Chapter III

Knowledge Management Technologies for E-Learning: Semantic Web and Others

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Editors’ Notes

Jinwei and Dongsong continue our debate. Their chapter has a clear vision and target. We all agree that new technologies reshape the way we plan, organize, deliver, and use knowledge and learning as assets. In this chapter, we begin an interesting discussion about the convergence of knowledge management and e-learning. Two concepts that during the last decade have been considered as the complementary parts of an integrated strategy toward increased knowledge and learning-oriented performance. This chapter is introductory to the subject. It is presented in a way that is very easy to follow for the readers, but at the same time, a number of important issues are raised.

This debate will go deeper in the next chapters. The Semantic Web insight and flavour of this edition will be explained in detail. This chapter is an excellent contribution and provides a “direction at a glance” for the knowledge management and e-learning convergence.

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Abstract

Nowadays, many technologies that have been traditionally used for knowledge management are used in e-learning systems. This chapter explores some fundamental knowledge management technologies that have been applied to e-learning systems, including collaboration technologies, Semantic Web, information retrieval, and information visualization. The focus of this chapter, however, is the Semantic Web and its related topics such as metadata and ontology, since it is now a new trend of the e-learning market. Instead of simply listing these technologies, this chapter provides an in-depth analysis and comparison among them. We hope that after reading this chapter, you will understand the major knowledge management technologies used in e-learning and will be able to choose the proper technologies for different contexts or requirements.

Introduction

In recent years, high-speed computer networks and advances of Internet technology have affected education dramatically. According to the IEEE Learning Technology Standards Committee (LTSC, http://ltsc.ieee.org), e-learning, referring to the use of computers and network technology to create, deliver, manage, and support learning at anytime, anywhere, has been widely adopted as a promising solution to lifelong learning and on-the-job training. It provides a configurable infrastructure that can integrate learning materials, tools, and services into a single solution to create and deliver training or educational materials quickly, effectively, and economically (Zhang, 2004). Thousands of online courses, including degree and certificate programs, are now offered by universities worldwide. For example, in 2001, MIT announced its commitment to make materials from virtually all of its courses freely available on the Web for non-commercial use. In 2002, enrollment in the baccalaureate and graduate-degree programs at the University of Phoenix Online neared the 50,000 mark, a “whopping 70% increase” from the previous year.

However, it is well recognized that the production of e-learning materials is time-consuming and labor-intensive. In addition, learning materials created by different providers are usually not in a ready-to-share and interoperable format, which hinders people from taking one of the greatest advantages of e-learning, that is, exchanging...
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