Chapter 9

Issues in Web-Based Learning

Hesham Alomyan
University of Petra, Jordan

ABSTRACT

The purpose of this chapter is to review and critically evaluate some issues related to Web-based learning. The chapter begins with an introduction to the importance of using the Web in education; then it examines and evaluates such issues. Suggestions and solutions to these issues are offered. These issues are classified into theoretical and design issues. The theoretical issues include: (1) online interaction, (2) learner control, (3) disorientation and cognitive overload. The design issues include: (1) interface design and (2) content structure. The conclusion section summarizes the chapter and points out the importance of considering individual differences in Web-based learning systems design.

INTRODUCTION

Since its introduction, the Web has demonstrated its potential to transform the processes of teaching and learning. Owing to its networking capability, the Web offers multiple dimensions of use in education. It has been used as a resource, management, communication, assessment, and instructional and learning tool.

Uses of the Web have captured the attention and interest of educational institutions around the world. Schools and universities have already started integrating the Web in their educational systems. Schools from primary levels to high secondary levels are now using the Web to supplement classroom instruction, to give learners the ability to access information, and to deliver learning experience. Likewise, since 1997 a rapid increase of utilising the Web has been witnessed in higher education. At present, obtaining an online degree has become the best ways not only to continue education but also to advance students’ career.

Along with this rapid growth and integration of the Web in education, researchers and educators (e.g., Fisher, 2003; Murphy, Walker, & Webb, 2001; Nguyen, 2015; Ruttun & Macredie, 2011; Sutton, 2001) have been trying to improve and use the Web effectively in teaching and learning. Several issues have been raised in the literature on how to design effective Web-based learning systems. Hence, the purpose of this chapter is to review and critically evaluate such issues and suggest possible solutions to address these issues and help develop effective Web-based learning systems.

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ISSUES RELATED TO WEB-BASED LEARNING

As shown in Figure 1, there are two types of issues related to Web-based learning: theoretical and design issues. The theoretical issues include: (a) online interaction, (b) learner control, and (c) disorientation and cognitive overload. The design issues include: (a) user interface design and (b) content structure. These issues are discussed in depth in the following sections.

Theoretical Issues

Despite the relative novelty of the Web, researchers have sought to establish a theoretical foundation to guide research and practice pertaining to Web-based learning design. Four issues appear to be related to the use of the Web in teaching and learning. These issues are: online interaction, learner control, disorientation, and cognitive overload.

Online Interaction

Interaction is considered to be a very important aspect of the learning process and students’ success in face-to-face instruction. Because Web-based learning cannot offer face-to-face instruction as the traditional classroom does, the concept of interaction has received significant attention in the literature (e.g., Agudo, Iglesias, Conde, & Hernandez, 2014; Duval, 2011; Hill, Wiley, Nelson, & Han, 2004). Wagner (1994) defined interaction as “reciprocal events that require at least two objects and two actions. Interactions occur when these objects and events mutually influence one another” (p. 8). Empirical evidence shows positive correlations among interaction, student course satisfaction, and learning outcomes (Kuo, Walker, & Belland, 2014; Kuo, Walker, & Schroder, 2010; Moallem, Pastore, & Martin, 2013; Zhang & Fulford, 1994; Zirkin & Sumler, 1995). Four types of interaction have been identified in Web-based learning: (a) learner-instructor interaction, (b) learner-learner interaction, (c) learner-content interaction, and (d) learner-interface interaction.

Learner-instructor interaction is a key element that provides dialogue between the learner and the instructor. In this type of interaction the instructor plays the role of expert, mentor, or tutor, providing guidance, feedback or encouragement to the learner (Shackelford & Maxwell, 2012). Also, the instructor takes on other responsibilities like presenting material online, then seeking for and receiving feedback from the learners. In addition, learner-instructor interaction can take a form of one-to-one, as in a private e-mail conversation or an office consultation between the two (Sutton, 2001).

Figure 1. Issues related to Web-based learning