In Search of Quality Learning Technologies for Online Distributed Classrooms

Madhumita Bhattacharya
Massey University, New Zealand
M.Bhattacharya@massey.ac.nz

Jon Dron
University of Brighton, UK
jondron@brighton.ac.uk

Abstract

Recent developments in technology and access have offered the opportunity to improve online learning environments through increased communication, interactivity among participants, and incorporation of pedagogical models to evaluate the quality of learning. Resulting advantages of the different features for the distributed online learning environment have included: access to and from geographically isolated communities, multiple and collaborative participation among them, convenience of synchronous/asynchronous communication, interaction with and among individuals from diverse cultures, and ability to focus on participants’ ideas, without knowledge of age, race, gender or background. We will focus on these features and discuss our research in enhancing and maintaining learning effectiveness using technology in online distributed learning environment.

1. Diversity vs collaboration in online learning

Diversity in education is becoming increasingly important as we leap towards globalization of education. It is not only diversity among people but includes variety in educational methods, tools and technologies. At the same time we are aware of the advantages of collaboration in learning to support develop communities of practice [1]. Social participation is a process of learning and knowing which includes four interconnected and mutually defining components: Meaning (learning as experience); practice (learning as doing); community (learning as belonging); and identity (learning as becoming). These four components depend on collaborative activities. Social processes are essential in learning, shaping our identities and what we do as well as what we know [2].

In step with collaboration and the ‘learning’ centered approach where student/teacher/mode are equally important – equally centered – as through the ‘learning’ process, an ideal outcome is that everyone/thing improves practice (or learns), there has been a change in the focus of teaching and learning strategies towards building constructivist tools that foster active and authentic learning, goal setting, student articulation, social interaction on collaborative tasks and metacognitive reflection[3]. Clearly additional experimentation with online instructional strategies and approaches is needed. Just what types of tools work in what situations? What pedagogical strategies foster participant engagement online? With continuation of such efforts, the coming decade may witness a growth spurt in e-learning technologies which give priorities to pedagogy.

Learning technologies often change the relationship between participants and require the development of new teaching approaches and student abilities. For example, a chief advantage of CMC (Computer Mediated Communication) is that it enables collaborative learning. However, it requires the design of tasks or projects that stimulate learners to engage in collaboration with their peers and also requires adjustment from the learners’ perspectives. For example, a postgraduate course at Massey University builds up to a collaborative assignment that requires small groups to interact via WebCT discussion and real-time conferencing, therefore individual learners must schedule their time so as to be available for the defined period of collaboration. This necessitates personal adjustment in terms of time management and a willingness to take time from competing claims during that period: family commitments, holidays, work demands, and so on. The result has been a transformation for many learners who were used to the autonomy in learning typically offered in distance modes.

Similarly, faculty must adapt to the diverse roles of facilitator, learning manager, resource specialist and so on - a pedagogical shift that test-based distance education demonstrated the need for long ago. Now, newer learning technologies intensify that need and call on new skills and orientation such as social software (wikis, blogs, etc) and computer media communication tools (Macromedia Breeze, Horizon Wimba, etc). While current technological advances
have made it possible to instruct outside of the classroom setting in a distributed learning environment [4], the multicultural context in which the students and the teachers are operating must form a large part of the planning and policy procedures. It has been well researched that conceptual understanding, ways of communication, thinking pattern and behaviour of people are embedded in the culture [5]. Bhattacharya [6] examined the conceptual understanding of a particular reading material of people from different cultural background. When developing material for distributed learning we emphasize that the material should be of high quality, comprehensive and pedagogically sophisticated. Now the question is how do we do that? How can we develop material, which will cater to all kinds of diverse learners’ population? How should we select the teachers or mentors when dealing with people from any where in the world? [7]

2. Quality measures for online learning

Considering the recent changes due to introduction of technologies for learning and the diversity issues arising from various dimensions in the present day teaching-learning scenarios [3] the concept of quality and its different measures and standards needs to be revisited in the light of online distributed learning environment. Quality in education can be defined from at least three points of view: from a technological, an economic or a pedagogical perspective [8]. In this article we will consider the technological and pedagogical perspectives. A model proposed by Dalsgaard (figure 1) gives an outline of how the activities should be designed for a technologically enhanced learning environment in order to maintain the pedagogical quality.

![Figure 1. Theoretically grounded evaluation of technology](image)

E-learning consists of different technologies such as discussion forums, e-mail, file sharing, shared whiteboard, video conferencing, chat, etc. In a learning environment these technologies are used in support of different activities. The structure of the activities of a course is determined by learning principles which provide a model of the learning environment. Finally the learning principles are founded in a learning theory which describes the human learning process [9].

Dalsgaard’s model is useful, but does not fully capture the recursive influence of technologies on pedagogies. We will to share our experience through critical analysis of the pros and cons of various synchronous and asynchronous tools and technologies, especially visual tools and their supporting technologies. We will suggest design propositions that may enable the development of learning environment catering to the individual needs of students. We will argue on the appropriate method of “evaluation for learning” - a process involving self reflection, peer review and teacher assessment in order to improve the quality of learning in online environment.

3. References


