

Supporting collaborative reflection for knowledge integration: Computer support for building a collaborative learning community in undergraduate cognitive science courses

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ABSTRACT:

A successful collaborative curriculum is often a combination of well thought-out course work and a set of relatively simple but well designed tools. To take fuller advantage of the combination, such curricula themselves have to be organized into a larger course-sequence, so that the students can build upon what they take out of one collaborative course into more advanced ones, leading them to be designers of their own life-long learning. The course-sequence is then expected to form a base for a learning community to which the constructive knowledge integration is the norm.

Based on recent accumulation of research findings on how people learn, we have been investigating how to build such a collaborative learning community for our undergraduate cognitive science majors. Our research stands on three theoretical understandings, 1) that knowledge has to be constructed and integrated by students themselves, 2) that constructive interaction deepens their conceptual understandings, and 3) that such collaborative construction itself has to be maintained by cultural practices. To fulfill these requirements, the technology supports collaboration by externalizing the students' cognitive processes during learning and by making them available for collaborative reflection through annotations and annotated links.

In this presentation I report on two curriculum-technology combinations, one for helping advanced students to learn how to construct and integrate their own knowledge collaboratively, and the other for guiding beginning students, still embedded in largely more regular style of lectures, to start seeing powers of intellectual collaboration. The former is supported by an enhanced note-sharing system, ReCoNote or Reflective Collaboration Note, with an emphasis on its relation-making function. The latter utilizes the socially open nature of an annotate-able bulletin board, IQ_R or Interactive Query Raiser, prepared for the ease of sharing the academic interaction among peers and experts. Through our three-and-a-half-year experiences,

college students have shown high flexibility in learning and creating both their knowledge in cognitive science and new ways to use their technological environments. They gradually come to show respects to the community norm of constructive knowledge integration, particularly when the course work is carefully designed and practiced. Guided by the analyses of the log data and the student outcomes we are planning to integrate these and other supports, to allow this community to grow.

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