

# Chapter 16

## Design Strategies for Improved Online Instructional Systems

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### ABSTRACT

*This chapter presents instructional design strategies to improve student learning satisfaction. Conformation factor analysis was performed to test the reliability and validity of the measurement model. The partial least squares method was used to evaluate the causal model. The results indicated that the learning climate, perceived value and perceived ease of use significantly affected learning satisfaction. Computer self-efficacy had a strong impact on perceived behavioral control; computer self-efficacy, perceived behavioral control and social interaction had significant effects on perceived ease of use. System functionality, content feature and social interaction significantly affected perceived value. Social interaction had a significant effect on learning climate. This chapter provides initial insights into those factors that are likely significant antecedents for planning and implementing a blended e-learning system to enhance student learning satisfaction.*

### INTRODUCTION

Traditional face-to-face learning typically occurs in a teacher-directed environment with interpersonal interaction in a live synchronous environment. This learning environment is costly with less access flexibility. On the other hand, the electronic learning (e-learning) environments

that have grown and expanded dramatically as new technologies have expanded the possibilities for communication, interaction and multimedia input. Although the e-learning may increase access flexibility and improve cost effectiveness, it suffers from a lack of social interaction between learners and instructors (Wu, Tennyson, Hsia, & Liao, in press).

With the rapid emergence of technological innovations in information and communication,

DOI: 10.4018/978-1-61520-623-0.ch016

people have searched for another instructional delivery solution to relieve the above problems. The term blended learning has been discussed as a promising alternative. Blended learning refers to courses that combine face-to-face classroom instruction with online learning. In recent years blended e-learning has become part of the educational landscape. Several blended e-learning systems (BELS), such as WebCT ([www.webct.com](http://www.webct.com)) and Cyber University of NSYSU ([cu.nsysu.edu.tw](http://cu.nsysu.edu.tw)) have been recently developed that integrate a variety of functions to facilitate the learning activities. For example, these systems can be used to integrate instructional material (via audio, video, and text), e-mail, live chat sessions, online discussions, forums, quizzes and assignments. With this kind of system, instructional delivery and communication between instructors and students can be performed at the same time (synchronously) or at different times (asynchronously). Such systems provide a variety of instructional aides and communication methods, and offer learners or instructors great flexibility as to the time and place of instruction. As a result, these online learning systems may better accommodate the needs of learners or instructors who are geographically dispersed and have conflicting schedules (Pituch & Lee, 2006).

While we have recognized a number of advantages in employing BELS, insufficient learning satisfaction has long been an obstacle to the successful adoption of BELS (So, 2006). The explosion of BELS in supporting learning has made it extremely significant to probe the determinants crucial that would entice learners to use BELS and enhance their learning satisfaction. Comprehending the essentials of what determines student learning satisfaction can provide great management insights into developing effective strategies that will allow universities to create new opportunities and value for their students and instructors. Generally, the essential characteristics of BELS differ greatly from the traditional teaching and e-learning system. Thus, any model developed for e-learning or business systems may

not apply to a BELS environment. BELS may need to consider BELS-specific factors, such as the social factor. Hence, the goal of this study is to present a research model for assessing student learning satisfaction in a BELS environment. The theory of reasoned action (TRA) and technology acceptance mode (TAM) serve as the theoretical basis for this study that are integrated with factors such as individual differences, system characteristics, and social factors. We also validate the factors that determine learning satisfaction and examined the relationships among those latent variables.

## **BASIC CONCEPTS AND THEORETICAL FOUNDATION**

### **Blended E-Learning Environments**

In contrast with traditional instructions, e-learning provides more learning resources and more opportunities to allow learners and instructors to communicate, collaborate, and interact with and among each other without regard to temporal or physical location. Prior research (e.g., Kinshuk & Yang, 2003, Yang & Liu, 2007, Wu et al., 2008) indicated both positive and negative aspects of the e-learning environments. Among the positive aspects were that e-learning stretched the spatial and temporal barriers, provided greater flexibility and student convenience, more positive overall learning experience, and improved access/interaction with the instructor. However, some negative aspects and disadvantages of e-learning were pointed out such as lack of peer contact and interaction, high initial costs for preparing multimedia content of learning materials and also substantial costs for its maintaining and updating, as well as the need for flexible tutorial support. With the above concerns and dissatisfaction with e-learning in prior studies, people have searched for another instructional delivery solution. Blended e-learning has been discussed as a promising alternative (So, 2006).

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