

Network Supported Active Social Learning Activities

Tak-Wai Chan

Department of Computer Science and Information Engineering
National Central University
Taiwan

Networks will essentially connect all the people, all the content and all the computing power in the world. As a result, a learning society will emerge and a learning ecology will evolve. If we want to find out the biggest impact of networks on education, then the answer must be that the network changes the way we learn, including when, where, what, how and why we learn. In particular, we hypothesizes that *network supported active social learning activities* will take the key role in accelerating all these changes and opening the door for advancing learning technology development.

Active social learning is a national project in Taiwan with around 50 team members from various universities and research institutes. It covers disciplines of learning software technology (agent technology, natural language processing, machine learning, component technology, virtual reality), education, cognitive psychology, and advanced network and hardware. The project focuses on four active social learning models. The first model, omnipresent and highly interactive classroom learning, extends the meaning of classroom learning with handheld computers and both short and long distance wireless communication. This work investigates how learning happens within and outside traditional classroom and enhances interactions among teachers and students. The second model is *structural knowledge learning*. This model actually is the scaling up traditional computer aided instruction systems and intelligent tutoring systems to support learning decomposed knowledge units in a safe way on the network. Structural knowledge learning includes two sub-models, subject-based learning and target-based learning. The third model, *task-based learning*, addresses learning and abilities required in next century. Task-based learning includes four sub-models, theme-based learning, project-based learning, mission-based learning, and creative problem solving. While the structural knowledge learning stresses on knowledge acquisition, task-based learning intends to promote students to organize teams to accomplish some tasks by using and integrating what they have learnt in a creative way and with the support of resources available on the network. The fourth model is *virtual community based learning* supported by a cyber city called EduCities. This model encourages a student to serve others, such as playing the roles of peer tutors and police, and thus learn to be a good cyber citizen. There are various activities in EduCities that help build a learning society, including parents, volunteers, professors, etc.

Besides explaining our vision of active social learning project, I shall pose some challenges on student modeling research. For example, in the view of supporting such a variety learning activities in a cyber community, to further our research, shall we have to re-define student modeling? How student modeling can be extended to community modeling that can incorporate students' and teachers' input? What are the uses of all these works in the first place? In a way, this talk gives a glimpse of my answer and action towards a vision I gave in a talk in AIED95 some years ago, but it actually raises more questions than answers.