Web-based Adaptive Educational Hypermedia system

A dissertation submitted to the University of Manchester for
the degree of MSc Information Systems Engineering in the Faculty of Engineering
and Physical Sciences

7th September, 2009

Hu Miao

School of Computer Science
Abstract

Adaptive Hypermedia is applied in many technology areas where hypermedia application is required to be used by different backgrounds and knowledge individuals in a large hyperspace. Adaptive educational hypermedia (AEH) system is a popular research direction within the area of adaptive hypermedia technologies in Web-based education. AEH system constructs a Human-Computer interactive (HCI) educational environment for users. In a topical hyperspace, AEH system creates specified model for each user, and according to the user’s background, individual adaptation will be offered to the user, for instance, in accordance with the academic background, the performance of a hypermedia page can be changed and adapted to user’s personal academic background, such as to provide some advices of the links for the user which navigate to the most relevant academic knowledge concerned with the educational subject. AEH system possesses the ability to provide a tailored and efficient learning environment to users through adapting both the presentation and the navigation to the user’s background through the learning subject. The aim of this project is to develop a web-based adaptive educational hypermedia system for primary students’ online learning. This system is able to create individual studying environment for each student according to his or her knowledge background. Different from majority adaptive educational hypermedia systems, this system has Web-based synchronous groupware features. In other words, it offers a platform for real-time human to human interaction, supports a group of students and their tutor involving in a common task to synchronously collaborate with each other in accordance to their common ground.
This project is based on Dr. Weigang Wang’s PowerMeeting groupware framework. Many latest web application techniques and tools are used to design and realize this system, such as Google Web Toolkit and AJAX. The development of this dissertation can be divided into 7 chapters: introduction, background, success Criteria, system design, system realization, system evaluation and conclusion.