**Interaction in distance education and online learning: using evidence and theory to improve practice**

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There are three types of interaction that is very important for the online learning. One is the interaction between students. Second is the interaction between students and peers. The third one is between student and the course contents. In this paper they explore these findings further. Discuss methodological issues in research and suggest how these results may improve. They highlight several evidence-based approaches that may be useful in the next generation of distance and online learning. These include principles and the theories of self-regulation and multimedia learning, research-based motivational principles and collaborative learning principles.

Distance and online learning provide exciting opportunities for the reach of education and reducing its cost. It is also important to us, because of increasing the quality of teaching and learning. This paper has two level of interest. One is the level of research, where we will argue that distance education (DE) and online learning (OL) has changed past simple comparisons with classroom instruction. The other is at the level of design, where we will suggest how theory and new forms of evidence may improve instructional training.

An examination of the quantitative research literature of DE and OL tells an extremely large amount of comparisons with classroom instruction (CI). Bernard et al. (2004a) found that 232 such studies were conducted between 1985 and 2003. Several others have been done since 2003. Why is this form of primary study so popular? The answer is simple, because it is easy to conduct. Many universities and colleges have normally run parallel forms of courses, one as a straight classroom-based section and the other as a DE section. There is wide inconsistency among studies, from those strongly preferring DE to those choosing CI, thus bringing into question the definite interpretation of distance education and classroom instruction.

Advances in the technology have increased the power, flexibility and ease of learning online and at a distance. Bernard et al. (2009) examined this literature from the viewpoint of interaction treatments (i.e., conditions of media and/or increase student–student, student-instructor and student-content interaction). Bernard et al. ( 2009) used Moore’s ( 1989) tripartite conception of interaction in DE and Anderson’s ( 2003) more recent expansion on the conditions that encourage student–student, student-instructor, and student-content interaction to examine both the magnitude and the strength of interaction treatments.

Students to student’s interaction refer to interaction among individual students or among students working in small groups (Moore 1989). In future generations of DE, including two ways of discussion, one is video and audio-conferencing and other is Web-based courses. Student– student interaction could be synchronous, as in videoconferencing and chatting. Asynchronous; when discussion on boards or e-mail messaging. Student- instructor interaction focuses on discussion between students and the instructor. In DE environments, student-instructor interaction may be synchronous such as through the telephone, videoconferencing and chats, Asynchronous, as in discussion boards or e-mail messaging. Student- content interaction refers to students interacting with the subject matter under study to construct meaning, relate it to personal knowledge, and apply it to problem solving.

Both student– student and student-content interaction was significantly higher than student-instructor interaction. Therefore, we believe that what we identified in Bernard et al. (2009) is the effect of the first generation of interactive distance education, where online learning instructional design and technology treatments allowed some degree of interaction to happen. One way to advance this new, more interactive distance education possible because of web feature enhanced. To use the new tools and customized the DE with new technology and add more feature in them. Beldarrain ( 2006) notes that although emerging technologies offer a vast range of opportunities for promoting collaboration in learning environments. Distance education programs around the globe face challenges that may limit or prevent implementation of these technologies.

There are several evidence-based approaches useful in the next generation of IDE2. These include application of: (1) theories of self-regulation, (2) multimedia learning principles, (3) motivational design principles and (4) collaborative and cooperative learning principles. One important understanding of purposeful interaction in IDE2 means learners will be self-regulated. They will set clear goals and develop plans for achieving those goals, monitor their activity and reflect on their activities using both self and peer or teacher feedback (Zimmerman 2000). According to Mayer (2001, 2008), the central challenge of instructional design for multimedia learning is to encourage learners to engage in appropriate cognitive processing during learning. And not overloading the processing capacity of the verbal or visual channel. Afar self-regulation, motivational principles in general are also important in IDE2 to insure the active and directed engagement of learners. When student-to-student interaction becomes truly collaborative and learners work together to help each other learn. Then the benefits of interactivity may be largest.