

## Chapter 16

# Promoting High-Order Thinking in Online Discussions

**Anne Scott**  
*ACU National, Australia*

### ABSTRACT

*Asynchronous online discussions potentially maximise the learning opportunities in tertiary education. In this chapter the design, implementation and evaluation of online discussions for developing high-order thinking skills with large groups enrolled in a preservice teacher education program are discussed. The development and evaluation of a tool indicates it is possible to examine the intellectual quality of online discussions and considering these written responses in terms of awareness, regulation and evaluation provides the facilitator with useful insights about students' thinking. A framework for auditing the activities facilitating the online discussions for potential learning opportunities is also recommended. Findings indicate that preservice teachers do engage in productive professional discourse which transform their learning when appropriate activities are used.*

### INTRODUCTION

Online discussions have been introduced into higher education programs as an avenue for learning in many countries across the international arena. Such discussions enable large numbers of students to exchange thoughts, experiences and resources about common issues. To some extent, online discussions have become a part of the culture in higher education. Many argue that the purpose for using online discus-

sions is to enhance the understandings, knowledge and skills of students and to prepare them for their chosen fields (Gabriel, 2004). Asynchronous online discussions<sup>1</sup> potentially decrease the pressure felt by students (Aydin & Yuzer, 2006) by providing time for reflective thought and allowing flexibility with the timing of students' contributions (Burbules & Callister, 2000). Furthermore, contributing to online discussions may support the co-construction of knowledge through the sharing of different viewpoints and ideas (Gilbert & Dabbagh, 2005) which may lead to more deeply considered responses (Bur-

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bules & Callister, 2000; Im & Lee, 2003; Palmer, Holt, & Bray, 2008). However, there is evidence to indicate that the high aspirations for learning via online discussions may not eventuate. To address this concern several studies have sought ways to increase the level of intellectual quality (Gilbert & Dabbagh, 2005; Magnuson, 2005; Scott & Ryan, 2007) and productive social interaction among participants (Hara, Bonk, & Angeli, 2000; Ryan & Scott, 2008; Salmon, 2002; Shin, 2002, 2003) in their online discussions.

In this chapter I will argue that in order to create productive online discussions one must consider the learning process in three phases: the design, implementation and evaluation. All three phases are important to maximize learning opportunities via online discussions. Although more has been written about the design and implementation phases, each phase is important and needs to be considered in an integrated way.

This study sets out to address the ways in which all three phases of online discussions: design, implementation and evaluation can contribute to a more effective virtual environment for online learners. I assert that the study based in a student-centred learning paradigm promotes critical thinking and values collaborative inquiries and that preservice teachers who are studying via a blended-mode of instruction are able to transform their knowledge and learning from theoretical forms to real-life experiences through online discussions. Here the phrase blended-mode of instruction refers to the use of face-to-face and asynchronous online discussions as integral and interacting, since both components build on each other, for learning. The chapter also sets out to describe the development and evaluation of a tool designed to assess levels of high-order thinking in the written online contributions from participants. In this study, the phrase high-order thinking refers to cognitive processes which result in critical analysis and evaluation of knowledge and thought.

## **REVIEW OF STUDIES EXAMINING ONLINE DISCUSSIONS TO ENHANCE LEARNING**

In this section the learning process using online discussions is considered in three phases: *design*, *implementation* and *evaluation* to assist in the discussion of relevant studies and the presentation of the data that follows. In the design phase I consider the suitability and sequence of appropriate tasks and structures required for creating a virtual environment conducive to learning in which ideal learning outcomes may develop. In the implementation phase I consider the roles of the facilitator and learner and ways in which to promote productive collaborative learning exchanges among them. In the evaluation phase I consider the gains in student learning as a result of their contributions to the online discussions. Evidence of change in online discussions may be measured by increased levels of participation and/or by the quality of critical reflections on the connections between the theory and their applicability to real-life contexts. Of course, few studies fit neatly into one classification; therefore, aspects of studies are positioned according to best fit.

### **Design**

In the design phase I consider the suitability and sequence of appropriate tasks and structures required for creating a virtual environment conducive to learning. Creating any learning environment requires knowledge of the context, learners, and strategies to explore the subject matter in virtual spaces (Burbules, n.d.; Burbules & Callister, 2000; Goodyear, Salmon, Spector, Steeples, & Tickner, 2001; Holmes, 2004; Salmon, 2002); many of these issues relate to the choice of appropriate technology for learning. Nicols (2003) concurred with Burbules and Callister (2000) who posited that matching the choice of technologies with greatest educational potential for the target group of students with specific learning goals or

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