

Methodology of Online Learning and Teaching

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Introduction

Online learning, also known as Web-Based Instruction (WBI), and Internet-based education, has become very popular world wide. Today, thousands of courses are available online from different universities and for-profit institutions. These courses include a wide range of topics ranging from basic subjects such as math and biology to skill-based subjects such as programming languages and interpersonal skills. Many educational and non-educational institutions offering traditional learning programs are also beginning to exploit the Internet and World Wide Web (WWW) for reaching out to a wider audience. This new medium gives rise to new issues and questions from the perspectives of educators. One of the most important of these issues is the answer to this question: what kind of methodology should be used in online learning? As educators, should we keep on using the same methods that we use in traditional education, or should we use more innovative methods?

What is Methodology?

In formal education system there is a curriculum (content) that needs to be learnt by learners. The technique of learning or teaching this content is the method. Some examples of methods are lectures, inquiry-based learning, project-based learning, and problem-based learning. These different methods carry some inherent advantages and disadvantages. For example, most educators use lecturing because it is practical time

wise. However, since lecturing is instructor-centered and it is usually carried one-way (instructor to students), it becomes boring for learners and create motivational problems.

Over the years the method of teaching became more important than the content in education, because the diffusion of communication and network technologies made a vast amount of different content readily available to many people. As an example, Massachusetts Institute of Technology (MIT), one of the most prestigious universities in the USA, announced in 2002 that it would make its entire curriculum freely available on the Internet over the next ten years. In this way, the MIT showed that it was their method of teaching, and not the content that was important in their education.

Traditional formal education is based upon a paradigm generally called “knowledge reproduction model.” The methods used in this model are verbal lecture, printed handouts, drill and practice sessions, structured classroom activities, and office hours (Lightfoot, 2000). In this model, students are seen as passive learners. The purpose of teaching is to transfer static body of knowledge from sources, like instructor and books, to learners. On the other side, the research findings claim that all kinds of learning are promoted when the methods of teaching favor active learning. For example, after a literature review on this issue, Merrill (2002) identified that learning is promoted when learners are engaged in solving real-world problems, when new knowledge is demonstrated to the learner, and when new knowledge is applied by the learner.

Computer mediated communication and online learning in general support this kind of active learning. According to Imel (1997) the most important distinguishing characteristic of WBI is the emphasis on instruction and not just on information delivery. For this reason, WBI should be designed by basing it upon the cognitive-based theories

of learning, where learners purposefully interact with the environment, solve real-world problems, practice the knowledge, and thus become an active learner.

Active Learning Strategies in Online Learning

Multiple strategies can be used in an online course to support the active role of the students. Among these different strategies the role of instructor, practicing the knowledge, collaborative learning, and feedback are discussed below.

The role of instructor should be that of mentor or supporter

In online courses, instructors should not be talking heads like they used to be in traditional courses. In this sense, presenting video clips of a lecturing instructor in an online course as the only source of information is a bad practice. This leaves the learner in a passive state. Such video clip resources can be utilized in a more active way. For example, learners and instructors can participate in online chat discussions after watching these video clip resources. In addition to facilitating online discussions, the instructors might focus on students' learning. For example, they can send supporting e-mail messages to encourage learner participation in course activities. The online learning environments afford the opportunity to shift the role of instructors from “delivering” to “listening and supporting” (Doubler, Grisham, & Paget, 2003).

Learners should practice what they learn

Bruner (1973) considers two kinds of knowledge in the learning process: knowledge as detached, which is meaningless, and knowledge as a guide to purposeful action. Detached

knowledge is competence; when that knowledge is used for purposeful action it is performance. For many people, knowledge is helpful when it is used in action. For example, in an online course on basic accounting skills learners might learn basic concepts such as planning, controlling, and decision making in business organizations; however, their accounting skills does not improve until they use that knowledge in a meaningful business-related project. In a similar way, Dewey (1938) advocated the importance of experience in learning, which involves real-world participation. To accomplish this strategy, learners might work on papers or participate in real-world projects. These kinds of artifacts provide opportunities for learners for showing what they have learnt in the course.

Learners should be provided collaborative learning opportunities

Recently, learning theories that emphasize collaborative learning are on the rise. For example, the situated view gives importance to *activity* rather than knowing and emphasizes the reciprocal character of the interaction through which individuals, as well as cognition, are considered socially and culturally constructed (Barab & Plucker, 2002). According to this view, the knowledge is distributed among people and their environments including the objects, artifacts, tools, books, and the communities of which they are a part. Therefore, learning depends not only on the individual but also on social relations. Collaborative learning opportunities in online learning environments can provide linkages among the factors of the context. Asynchronous communication modes such as e-mail and threaded discussion groups, and synchronous communication modes such as chat, instant messaging, and audio and video conferencing tools in an online

course can link remote participants. By using these modes, the remote learners can participate in cooperative projects or papers.

The purpose of feedback should be to improve the learning process

Dewey (1916) points to the importance of trial and error in experiences; learners simply do something and when they fail they do something else until it works. In traditional learning environments, like schools, this phenomenon is not recognized and learners are expected to perform above a standard in their first trial. Then their performances are graded and that experience is considered to be concluded. On the contrary, an experience that is improved over time encourages learners to come back to the learning context. The projects or papers undertaken by students in online courses might be broken down into several steps to facilitate this “layered” feedback mechanism.

Conclusion

The literature suggests that one of the biggest advantages of Web-based courses is that they provide anytime and anywhere learning. It was argued in this paper that the pedagogy of online courses should be driven by active learning strategies. Implementing these strategies might not fit into the “anytime” and “anywhere” features of the Web-based courses. For example, real-time collaboration of learners requires their arranging a time and meeting in the online (or offline) space. Therefore, it is important to consider other contextual factors of the online course along with the methodology of the course.

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Biography

Hakan Tuzun received his Ph. D. in Instructional Systems Technology from Indiana University. He also has a BA and M.S. in Computer Science, and an M.S. in Instructional Technology.

His interests include the use of Information Technology, including computers and the Internet, to improve human learning and performance. Towards this goal, he has been involved with design, development, and evaluation of a number of educational products. Recently, he is a designer, developer, and researcher in Quest Atlantis project (<http://www.QuestAtlantis.org>). This is an educational computer game, which uses a 3D multi-user virtual environment to improve learners' motivation and learning.

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