Chapter XV

Quality Assurance During Distributed Collaboration: A Case Study in Creating a Cross-Institutional Learning Community

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Abstract

This case study describes the design and delivery of a collaborative asynchronous-synchronous, graduate-level, cross-university computer science course designed to create a highly interactive learning environment that resulted in the emergence of multiple unique virtual learning communities. The pedagogical principles of situated and problem-based learning were combined in a distributed collaborative learning context where students’ cognitive and metacognitive capabilities developed through the facilitative guidance of the instructors and through discourse with and observation of other students. The course was designed to motivate students to engage in interactive learning with others and to enhance transfer of
knowledge gained through this learning experience to real-life situations. We describe the challenges inherent in creating and managing this type of learning context as well as how we deployed ongoing formative assessment to ensure the evolution of a dynamic learning environment. The result of our efforts was a unique learning experience for students and instructors.

**Introduction**

While there have been many cross-university distance learning efforts (e.g., Bunz, 2000; Gunawardena & Duphorne, 2001), it is important to note qualitative and functional differences between synchronous and asynchronous interactivity in order to deploy the interaction method that will best foster pedagogical goals throughout the stages of a course. The networking, courseware framework, and human and pedagogical components of an interactive learning environment (ILE) need to be persistent as well as flexible. While the appropriate mix of interactivity depends on the knowledge domain and the purpose of the course, learner engagement in a virtual context is often best achieved by deployment of a combination of asynchronous and synchronous course elements (Vick, 2002).

After delivering a number of online courses in asynchronous mode, it occurred to us that adding a synchronous phase to an otherwise asynchronous course would increase the level of human-human interaction resulting in an enhanced sense of participation on the part of students. It was hoped that this increased sense of community would, in turn, result in improved learning outcomes and greater satisfaction with the course.

In this chapter, we first discuss the overall strategy behind our design of a cross-institutional hybrid asynchronous-synchronous course that added exploratory (Wiedenbeck & Zila, 1997) and experiential (Dehler & Porras-Hernandez, 1998) synchronous elements to an asynchronous graduate-level computer science course in human-computer interaction (HCI). We focus on the synchronous part of this collaborative endeavor, how it was developed and deployed, and the results that were achieved. Our goal was to add value to an asynchronous course by embedding an interactive synchronous element to stimulate student engagement in knowledge exchange and create an active knowledge-building learning community. Interpretive and empirical analyses were used to assess learner participation and satisfaction with the course. We took advantage of a high level of student diversity and the potential of a hybrid course design to (a) enhance student understanding of core domain knowledge and (b) enable real-world use of this knowledge through problem-based and experiential learning.

Second, we explain our tactical division of students into multiple highly interactive local (same university) and global (cross-university) virtual learning communities. Our goal was to create a stimulating learning environment by enabling and