Chapter XIX
Synchronous Hybrid E–Learning:
Empirical Comparison with Asynchronous and Traditional Classrooms

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ABSTRACT

An empirical analysis was conducted to compare synchronous hybrid e-Learning environment with traditional classrooms. Empirical study with 165 students from eight colleges at a large public university was used. The results show (1) contrary to prior research students taking unfamiliar subjects online, in synchronous format, were satisfied; (2) no statistical difference was found in student satisfaction between synchronous online and traditional face-to-face formats; and (3) overall satisfaction, measured by intent to us the same format again, found no statistical difference between the two formats.

INTRODUCTION

Advances in technology have increased the popularity of virtual learning environments (VLEs) in both the educational arena and corporate world (Alavi, Marakas, & Yoo, 2002; Dagada & Jakovljevic, 2004). VLEs are defined as "computer-based environments that are relatively open systems which allow interactions and encounters with other participants and providing access to

a wide range of resources" (Piccoli, et al., 2001, p. 402; Wilson, 1996). Advances in information technology (IT) continually expand the capabilities of VLEs (Seng & Al-Hawamdeh, 2001).

VLEs can be characterized by six dimensions which distinguish them from traditional classrooms and computer aided instruction: time, place, space, technology, interaction, and control (Piccoli, Ahmad, & Ives, 2001). VLEs are comprised of different formats including synchronous and asynchronous. This study delineates between synchronous and asynchronous learning to better understand student satisfaction when using online learning. The Piccoli, et al study implicitly refers to asynchronous instruction delivery format when defining the six dimensions. For this reason we refer to VLE in the Piccoli, et al. study as asynchronous. Research still remains to uncover the effectiveness of these environments and whether the differences alter student learning outcomes (Alavi & Leidner, 2001; Alavi *et al.*, 2002; Hodges, 2005; Seng & Al-Hawamdeh, 2001)

Prior research indicates that students are less satisfied when using asynchronous e-Learning format for unfamiliar topics like databases and more satisfied using asynchronous format for more familiar topics like word processing (Piccoli, et al., 2001). This study compares synchronous e-Learning format with traditional formats to understand the research question: Are students satisfied with unfamiliar topics when using synchronous e-Learning format?

This research presents the findings of an empirical study conducted to compare a VLE using synchronous hybrid eLearning environment with a traditional classroom setting. Synchronous hybrid e-Learning environment is one where portions of the interaction among the participants takes place in real-time, albeit virtually, and the remaining portion is taught in a traditional (face-to-face) classroom format. The next section presents the research background followed by hypothesis definition, research design, results, discussion, limitations of the study, future research direction, and conclusion.

BACKGROUND

In this section we discuss the research background on hybrid e-Learning followed by how the six VLE dimensions differ when using synchronous VLE. We conclude this section with a discussion on the differences between synchronous and asynchronous VLEs.

Hybrid E-Learning

Online learning is an ongoing focus of researchers, overall there is a need to gain a deeper understanding into the effectiveness of online learning (Alavi & Leidner, 2001; Alavi et al., 2002). To address this issue recent research has focused on understanding the effectiveness of different pedagogical approaches in different content areas; as a result, there have been a number of studies examining hybrid approaches. A hybrid approach involves providing content in a variety of formats with a mixture of online and in-class instruction. Synchronous hybrid e-Learning combines virtual and face-to-face learning. The ratio of virtual and face-to-face class sessions vary greatly; some include face-to-face portion only the first day of class, others equally divided the semester between virtual and face-to-face.

Current research provides a mixed response on the subject of advantages and disadvantages of using a hybrid approach to teaching. Comparisons of learning outcomes for courses taught in hybrid, virtual, and traditional classrooms is needed; furthermore, research in this area highlights the importance of self regulation (ability to control actions and decisions) and learning environment control (Hodges, 2005; Piccoli et al., 2001).

Webb, Gill, & Poe (2005) examined the differences between pure versus hybrid approaches to teaching using the case method and found that students' online discussions may enhance learning in case methods when taught using a hybrid approach. In a comparison of traditional and technology-assisted instruction methods in

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