Introduction

With the rapid development of Web-based learning, a new set of learning environments, including virtual classrooms, virtual laboratories, and virtual universities, is being developed. These new learning environments, however, also introduce new problems that need to be addressed. On the technical side, there is a need for the deployment of effective technologies on Web-based education. On the learning side, the cyber mode of learning is very different from traditional classroom-based learning. On the management side, the establishment of a cyber university imposes very different requirements for the setup. Here, there are a few questions that we need to answer. First, how can instructional development cope with this new style of learning? Second, does industry-university partnership provide a solution to address the technological and management issues? Third, do we need to standardize e-learning? As with many other new developments, more research is needed to establish the concepts and best practices for Web-based learning.

The Third International Conference on Web-Based Learning 2004 (ICWL’04) was held at Tsinghua University in Beijing, China, in August 2004. It was part of our continuous effort to address many of the aforementioned issues. The conference received a total of 120 submissions. This special issue collects the extended version of some of the best papers presented at the conference.

Paper Overview

This special issue includes six articles covering some of the recent technological advances in Web-based learning. These articles can be divided roughly into two groups. The first group of articles addresses the technological issues in supporting Web-based learning. The first article from Gilliean Lee and Stanley Su (University of Florida, USA) presents a well-formulated learning object model and e-learning service infrastructure to facilitate users with different roles to participate in e-learning. The second article from Jerry Li, John Nesbit, and Griff Richards (University of Simon Fraser and British Columbia Institute of Technology, Canada) presents software architecture to support collaborative evaluation on shared learning objects. The architecture provides mapping between local languages and ontologies to support cross-community evaluation. The third article from Marc Spaniol,
Ralf Klamma, Luise Springer, and Matthias Jarke (RWTH Aachen, Universitätsklinikum Aachen, Fraunhofer FIT, and Universität zu Köln, Germany) describes a collaborative learning environment for aphasics, people suffering from language problem due to brain injury. The fourth article from Frederick Li and Rynson Lau (Hong Kong Polytechnic University and City University of Hong Kong, Hong Kong) describes a method for progressive distribution of 3D geometry contents to support learning over the Internet.

The second group of articles presents two interesting Web-based learning systems. The fifth article of the special issue from Peifeng Xiang, Yuanchun Shi, and Weijun Qin (Tsinghua University, China) proposes an e-learning architecture called CUBES. It focuses on the integration and extensibility of heterogeneous software modules. The sixth article from Howard Leung and Taku Komura (City University of Hong Kong, Hong Kong) proposes a Web-based system to support the learning of character handwriting. A virtual teacher is provided to show users how to write the characters. The system also can compare the user’s handwriting of a character with a reference writing stored in the database.

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