Computer-Supported Collaborative Learning (2011)

Tweets from #cscl2011

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Word of the CSCL 2011 conference in Hong Kong spread around the world instantaneously, thanks to computer support of this intensive community collaborative learning effort. Tweets, blogs, Facebook postings, Flicker pictures, and video streaming accompanied the many face-to-face presentations and informal interactions during the pre-conference, main conference, and post-conferences in early July. The video feeds more than doubled the number of people able to participate in the conference. Check out the community memory on the conference site at isls.org/cscl2011 for links to the postings, pictures, and videos.

The conference site also contains revised versions of the complete Proceedings. You can download searchable PDFs, incorporating recent corrections. The three volumes can also be printed on demand through Lulu.com. Like all CSCL and ICLS conference papers, the individual papers will be freely available on the ACM digital library.

The conference marked a significant increase in Asian participation in CSCL research, with many presentations from Hong Kong and Singapore researchers, but also from other Asia-Pacific universities. CSCL 2011 attracted over 400 registrants from more than 30 countries, including Singapore, Malaysia, Thailand, Japan, Australia, Mainland China, Taiwan, Macau, and Hong Kong. The presentations were about evenly divided between Europe, Asia, and North America. The impression of participants was one of high quality research, strong scientific presentations and fluency in the conference language of English in almost all sessions.

The special theme of the conference was "Connecting computer-supported collaborative learning to policy and practice." It reflected the long-standing tradition and priority in many of the Asian countries for education policy to support research that contributes to the improvement of educational practice (Chan, 2011; Looi et al., 2011). This theme was addressed through keynotes, paper presentations, workshops/tutorials as well as interactive, practitioner-oriented events to examine whether and how CSCL practices can bring deep changes to formal and informal educational practices at all levels, and contribute to education improvement at a system level by informing education policy. Dr. Gwang-Jo Kim, Director of UNESCO Regional Bureau for Education in Asia-Pacific, gave a keynote speech on "*Linking research and policy practice towards quality learning: Why and how?*" The other keynote speakers were Dr. Ed H. Chi, Research Scientist at Google Research, Prof. Erik Duval of the Katholieke Universiteit Leuven, and Prof. Roy Pea from Stanford University (watch their talks on video).

In conjunction with CSCL 2011, a Global Policy Forum on Learning was organized as a dialogue for about 20 prominent policy leaders, learning scientists, and scholars to discuss challenges and possibilities for findings from learning science research to have significant impacts on raising educational standards and nurturing 21st Century abilities. The vision of the Forum was to start a movement

for learning to restore its central position in education policies, which was deemed to be core to the success of any reform that genuinely aims to enhance the quality of education. The Global Policy Forum held a public forum on *Back to Learning*, which attracted a large audience from the CSCL 2011 participants, the local community, and the media (see its video).

After the Hong Kong main conference ended, post-conference activities were held in Guangzhou, Shanghai, and Beijing during July 11-15, with the local organization led by teams from the South China Normal University, East China Normal University, and Beijing Normal University, respectively. Education policy makers involved in technology-enhanced learning at the local, municipal, and national levels supported these post-conference events. This is the first time in the history of the CSCL conference that post-conference events were organized, and reflects the recognition given by researchers and education policy-makers in China to computer-supported collaborative learning as an important area of research and practice in education, and the reputation of the quality of the CSCL conference series. The post-conference events were integrated with local summer schools for PhD students and with the international Knowledge Building Summer Institute based in Toronto, Canada.

The success of the CSCL 2011 main conference and post-conferences in Hong Kong, Guangzhou, Shanghai, and Beijing is a landmark indicative of the development of CSCL as a field of study in Asia and globally. We are now looking forward to ICLS 2012 in Sydney, Australia, and CSCL 2013 in Madison, WI, USA.

The Editorial Board of ijCSCL met during the conference and unanimously agreed to some changes in the journal in response to its great success. One change already instituted this year is to increase the number of articles published from an average of 5 per issue to 7. The ISI ranking continues to place ijCSCL among the top journals in educational technology and educational research based on impact factor. This has significantly increased the number of submissions to the journal, which should result in maintaining the high quality of the published articles. Clearly, ijCSCL continues to be read widely and to serve the CSCL community well.

In this issue

We present seven studies of CSCL processes—how they can be structured or scaffolded, and how the resultant interactions can be analyzed.

Facebook. In considering computer support for encouraging and aiding collaborative learning, it is tempting to look at popular Web 2.0 technologies as obvious available tools. They are not only already freely available, but many students enjoy using them, have incorporated them into daily life, have mastered their functionality, and employ them in maintaining social contact with other students. Often, students already re-purpose social networking tools like Facebook as “back-channels” for discussing academic courses outside of the formally sanctioned course media. In their sequence of two survey-based investigations, *Cliff Lampe, Donghee Yvette Wohn, Jessica Vitak, Nicole B. Ellison, and Rick Wash* provide a careful analysis of how the students they surveyed report their course-related use of Facebook. The results indicate nuanced correlations between the characteristics of the Facebook users and their reported propensity to engage in various forms of collaboration in their courses. Participation in college courses is a complex social process, with many important forms of student interaction outside

the planning, control, or purview of the instructors. This study provides a glimpse into the role that social networking media can introduce into that process. Further studies would be of interest to explore the differences that back-channel networking makes in actual course behavior or that incorporation of such media by instructors in course designs might engender.

