Process-centered Environments for Web-Based Instructional Modules

H. H. Ammar, AbdulMobeen Mohammed, and Osama Abdalla
Dept. of Electrical and Computer Engineering,
West Virginia University

Abstract - Given the substantial development effort internationally to extend the Web as the basic interface for distributed information systems, it is appropriate to adopt the Web technologies as the primary user interface and primary server interface for computer-delivered educational modules (regardless of whether that module is accessed from a remote server across a network or resident locally). By adopting the Web interface, a coherent and standard framework for integration of visual, audio, and text information, along with a framework for moving among elements of the educational module (both elements integrated within the module and supplementary information available over the Web) is readily provided.

The process of developing Web-based educational modules for distance learning, or for enhancing student retention and learning in general, often requires significant investment of time and efforts. This is also sometimes hampered by lack of resources such as Multi-media techniques and tools needed to support embedding of graphics, voice, and video clips.

This paper surveys the current state of the art of Web-based instructional tools and environments and presents a process model for a process-centered environment for generating Web-based lecture course Modules. The tools surveyed include ClassNet, a tool developed at Iowa State University for managing Internet class activities, some of the activities include

* Creation of a class by an instructor.
* Enrollment in the class by students.
* Creation of tests.
* Submission and grading of tests.
* Reporting of scores by class and student.
* Discussion forums and chat rooms.
* E-mail between students and instructors.
* Portfolio development by students.

and WebCT, a tool developed at the University of British Colombia which facilitates the creation of sophisticated Web-based educational environments. WebCT Tools and Features consist of:

* Student Tools:
  a) Bulletin Board(Course Conferencing system), b) Electronic Mail, c) Chat Tool, d) Timed On-Line Quizzes.
  e) Student Self Evaluation. f) Searchable and Linkable Glossary. g) Searchable Image Archive. h) Student Presentation Areas. i) Learning Goals.
* Design Tools:
  a) Timed-on-line-Quizzes, b) Program Tracking, c) Student Management, d) Access Control, e) Course Backup and Transfer, f) Tool Integration, g) Course Look and Feel, h) Course Welcome Page

The process model presented specifies the major and minor steps which can be followed by instructors in preparing effective web-based educational modules. These modules may include lecture notes, assignments (including interactive assignments), and tests. At each step of the process, the environment may provide templates and examples on developing the different parts of an educational module using suggested tools and resources. The process model assumes no previous experience on the part of instructors in developing web-based educational modules.