A Framework for Collaborative Open Source Courseware Development

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The MIT OpenCourseWare (OCW) project was launched in 2001 to eventually "open source" all 2000 MIT courses by 2007.[1,2] That a top-notch university would "give away" what some considered the most important intellectual property of a university has attracted a lot of attention to the concept of open courseware (OC).[3] Despite their success, the recent batch of OC projects focuses mostly on open source licensing. OC is inspired by the highly successful Open Source Software (OSS), which includes well-known software such as Linux and Apache. However, OSS is more than open source licenses. It is also a highly collaborative software development model supported by a vibrant Web community resulting in high quality software. The OSS site <http://sourceforge.net> hosts 80,000 OSS projects.

This project attempted to adapt the OSS model for the collaborative development of comprehensive, rich, high quality and freely distributable educational materials and courseware. We have developed such a Collaborative Open Courseware (COC) model and implemented a prototype Web site to flexibly allow volunteers to set up projects to collaborate on developing courseware materials. Interim results were published in two technical papers.[4,5] A new proposal to National Science Foundation is currently under development.

Results of Planned Work

Planned work items, as described in the proposal on "Collaborative Open Source Courseware Development," and their results of this grant activity are described below.

1. Efforts sought to refine the collaborative open source courseware (COC) model for prototyping. A more refined COC model has been designed. Based on this model, two capstone project teams have developed an initial prototype in the Fall semester of 2003.

2. Researchers wrote a proposal (about $100,000) to National Science Foundation under the CCLI-EDM (Course, Curriculum, and Laboratory Improvement-Educational Materials Development) program under the "proof of concept" program. The proposal was submitted to the targeted program and has received a review of "good" from all four reviewers. Unfortunately, it was not funded. The proposal will be refined and submitted elsewhere.

3. Two additional pre-proposals and letters of intent have been submitted:
   Yue, K., P. Chen, and A. Yang. "Collaborative Open Courseware Development Model and Web site." Pre-proposal submitted to the Advanced Research Program (ARP) of the Texas Higher Education Coordinating Board, $150,000. [*Unfunded*. ARP funding was cancelled during the past legislative session.]
   Yue, K. "Collaborative Open Courseware Development." A letter of intent submitted to the Education Program of the Hewlett Foundation, $500,000, Sept. 2003 (*pending*).

RESEARCHERS—Swati Achar *(l.)* is pursuing an M.S. in computer science at UHCL; she earned her baccalaureate in computer engineering at Mumbai University in Bombay. Jayaraman Tandalai (*r.*) with a baccalaureate degree from the University of Madras, Chennai, is studying information technology.

COC—Dr. Kwok-Bun Yue, Assoc. Professor and Chair, Computer Information Systems (UHCL), is developing Collaborative Open-Source Courseware (COC). A proven leader in open courseware and computer science education, his projects should interest the National Science Foundation, the Texas Education Coordinating Board, and private resources, such as the Hewlett Foundation.

4. An initial prototype has been developed, as described in (1). Researchers will seek to invite external and internal usage of the prototype. This task will conclude in 2004 after the initial prototype has been refined and enhanced.

5. Results will be published, disseminated, and publicized throughout the project.

6. The team is also working on two papers on the following topics: "Open Courseware and Active Learning" and "Open Courseware and Computer Science Education."

Publication

Yue, K., A. Yang, W. Ding, and P. Chen. "A Model for Open Content Communities to Support Effective Learning and Teaching," IADIS International Conference on Web Based Communities 2004. (*Submitted*.)

Participants

A research team, led by Kwok-Bun Yue, has been formed to work on COC. Other team members include Dr. Andrew Yang and Ms. Wei Ding [UHCL]and Dr. Ping Chen [UH-Downtown].

Students who have participated in this project are listed below. They are either research assistants of the team's faculty members, or they are working on a COC (Collaborative Open Courseware) project in the capstone project course at UHCL:

Mohammad Siddiqui	Jing Zhou Bai
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References

[1]Baldi, S., et. al. "Open Courseware Vs. Open Source Software: A Critical Comparison," 10th European Conference on Information Systems, Gdan'sk, Poland, (2002): 1375-83.

[2]MIT OpenCourseWare, <http://ocw.mit.edu/index.html>.

[3]Newmarch, J. Lesson from "Open Source: Intellectual Property and Courseware," First Monday, June 6, 2001, <http://firstmonday.org/issues/issue6_6/newmarch/index.html>

[4]Yue, K., T. Yang, W. Ding, and P. Chen. "A Model for Open Content Communities to Support Effective Learning and Teaching," *Proc*., IADIS International Conference on Web-Based Communities 2004, Lisbon, Portugal, April 2004. 533-36.

[5]Yue, K., T. Yang, W. Ding, and P. Chen. "Open Courseware and Computer Science Education," Thirteenth Annual Consortium for Computing Sciences in Colleges: Rocky Mountain Conference, Oct. 22-23, 2004, Utah Valley State College, Orem, UT. (*Submitted*.)

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