Identity presence. Just as students engage in social networking outside of class, they also share their personal identities within the class discourse, for instance in an online discussion forum. *Fengfeng Ke, Alicia F. Chávez, Pei-Ni L. Causarano, and Antonio Causarano* focus on the role that displays of "identity presence" play in collaborative knowledge building. They document how disclosing personal histories related to course topics tends to lead to longer and deeper discussion threads, especially when such forms of presence are encouraged by instructors. Course designers often seek to elevate online student discourse from "off-topic" socializing to sharing of course-relevant examples, and then to generalized knowledge-building arguments. Expressions of personal identity can stimulate engaged discussion, but are unlikely to produce the "highest levels" of knowledge building by themselves according to this study.

Brainstorming. Concern for "process losses" frequently underlies arguments against collaborative learning. The claim is that the need to communicate, coordinate, negotiate, understand each other, and take each other's perspective into account introduce "cognitive loads" on the individuals who are collaborating. It is often simpler and hence more efficient to work on cognitive tasks individually. Taking a collaborative approach introduces additional processes at the group unit of analysis, and this may add various costs of time, effort, or complexity that outweigh the benefits. "Brainstorming"—the task of generating a list of a specified kind of idea in a given period of time—is a classic test of group-process losses in social psychology. In order to better understand the tradeoffs involved and the possibility of minimizing the costs of collaborative learning through computer support, *Hao-Chuan Wang, Carolyn P. Rosé, and Chun-Yen Chang* distinguish two operational definitions of learning: connection-based (socio-cognitive, see Cress & Kimmerle, 2008; Joczak, 2011) and multi-perspective learning (dialogic, see Kershner et al., 2010; Schwarz et al., 2011; Wegerif, 2006). As in recent studies of "productive failure" (Kapur & Kinzer, 2009; Pathak et al., 2011), it appears that long-term learning gains may be optimized in situations that display discouraging short-term process costs. Careful analysis is needed to design and manage effective CSCL approaches given these subtle trade-offs.

Technical writing. In the experiment conducted by *Shiou-Wen Yeh, Jia-Jiunn Lo, and Jeng-Jia Huang*, a software system for structuring and supporting collaborative writing featured brainstorming that led to outlining a paper to be written. Learning to write collaborative technical papers in English as a foreign language is particularly important in many regions of the world. Here, the brainstorming did not generate lists of new ideas, but provided sets of similarities and differences on a given topic—for instance, cultural contrasts between Chinese and Western societies. The experiment analyzed surveyed attitudes of participants, evaluated the documents that were drafted and compared the forms of the student interactions to demonstrate the benefits of software scaffolding for this complicated task of collaborative learning.

Mathematical elaboration. In yet another study that shows that broad, undifferentiated research questions—like whether collaborative learning is more effective than individual learning—obscure the important processes and

distinctions, *Dejana Mullins, Nikol Rummel, and Hans Spada* explore collaborative mathematics. By differentiating math tasks involving reasoning from those stressing practice, they rigorously showed that collaboration aids in the learning of elaboration skills but not in the learning of procedural skills. Whereas individuals can more efficiently practice routine math procedures, unsurprisingly it helps to have dialogical partners to engage in reasoning about innovative problems and in elaborating mathematical arguments. As Vygotsky (1930/1978) suggested with his discussion of the zone of proximal development, collaboration can lead to long-term conceptual learning gains when the task is just beyond a person's individual mastery level. This study indicates that in the domain of mathematics, conceptual learning tasks (at the right level) are more likely than procedural exercises to trigger effective collaborative learning interactions. This explains why some studies of collaborative math have positive conclusions and others do not, depending on the nature of the task.

Sequential analysis. In order to model the group processes of knowledge construction taking place in a typical discussion forum, *Alyssa Friend Wise and Ming Ming Chiu* combine several analytic approaches from the CSCL literature. Most significantly, they avoid the loss of sequential interaction information that occurs when statistical analyses are computed on codes of postings (Kapur, 2011; Reimann, 2009; Stahl, 2002). They demonstrate ways of identifying sequential patterns in the interaction, including what types of postings follow each other (similar to the Hidden Markov Modeling approach of Soller & Lesgold, 2003) and where pivotal points occur (Wee & Looi, 2009). They then look at how different sequential patterns of posting types are contributed by participants playing different conversational roles. They also consider which roles contribute pivotal postings and when those occur in the overall discourse profile.

Role playing. In the concluding article of the issue, *Francesca Pozzi* explores the impact of a variety of roles on the interaction in a discussion forum and on the awareness of the participants of the role-based group discourse processes. This is a small-scale pilot study that looks at the flow of CSCL processes in participative, social, cognitive, and teaching dimensions. This paper reflects nicely on the different ways in which role-playing is analyzed in CSCL research.

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