Using Database Technologies in Building Learning Community to Improve Knowledge Exchange

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Abstract

We utilize web and database technology to construct a Journal-Based Portfolios Assessment system to realize a Legitimate Peripheral Participation (LPP)[1] learning community. In this system, we divide system to three layer, the view layer present data by Oracle Portal Server, Data layer store data by Oracle Database Server and Operating Control layer operate workflow by Oracle Database trigger and job Data analysis and questionnaire indicates that Web Journal is effective to promote knowledge exchange, Student can improve learning performance and it can form a LPP structure

The purpose of using the journal approach[2] is to emulate the forming of academic societies formed by journals. At the same time, the achievement of students in a course is based on their publications in journals and the positions they played in the journals.

First, students submit their work such as homeworks, learning portfolios, reports of organizing contents in the discussion, learning problems, related websites. Each submitted article would be assessed by three peers

Then the reviewers will review the submitted works. The reviewers will give comments to students. The journal system will publish good articles. Articles published include submitted works and reviewer’s comments hoping that students will contribute and exchange their knowledge.

We implemented Web Journal System in three Layers. Data layer is to store data, Operating control layer to event and schedule handling, and View Layer to present data. Figure 1 depicts the system architecture of the web journal system.

There are five categories data to be stored in data layer those are student profile, submitting items, review items, student submitting works, reviewer comments. Oracle Database is used for managing the data layer.

The journal system needs a workflow and security management. Trigger and Job functions in a database system are used to support handling of events. It include seven part to manage workflow and security in operating control layer: Work management, Score management, Role management, Task management, Security management and Schedule management.

View layer represents five categories web pages. They are submitted articles, reviewer’s comments, accepted articles, student status, and teacher’s comment. Oracle Portal server can retrieve data to represent on web page easily. Designers only need to define a view by using a SQL query and assign the attributes in the view to fields in a web page. Portal server will generate required web pages.
