# A Study on Computer-Supported Collaborative Learning Systems

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ABSTRACT

With the popularization of higher education, many universities face the problem that enrolled students are very diverse in ability and willingness to learn. In the learning process, some of students feel easy, others may experience of difficulty. While teacher or classmates can help in time of need of students, unmotivated students may need to be supervised and encouraged. Both of them have to spend a lot of time for learning. Therefore, how to keep students engaged in learning, enhance learning, and develop peer learning are important issues to be solved.. With the help of intelligent tutoring systems, students can practice exercises repeatedly by themselves. The system will check whether the answers are correct or not. It also guides the student to avoid the mistake. Although the system can effectively enhance learning effectiveness, however, for students with poor comprehension, unmotivated students, or students with bad study habits, it is still insufficient. Moreover, some students may feel helpless and isolated due to lack of human interaction. In recent years, peer learning and collaborative learning become popular issues. When pupils teach each other, there are benefits to both the teacher and the student. . Collaborative learning can be classified as face-to-face, asynchronous and synchronous. Students in synchronous learning environment may lead to better outcomes than in asynchronous learning environment. In this research, we set up a novel framework. It combines a social networking site with a lot of tutoring systems and provides cross-platform collaborative learning environment. It supports such as recording and playback with problem-solving steps, synchronous operations for practicing exercises, multimedia chat rooms and other functions. Several students can operate synchronously to complete the exercises on the tutoring system through the browser. The teacher or students can save the problem-solving steps and share these on the social networking site, so others can replay and learn by themselves. In this research, the synchronous operation is implemented by HTML5 and javascript using event trigger and replay. To reduce server load and save bandwidth, multimedia chat room is P2P-based. The architecture proposed is easy to incorporate with other tutoring Systems. It provides the environment of collaborative learning without any plugins.

Keywords : Peer Learning    Collaborative Learning    Synchronous Learning    Intelligent Tutoring System    Web Conference

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