Chapter I

Introduction to Online Teaching of Technology-Based Courses

Introduction

With the improvement of the Internet and computer technologies, online or Web-based teaching has become an important teaching and learning method in educational institutions. In various degrees, online teaching has been implemented in almost every higher education institution. To better understand online teaching systems and how they are related to the book's main topics, online computer labs for technology-based courses, we will overview online teaching and technology-based courses in this chapter. We will take a look at the strengths and weaknesses of the Web-based teaching (WBT) systems. We will also investigate the roles played by these Web-based teaching systems in teaching technology-based courses. The investigation of these aspects will lead to the discussion to the book's main topics.

Although Web-based teaching has a short history, it is one of the fastest growing areas in higher education. The rapid development of Web-based teaching certainly makes it difficult to include everything in one chapter. Therefore, we will first have

a very brief overview about Web-based teaching. After the brief overview, we will consider the advantages and disadvantages of Web-based learning systems. For the disadvantages, some suggestions will be given to reduce the impact of the disadvantages. Then, we will briefly discuss technology-based courses and their requirements for hands-on practice. Next, we will investigate the challenges on implementing Web-based teaching for technology-based courses. The last paragraph of this chapter will summarize what we have discussed in this chapter.

Background

Online education has attracted many researchers' attention to the issues related to computer assisted teaching and learning. Many research studies have been done to study the impact of technology on teaching and learning. In the debate on the impact of technology, Kozma (1994) pointed out that the media and methods together would impact teaching and learning. In this chapter, a research approach was developed to analyze how learners interact with instructional designs and how the media and methods influence understanding. Nott, Riddle, and Pearce (1995) studied the impact of WWW technology on learning. Mixed reaction towards the role of WWW technology was reported in their study. Chu's (1999) article analyzes the development of a Web-based remote interactive teaching system and addresses the issues such as assessment, cost, students' feedback, and collaboration. It also discusses the positive and negative sides of remote interactive teaching systems. In this chapter, we will further analyze the advantages and disadvantages of e-learning. Since technology-based courses and Web-based teaching all rely heavily on technology, there is no doubt that a well-developed instructional design will greatly influence teaching and learning.

The use of computers and the Web as a teaching and learning tool was gaining momentum in the 1990s. The survey conducted by the Sloan Consortium (2005) presents the following results: Among all the graduate schools offering face-to-face courses, 65% of them are also offering online graduate courses; among all the undergraduate schools offering face-to-face courses, 63% of them are also offering online undergraduate courses; among all the Master's degree programs offering face-to-face courses, 44% of them are also offering online programs; among all the business programs offering face-to-face courses, 43% of them are also offering online programs. Based on these figures, the Sloan Consortium (2005) concludes that online education has entered the mainstream.

Computer-based training (CBT) is the training delivered via computers. However, CBT does not necessarily deliver the training through the Internet. On the other hand, Web-based training (WBT) is the computer-based training delivered over the

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