Educational Process Support System for Teamware-based Distributed Learning

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Abstract

Many educational organizations use teamware as a Computer Supported Cooperative Learning (CSCL) environment for distributed learning because of teamwares easy accessibility and group collaboration facilities. Traditional distributed learning environments are instructor centered or learner centered using distributed and interactive technologies. Teamware can support learning using collaborative facilities such as shared workspaces, one-to-many messages, and threaded discussions. Educational institutions use teamware as a teaching tool to supplement or replace the face-to-face which focused on structured data and group discussion.

Process based approach for distributed learning, on the other hand, focuses on how to support the distributed students to solve problems and to produce learning results. The concepts of process based approach are based on project or problem-solving via learning in the execution of a series of activities. Learning activities are accomplished in some sequence with a set of rules, constraints and procedures similar to tasks performed in business.

An educational process is a sequence of doing cooperative activities for collaborative learning. The process should by itself a learning experience and should be integrated with learning systems for reducing unnecessary activities and communications. An educational process is composed of processes, sub-processes and activities. An activity is a unit to perform learning steps. In order to perform an activity, responsible user uses shared resources including documents or data as input and produce a result that may be used as an input to other activities. For reducing instructors and students repetitive works, the system provides predefined template processes. During the task execution, actors utilize process coordination functions for flexible process execution.

There are four modeling constructs for the educational process model; process net, activity schema, relational schema and process schema. A process net shows the dynamic behavior of an educational process and an activity schema represents the functionality of a process subactivity. A process schema defines the educational process and a relation schema defines the interdependencies of the activities. Actors and resources must be included in activities.

Although the support system suggested in this paper is focused on asynchronous collaborative activities, synchronous activities are important as well for learning environment. Adding on live lecture or web conferencing system will expand the collaborative activities of educational processes. The experience of past distance learning classes can be stored as organizational memory for knowledge sharing and effective course building for future lectures.