

# Chapter XXV

## Understanding Group Interaction and Knowledge Building in Virtual Learning Environments

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### ABSTRACT

*With the rapid adoption of online learning and training, educators have drawn different conclusions regarding the viability of e-learning in supporting interactions that result in quality learning experiences and outcomes. This chapter describes several main online educational interaction models, highlights the Community of Inquiry model for contextualizing interaction from a sociocultural constructivist perspective and explains the characteristics of virtual learning communities. This chapter advances current understandings on online group learning processes with findings from a case study on distant students' experiences during virtual synchronous tutorials. Quantitative and qualitative survey results are presented on student satisfaction with the development of their skills in computer-mediated communication, increased understanding of course content, and enhancement of their overall e-learning experience through collaborative group discussions. Finally, the implications of the findings for designing distance courses and virtual group learning activities are discussed, and recommendations offered to enhance student experiences of online group learning.*

### INTRODUCTION

The main belief underlying sociocultural constructivist (Vygotsky, 1962) educational theories

and instructional practices is that learning occurs through interaction. With the rapid adoption of online learning and training, educators had variously lauded (Harasim, Hiltz, Teles, & Turoff,

1995) or expressed reservations (Ramsden, 1992) over the viability of the new e-learning model in supporting interactions that result in quality learning experiences and outcomes. Such positions stem from the different conclusions drawn in the consideration of issues such as where does learning take place? In what environment(s) do learners interact? What types of interaction are supported in online environments?

To further understand group interaction and knowledge building in virtual learning environments, this chapter describes the main interactional models that conceptualize types of engagement afforded by information and communication technologies. In order to contextualize online educational interactions, the chapter highlights the Community of Inquiry model (Garrison, Anderson, & Archer, 2000), where distant members of e-learning communities congregate to attain specific pedagogical aims, with their educational experiences formed by the presence of social, cognitive, and teaching elements. It further explains the characteristics of virtual learning groups and the crucial role that interaction plays in developing a sense of community in such groups.

Even as current e-learning environments, supported by better technologies, are held to offer high quality interaction for enhancing learning, studies on student satisfaction with their e-learning experiences have generally yielded mixed findings. This chapter advances current understandings on this issue with empirical findings from an in-depth case study of a group of mainly adult distant learners on their e-learning experiences during virtual synchronous (chat) tutorials (Lim, 2006). Quantitative and qualitative survey results are reported on student satisfaction with three factors, namely, the development of their skills in computer-mediated communication (CMC), increased understanding of course content, and enhancement of their overall e-learning experience through dialogic interactions supported by the synchronous CMC medium. Also, exchanges from transcripts of the tutorial group discussions

are presented that elaborated on the survey results, hence offering rich descriptions that add to the credibility of the findings in this study. Finally, the chapter discusses the implications of the findings for designing virtual group learning activities and offers some recommendations to enhance overall student experiences of online collaborative-constructivist learning processes.

## **BACKGROUND**

With improved web and CMC technologies, instructional settings now encompass conventional brick-and-mortar classrooms and virtual learning environments. Such a move presents benefits and challenges to educators since the range of educational interactions has been extended yet limited by technological capabilities and constraints. This section describes the types of interactions afforded by CMC technologies, contextualizes online educational interactions within a virtual learning community model, describes the characteristics of online learning communities, and highlights the main factors that affect student satisfaction with e-learning experiences.

### **Types of Online Educational Interactions**

Because of concerns over a lack of consistency in the use of the term *interaction* in distance education literature, Moore (1989) introduced three types of interaction that are now widely described and accepted in the field of distance education: learner-content, learner-instructor, and learner-learner interactions. *Learner-content* interactions refer to engagements between the learner and the content matter that lead to changes in the learner's mastery of the subject. *Learner-instructor* interactions are interactions between the learner and the tutor or expert that support the personalization of teaching-learning processes and the provision of feedback. The pedagogical

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