremendous commitment of time and resources. Yet the current higher education system rewards research far more than teaching, and so there is little incentive for academics to develop such courses. One way through this seemingly intractable dilemma is to build generic forms that others can use as tools to design their courses. For example, the carbon process environment could be used for quite different content, such as the osmosis cycle or human development, whereas the Homer model could be applied to any other digitized content, with the teacher providing appropriate investigation activities and matching model answers.

There will be many such generic forms—possibly hundreds across the full range of university curricula. In each case, the teacher will provide the content and ideas appropriate to the specific learning activities they want to design, as they already do for the generic form of a book, a lecture, or a PowerPoint presentation for less active forms of learning. They will need relatively little programmer support because the pedagogical design is already embedded in the generic form. The teacher's task is to customize the content. The generic forms, then, offer an alternative to the individual struggle to discover how best to use a complex technology.

## CONCLUSION

Higher education must support a professional approach to teaching that mirrors that for research. We need a collective research and development program to build the generic forms that will support student learning and foster high-level cognitive skills of scholarship—and practitioner-based skills and knowledge as well. If undertaken, these efforts would constitute a new approach to university teaching. If we do not pursue them, the potential of new technologies to provide mass higher education and lifelong learning opportunities will not be realized, and the digital age will find its own ways of managing without us.

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Diana Laurillard is professor of educational technology at the Open University, U.K., where she is also pro-vice-chancellor for learning technologies and teaching. She is author of *Rethinking University Teaching: A Framework for the Effective Use of Educational Technology* (1993), and several book chapters and articles, including “The Learning Individual in the Learning Society,” in *The Knowledge Economy* (1999).