
Jianxia Du, Centre for Information and Communication Technology in Education, Faculty of Education, University of Macau, Taipa, Macau, China

Vance A. Durrington, Department of Instructional Technology, University of North Carolina Wilmington, Wilmington, NC, USA

ABSTRACT

This paper illustrates a model for Online Group Collaborative Learning. The authors based the foundation of the Online Collaborative Design Model upon Piaget’s concepts of assimilation and accommodation, and Vygotsky’s theory of social interaction. The four components of online collaborative learning include: individual processes, the task(s) students work on, group member processes, and communication media. These elements become key components beginning with the theoretical framework, the models used, and implementation of the models. The purpose of this paper is to describe the Online Collaborative Design Model and student feedback related to its implementation in an online course. The model was piloted in a required multimedia graduate course using a problem-based learning approach. Students used synchronous chat rooms and asynchronous discussion boards for course discussions and for the final group project. The instructor, to gain an understanding of the piloted implementation of the Online Collaborative Design Model, gathered final reflections about collaboration and the final project. The reflections revealed that students sensed a connection between productivity and trust. Further research into the impact trust has on the interpersonal communications of the group and the intrapersonal communications of the individual would give interesting insights into the model.

Keywords: Collaborative Learning, Tasks, Peer Interaction, Cognition, Online

INTRODUCTION

The value of collaborative learning is widely recognized because of its positive effects on social, cognitive, and metacognitive development. One advantage of collaborative learning is that it provides students opportunities for self-reflection and joint construction of knowledge. Furthermore, the collaborative learning environment frequently leads to higher levels of task-related interaction and behavior (Schoor & Bannert, 2012).

Despite the potential benefits of collaborative learning, not all collaborative learning activities are successful. Providing students with opportunities to work together will not ensure achievement or knowledge enhancement (Barron, 2003) and a great deal of research has been conducted to discover the factors that will provide the best opportunity for a positive col-

DOI: 10.4018/jicte.2013010104
laborative learning environment. Some of the factors that have been found to have a significant impact on the quality of the collaboration include the quality of the interactions (Volet, Summers, & Thurman, 2009), the type of task on which the group worked (Reeves, Herrington, & Oliver, 2002), and unresolved contradictions that eventually drove group members to work independently (Howe, 2009).

Due to the popularity and growing number of online courses offered, the quality of these online courses and programs are an important concern in education (Norton & Hathaway, 2008). Some negative online experiences, perceived by students as weaknesses of online learning, have been the result of delayed feedback or responses from online instructors (Durrington, Berryhill, & Swafford, 2006); a lack of student self-regulation and self-motivation; a sense of isolation, monotonous instructional methods (Xie, Durrington, & Yen, 2011); and poorly-designed assignments (Hedberg, 2003).

Britto (2002) investigated faculty intentions and student perceptions associated with the pedagogical dimensions of a Course Management System (CMS) and found that faculty perceived the benefits of teaching a course using a CMS primarily pertained to the convenience and efficiency of course administration and management. Conversely, students expressed frustration that their instructors did not utilize the online tools available through the CMS to support their learning. Other studies reporting student frustrations with online learning environments cited factors such as confusion about online instructions, failure to get prompt feedback from their instructors, and persistent technical problems (Vonderwell, 2003). Interestingly, only one of those is directly attributable to an CMS. One possible contributing factor to the frustrations expressed by students is that faculty members rarely have sufficient time to design courses for an online environment, so they fall back on using the technology to reproduce the instructional elements of their traditional courses (Reeves, Herrington, & Oliver, 2004). Since a collaborative learning environment is an effective means of accelerating knowledge construction, studies should begin to focus on identifying the conditions under which a collaborative learning environment can be effective in an online environment.

The purpose of this paper is to describe the Online Collaborative Design Model and to include the online course implementation findings. This research specifically examines: (a) how the authors used the Online Collaborative Design Model to develop collaborative learning activities; (b) how instructors structured activities to promote the level and quality of communications among students, as peers and between students and their instructor; and (c) how students responded to the implementation of the Online Collaborative Design Model. The Online Collaborative Design Model is an application of a pedagogical model for a specific learning objective, target group, and specific context or knowledge domain. The first part of our article discusses the model, which is reflective of the IMS Learning Design model (IMS Global Learning Consortium, 2003). The paper also describes the delivery process as well as the results of fully implementing this interactive model. The model, designed by the authors of this paper for online group collaborative learning, derives from Piaget’s (1926) theory of assimilation and accommodation and upon Vygotsky’s (1978) theory of social interaction. The elements of the model include the individual processes, the task, the group member processes, and the collaborative discussion activities.

A Socio-Cultural View for an Online Collaborative Model

Constructivism is a term used to describe a number of different theories. The Online Collaborative Design Model focuses on two dimensions: the knowledge construction process of individual learners and the knowledge construction as a socially situated process (Driscoll, 1994). Piaget’s (1926) theory and the concepts of assimilation and accommodation explain the view that the individual learner constructs knowledge by either assimilating
Related Content

A Systematic Framework of Virtual Laboratories Using Mobile Agent and Design Pattern Technologies
[www.irma-international.org/article/systematic-framework-virtual-laboratories-using/3918/](www.irma-international.org/article/systematic-framework-virtual-laboratories-using/3918/)

Learners and Learning
[www.irma-international.org/chapter/learners-learning/45064/](www.irma-international.org/chapter/learners-learning/45064/)

The Essential Elements of Interactive Multimedia Distance Learning Systems
[www.irma-international.org/article/essential-elements-interactive-multimedia-distance/1607/](www.irma-international.org/article/essential-elements-interactive-multimedia-distance/1607/)

On the Design and Application of an Online Web Course for Distance Learning
Yu J. Zhang (2004). *International Journal of Distance Education Technologies* (pp. 31-41).
[www.irma-international.org/article/design-application-online-web-course/1624/](www.irma-international.org/article/design-application-online-web-course/1624/)

A Distance Learning System for Teaching the Writing of Chinese Characters over the Internet
[www.irma-international.org/article/distance-learning-system-teaching-writing/1626/](www.irma-international.org/article/distance-learning-system-teaching-writing/1626/)