Chapter XII

Trends in Online Teaching of Technology-Based Courses

Introduction

Online (or Web-based) teaching has become one of the main approaches to delivering knowledge. As mentioned in Chapter I, almost all of the universities have adopted online teaching. Certainly, we have entered a new era for higher education. As the momentum builds up, more and more technology-based courses are also taught through online classes. Online computer labs are a key element to support the server-side hands-on practice in an online technology-based class. Due to the fact that an online computer lab is highly related to the advance of technology, lab-based online teaching still has a lot of areas that need to be improved. With that in mind, we will investigate the trends in Web-based teaching and in computer lab related technologies in this chapter.

First, we will discuss the trends in Web-based teaching, which provide a framework about the future development in this area. The topics such as future e-learning structure, management, and content development will be discussed.

Next, the trends in lab development technology will be explored. Technology is a rapidly changing field. Technology-based courses often require computer labs to following these changes. When developing an online computer lab, we must carefully examine possible changes in technology. In this chapter, we will investigate the trends in the software, hardware, and network technologies, which are potentially useful for the development of an online computer lab.

The trends in technology have a direct influence on the development of online computer labs. Not only will an online computer lab provide the training for using new technologies, it will also use the new technologies to make itself more reliable, more accessible, and faster. In this chapter, we will discuss some potential uses of the new technologies in an online computer lab.

Background

Web-based teaching will continue to be one of the major teaching methods in higher education and will keep growing. There are a number of surveys and research articles that analyze the trends in Web-based teaching. The survey report by the Sloan Consortium (2005) indicates that there is a strong upward trend among universities to consider online education as a long-term strategy. Most of the universities consider online education to be critical for their institutions. Paulsen's (2005) presentation discusses the trends in e-learning. He predicts that globalization and large-scale operation are the trends for online education. He also provides some recommendations for institutional strategies, pedagogy, cost effectiveness, and sustainability. Reiser and Dempsey (2006) discuss the trends in instructional technology and instructional design. Readers can find more information about the past and current trends in instructional technology and design from their book. They also discuss the issues that will possibly impact the future.

The report by the New Media Consortium and EDUCAUSE Learning Initiative (2006) points out that six emerging technologies will expand the boundaries of Web-based teaching and learning. These technologies are social computing, personal broadcasting, mobile phones, educational gaming, augmented reality, and context-aware environments and devices.

Ray (2006) provides information about short-term trends in technology. He points out that the technologies in voice over the Internet, mobile computing, hosted applications, data backup, security, and so on will continue to be the trends.

Research on the integration and presentation of data from diverse sources on the Web will also have an impact on the future Web-based teaching. The Semantic Web is a subject that deals with this issue. It allows browsers (or software agents) to find, share, and combine information from diverse resources, which is a great feature that

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