IS Department Seminar

Collaborative Knowledge Building in Support of Individual Learning: A Hybrid Framework

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DATE: December 5, 2012
COFFEE: 12:50-1:00pm
TIME: 1:00-1:35pm Panel Review
1:40-2:25pm Presentation
LOCATION: GITC 1403

Abstract
Educational technologies and learning systems are becoming more and more ubiquitous. Learning management systems, intelligent tutoring systems, collaborative knowledge building systems, and even Web 2.0 technologies such as wikis and blogs are being used by instructors and students alike to support many of the activities involved in education and learning. Unfortunately, however, there is little (if any) integration of these activities into a cohesive system that actively engages learners in knowledge building through collaborative activities while simultaneously scaffolding individual acquisition of knowledge. Instead, collaborative knowledge building technologies encourage the sharing of knowledge but, because of their focus on a single knowledge artifact, frequently devolve into assigned roles in which each student only learns about his or her particular contribution, gaining only a superficial knowledge of the parts of the learning task contributed by others. At the same time, individual learning technologies support an individual's acquisition of knowledge but provide no opportunities for learning through exploration and discussion of other learners' viewpoints or ideas. This research seeks to resolve this dichotomy through the development of a hybrid learning framework which repurposes collaborative knowledge building activities to achieve individual learning. With individual knowledge acquisition as the goal, learners are encouraged to share knowledge, resources, insights and opinions in a collaborative learning area, thus providing a rich experience in which learners have the opportunity to discuss, co-discover, and innovate. These shared resources can be filtered to a personal learning space in which each individual learner can further explore, refine, and reflect on the learning task to aid in knowledge acquisition. By exploring each activity involved in collaborative knowledge building and individual learning and associating each activity with individual learning outcomes, this research explores the cognitive effects of computer-supported learning tasks on the individual learner.
Intellectual Merit – This research addresses the current lack of understanding regarding how collaborative knowledge building activities can contribute to individual learning through the development of a hybrid learning framework that models these activities and relates each one to an established learning outcome, providing evidence of the individual learner’s acquisition of the group’s developed knowledge. This research also transforms the current state of computer-supported learning systems by employing research through design methodologies to identify innovative interaction paradigms for collaborative knowledge building in support of individual learning. Based upon the learning framework and interaction paradigms, this research proposes new technology in the form of a hybrid learning system that not only introduces new models of learning in both formal and informal settings but also provides a new theoretical foundation upon which future research in computer-supported learning can be conducted. Studies utilizing the hybrid learning system will provide new knowledge regarding how collaborative knowledge building and individual learning activities influence individual learning outcomes, moving beyond the current focus of a single knowledge artifact as the outcome of collaborative knowledge building.

Broader Impact – The proposed research will create innovative learning models, theories and technologies that will enhance collaborative learning experiences while ensuring individual knowledge acquisition. This research will be conducted at the New Jersey Institute of Technology, an urban technological university serving a significant minority student population; it thus has the opportunity to expose underrepresented students in science and technology, many of whom are the first in their families to attend a university, to a new learning technology that will engage them in sharing their own knowledge while simultaneously learning from the knowledge of others, focusing on ensuring that each student benefits from the knowledge of the group.

The hybrid learning system and all related research findings will be broadly disseminated, and the system may prove effective not only in universities but also in secondary educational settings as well as informal learning environments such as learning communities and communities of practice. The results of this research will serve as the foundation for ongoing research regarding interaction paradigms in computer-supported learning, learning activities, learner participation, learner interactions, and the intersection of knowledge building and individual learning.

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