

Chapter XII

On the Design and Application of an Online Web Course for Distance Learning

Y.J. Zhang

Tsinghua University, Beijing, China

ABSTRACT

Web course design and implementation are very important in effective distance learning. Such a work is related to a number of issues and needs considerable attentions. In this paper, a feasible framework for developing Web courses and some of our experimental results along the design and application of a particular online course are discussed. It first addresses several major designing considerations to match the expected features with different factors in developing online Web courses for distance learning, taking into consideration various distinctions between online courses and traditional courses; it then introduces the structure and components more suitable for self-learning. In addition, the tools for developing online Web courses play a significant role and have important influences over the developed courses. Based on some analytical discussions and real experimental results, different developing tools are compared in speed of loading, the file size generated, as well as security and flexibility. The comparison results are not only employed in the present development for improving the flexibility of the new Web course, but also usable for developing other courses. Finally, the principles proposed and the tools selected have been concretely integrated in the implementation of a particular Web course, which has been conducted with satisfactory results.

INTRODUCTION

With the fast progress of computers and network techniques, online distance learning has become a feasible learning tool, especially for our university study. On the other side, with the continuous evolvement of modern technology and society, continuous education turns out to be an indispensable part of present-day life. For example, in Tsinghua University, Beijing (a top one in China) alone, there are already more than ten thousand students (around the country) who pursue their Master's degrees through distance learning with registration to the Institute of Continuous Education. Though these students are all working people and already obtained their Bachelor or Engineering diploma a number of years ago, the new challenge takes them back to study.

Compared to the normal students inside the university campus, the students following the continuous education have some particularities. They are usually working at different regions, sometimes more than a thousand kilometers apart from each other. They often have sparse time to follow the course lecture or have few possibilities to contact teachers though they may not live too far from a university. Some of them even have obtained their diplomas in other disciplines than the new subjects they would like to follow as they are facing the challenge of new techniques. It is clear that due to these particular problems, the courses they need and their learning styles would be quite different from regular ones. In practice, a number of challenges for the design and implementation of online courses are faced (Pohjola, 1999).

In this paper, some general principles for designing considerations in developing online courses are first discussed; both expected properties and performance factors are included. Then, the components and structures of online courses are proposed and specified to distinguish the online courses from normal courses. One important ingredient of online courses is the ability to provide

human-machine interaction through interactive demonstrations. How to select the development tools to increase course comprehension is discussed in detail with the help of both analytical and experimental results. As an example of the application of those general principles, a particular Web course has been practically developed and conducted within a network education platform. Both the course implementation and application environment are presented, and some effect evaluations are provided.

GENERAL DESIGNING CONSIDERATIONS

Properties Expected and Factors Considered

As a new means of education, a Web course has some properties/features of its own. Alternatively, the design of a Web course has significant influence on the course performance and education effects. Table 1 notes some expected properties of Web courses and several factors to be considered in the design of Web courses. An "X" indicates that the corresponding factor should take the corresponding property to design the Web course.

A brief discussion is given to Table 1 is given below (more details can be found in Zhu, 2001; Zhang, 2002). It can be seen from Table 1 that both in choosing information resources and in organizing course contents, the current trend in the development of discipline should be reflected. The structure and content of Web courses should be easily extended, not only for supporting association of related course units in a dynamic and layered way, but also for facilitating the selection of information resources and organizing the contents. In addition, the selection of information resources and the manner to navigate inside the course should be helpful for pushing the student's motivation in active and self learning. As the nature of a Web course is imposed, the course

9 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: www.igi-global.com/chapter/design-application-online-web-course/19408

Related Content

Understanding MOOC Learners: Insights from Participation in Coursera MOOC

Robab Saadatdoost, Hosein Jafarkarimi, Alex Tze Hiang Simand Jee Mei Hee (2019). *International Journal of Web-Based Learning and Teaching Technologies* (pp. 93-112).

www.irma-international.org/article/understanding-mooc-learners/214981

Student Learning and Engagement in a Blended Environment: A Mixed Methods Study

Lijia Lin (2021). *Research Anthology on Developing Effective Online Learning Courses* (pp. 1371-1385).

www.irma-international.org/chapter/student-learning-and-engagement-in-a-blended-environment/271211

Too Many Words, Too Little Support: Vocabulary Instruction in Online Earth Science Courses

Mary F. Rice and Donald D. Deshler (2018). *International Journal of Web-Based Learning and Teaching Technologies* (pp. 46-61).

www.irma-international.org/article/too-many-words-too-little-support/198376

Case Study- Web-Based Education Diffusion

A. K. Aggarwal and Ron Legon (2006). *International Journal of Web-Based Learning and Teaching Technologies* (pp. 49-72).

www.irma-international.org/article/case-study-web-based-education/2961

Rethinking Flipgrid and VoiceThread in the Context of Online Collaborative Learning Theory

Begüm Saçak and Natalia Kavun (2023). *Research Anthology on Remote Teaching and Learning and the Future of Online Education* (pp. 331-348).

www.irma-international.org/chapter/rethinking-flipgrid-and-voicethread-in-the-context-of-online-collaborative-learning-theory/312734