Different Approaches to Online Learning and the Role of the Learning Management System

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There are many views on effective teaching methods in post-secondary education, and a great deal of autonomy is given to instructors in how they teach. As a result there are a range of different approaches that have been developed in online learning, and to some extent, these are linked to the use of different technologies.

[Harasim (2012)](#) provides a useful overview of different approaches to the use of online technologies based on different theories or assumptions about the best way to develop learning. Using the framework developed by Harasim, we explore the nature of online teaching and learning in this module.

Didactic Teaching

'Rather than transform pedagogy….a common tendency of educators has been to merely integrate technology into traditional ways of teaching. Examples of traditional didactic approaches to the Web are common and include:

- transmission of course information and content to students

- communication between student and teacher

- transmission of lectures (PowerPoint slides, videoconferences, podcasts)

- administering/assessing quizzes and posting grades.' (Harasim, p.2)

Harasim describes this as moving classroom teaching online. Othersrefer to this as web-enhanced classroom teaching or blended learning. This is perhaps the most common use of a Learning Management System(LMS). Harasim's comment on this method is pertinent: '… educators who restrict their use of the Internet and the Web to making traditional didactic teaching easier or more efficient are missing opportunities to introduce better, different or more advanced ways of learning.'

'Front-End' Instructional Design

This approach is based on the so-called ADDIE model: analysis, design, development, implementation and evaluation.

It usually requires instructors working in a team with an instructional designer and media specialists, and is most often used for fully online learning/distance education, where it has proved extremely successful in terms of developing quality online courses where student completion rates are high and the grades of online students are similar to those taking the campus-based version. Also the instructional design model is increasingly being used to support the design of hybrid courses that combine online and face-to-face teaching. LMSs are usually used to support this form of online instruction, now increasingly augmented by Web 2.0 applications and social media.

Experimental and Practical Work

In an increasing number of subject areas, online learning is extending into experimental or practical work – what some have called "problem-based learning." In particular, there are a number of developments using simulations in physics, chemistry, engineering and biology, and also in professional areas such as emergency response training, vocational training, and apprenticeship. As well as simulations, the use of remotely controlled laboratory equipment and remote training in workplace digital control systems is increasing. In general, the aim here is not to change the campus-based laboratory model, but to replicate it at a distance. This means going outside the LMS.

Online Collaborative Learning

In this model, according to Harasim, 'students are encouraged and supported to work together to create knowledge; to invent, to explore ways to innovate, and by so doing, to seek the conceptual knowledge needed to solve problems rather than recite what they think is the right answer....the teacher plays a key role not as a fellow-learner, but as a link to the knowledge community, or state of the art in that discipline' – as a coach, guide, mentor, facilitator. In particular, the teacher is required to provide 'scaffolding' or specific support processes to enable conceptual development in the learner. Other types of collaborative learning found not only online but also in classroom teaching are problem-based, inquiry-based, and project-

based learning.

LMSs provide discussion forums that can foster this kind of learning, but some critics such as Harasim believe that the forum structure within current LMSs is too limiting for the kind of learning environments needed to support such knowledge construction. Web 2.0 tools, such as wikis, blogs and social media, offer opportunities for more open and less structured collaborative learning environments.

Self-Directed or Learner-Managed Online Communities of Practice

Etienne Wenger defines communities of practice as 'groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly.'

Social media in particular provide opportunities for the creation of self-forming and dynamic online communities of practice, with no formal structure or 'accredited' instructor. LinkedIn for instance provides, not only connections to people with similar professional interests, but also opportunities for sharing, discussion and networking. Online communities of practice can be seen as another version of continuing education or lifelong learning, but we also came across examples of instructors and teachers enhancing or enriching formal educational courses or programs through the development of 'open' communities of practice or shared group work linked to formal teaching (see Web 2.0 later).

Networks and Connectivism

Lastly, some commentatorsargue that the internet now provides sufficient 'open' resources (including course materials, learning resources, videos), free communication software, and networking opportunities that all learning can now be self-directed and managed through networked communities of practice.

Connectivism is a theoretical model that 'frames learning in terms of learners connecting to nodes on [a] network, suggesting that knowledge does not reside in one location, but rather that it is a confluence of information arising out of multiple individuals seeking inquiry related to a common interest and providing feedback to one another....Connectivism stresses that two

important skills that contribute to learning are the ability to seek out current information, and the ability to filter secondary and extraneous information. Simply put, "The capacity to know

is more critical than what is actually known" ([Siemens, 2008](#)). Connectivism is an extension of the concept of online communities of practice, but here the focus is on the knowledge generated beyond the group, in other words the sum of the total is greater than the sum of the parts. The other element is the dynamic nature of networks, which means that knowledge is constantly changing and adapting. Knowing which networks and which nodes to connect to is more important that knowing what each individual node has to say.

Other Recent Trends in Online Pedagogy

As well as broad theories of online teaching, there are also some other instructional developments that have implications for choice and use of technologies for teaching and learning.

'Soft' skills and ICT skills development within disciplines

In direct response to changes in society, there is increasing demand for the development of what are sometimes described as 21st century skills, such as independent learning, critical thinking, entrepreneurialism, communication skills, and especially skills in using computer software and the Internet in ways that are specific to a subject domain or discipline. These are not 'topics' that are taught separately, but are embedded in the subject area. Examples might be the development of entrepreneurial skills in software engineers, the use of graphical information systems in geology, the use of pharmaceutical databases to identify possible drug interactions, or problem-solving in business.

To develop such skills, courses have to be designed to give opportunities for practice, and assessment has to focus on attainment of these skills. This has implications for choice of technologies that best support these forms of teaching and assessment.

Personalization of Learning

Research on how students learn, and the increasing diversity of learners in a mass system of post-secondary education, requires attention being paid to differences in learners, and adapting instruction to individual needs.

Identification of at-risk students in online learning through the use of learning analytics, the use of multiple media (text, graphics, audio, video) to provide more ways of learning so as to support different learning styles, and the adoption of universal design to accommodate students with accessibility challenges, are all examples of the way in which learning is being personalized.

This is a major thrust in K-12 learning and it is probable that a great many of the developments which are occurring in that sector will find their way into post-secondary education. In particular, rethinking the use of time for learning (as Kentucky has done with their on-demand system) and the use of adaptive learning platforms, such as Knewton, will gradually expand our ability to personalize learning.

Open Educational Resources (OER)

The rapid growth of digital materials that are available for free use over the Internet has major implications for course design. Rather than create materials from scratch, instructors can build courses around already existing online materials, or adapt and combine such materials with content created by the instructor. Alternatively, students can be encouraged to find, analyze and incorporate OERs in their own work. By definition, OERs largely exist outside an LMS, although some LMSs now allow for open publishing of content.

Conclusion

It can be seen that there is a continuum or progression in teaching methods, from teacher controlled to learner-controlled. Although different technologies are often associated with these differences in teaching approaches, such differences can also be found in face-to-face contexts. Some would argue that an LMS can incorporate each of these approaches, while others will argue that an LMS is basically a tool under the instructor's and institution's control, whereas Web 2.0 tools shift control of learning to the learner. Underlying this discussion is the issue of when, to what extent, or under what conditions should learners control their own learning.

Furthermore, preferred models of teaching and learning vary considerably between and within subject disciplines, depending on quite deep epistemological differences. For instance, an instructor may decide that at the undergraduate level, physics needs a strongly didactic or objectivist approach, but that at a graduate level more constructivist approaches are

necessary. Others may feel that if a constructivist or discovery approach is not adopted at an undergraduate level (or even earlier) it will be exceedingly difficult for post-graduates to change their method of learning.

Theories are neat but reality is messy. Many instructors use a combination of approaches, depending, at any particular time, on the needs of their students and the demands of the subject matter. The important lesson here is that the choice and particularly the use of technology should be decided by individual instructors to take account of the context in which they are working. This will be influenced by their 'world view' (and that of their colleagues) of what knowledge is, and how best to teach it. Furthermore, it would be foolish to suggest that any single technology will meet all learning requirements. The aim should be to enable instructors, administrators and also students to understand the issues that need to be considered when choosing and using particular technologies for teaching and learning.