

Strategies for sustaining interaction in online discussion forums and virtual communities

A structured poster session for AERA 2000

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Online discussions and virtual communities promise to play a key role in our visions of an enlightened and collaborative future world. Yet, attempts to promote the use of such forums run into deep and complex barriers. Instructors and learners must deal with new forms of community, adopt innovative learning styles, master new literacies, and handle unforeseen technical difficulties. These, and other factors, can lead to reduced levels of online interaction and lost learning opportunities.

What strategies can we develop to sustain interaction in online discussion forums and virtual communities? What are the cognitive, social, and technical issues surrounding participation in these communities?

This session brings together a wide range of organizations and participants who are actively investigating: (a) the social issues of participation and community membership, (b) the cognitive issues of understanding discussion topics, and (c) the design issues involved in supporting participants with different levels of technical proficiency.

The underlying assumption of the projects in this session is that understanding cooperative knowledge building processes can contribute to the design and improvement of the next generation of innovative learning technologies. There are important technical issues to be addressed here. However, other issues, such as the perception of shared ownership, identity, and community affiliation, contribute to the levels and forms of participation which influence the life-cycle of online discussions. How can teachers and educators benefit from understanding these different factors? And can integrating these perspectives lead to more productive and self-sustaining discussions?

In this structured poster session, we will begin with a discussion of the challenges faced by designers of online communities as well as the issues faced by teachers trying to use these systems effectively. This introduction will outline the range of social, cognitive, and technical issues identified by the different groups. This overview, provided by the organizers, will be followed by a brief introduction to each of the projects. The audience will then have about 45 minutes to tour the posters. The poster participants will include research findings, descriptions, and examples of the various environments. Following this, the discussant, Tim Koschmann, will present his perspective on the strategies for sustaining interaction in online communities.

The Turing Game: Understanding Identity In Online Worlds
Joshua Berman & Amy Bruckman, Georgia Institute of Technology

Do men and women behave differently online? Can you tell who is a man and who is a woman based on how they communicate and interact with others on the Internet? Can you tell how old someone is, or determine their race or national origin? In the online world as in the real world, issues of personal identity affect how we relate to others. However, identity in the online world is still poorly understood by both the general public and the research community. Furthermore, it's difficult to explain the complexity of these issues; they are much more readily understood when directly experienced.

The Turing Game is a participatory, collaborative learning experience about issues of online identity. A panel of users all pretend to be a member of some group, such as a specific gender. Some of the users, who are that gender, are trying to communicate that to their audience. Others are trying to masquerade as being a member of that group. An audience of users tries to discover who the true members are, by asking questions and analyzing the panel members' answers. In this way, the participants in The Turing Game learn about themselves, about others, and about issues of online identity in general. At the same time, they have a fun and personally engaging collaborative experience, either within a classroom or over the Internet.

The Turing Game launched at <http://www.cc.gatech.edu/elc/turing> on July 21, 1999. Within the first five days, it has had over three hundred registrants. It will remain a public system for the next several months. During this period, we hope to bring to bear a variety of research techniques to extract useful information for community designers, community members, and those concerned with issues of online identity. The results of this research will be reported at AERA 2000.

The Turing Game is a project of the Electronic Learning Communities (ELC) Group in the College of Computing at the Georgia Institute of Technology. More information about the ELC Group can be found at <http://www.cc.gatech.edu/elc/>.

Helping Students Elicit Self-Explanation And Clarification From One Another Through Personalized Electronic Discussions

Douglas Clark, University of California at Berkeley, & Doris Jorde, University of Oslo, Norway

In this study, we structure electronic discussions to support students in helping other students explain and clarify their own ideas. Research shows that students are more successful in achieving learning goals when they engage in self-explanation (Chi, 1996; Chi, Bassok, Lewis, Reimann, and Glaser, 1989). In our own previous research, students who were prompted by interviewers to clarify their answers ultimately performed better on posttests (Lewis, 1996). To further investigate this effect, we constructed an educational project called "Probing Your Surroundings" that integrates custom discussion, laboratory, and simulation software to allow students to investigate, construct, and discuss thermal equilibrium principles.

Students start "Probing" by making predictions about the temperature of everyday objects around them in the classroom. Students then use thermal probes to investigate the temperature of these objects and construct principles to describe the patterns encountered. The "Probing" software then places students in electronic discussion groups with students who have constructed explanatory principles which are different from theirs. The student-constructed principles appear as comments in the discussions. The groups critique and discuss these principles, working toward consensus. This strategy of eliciting student beliefs and then introducing them to alternative perspectives helps students develop a "repertoire of models" (Linn, 1995) for explaining scientific phenomena and contributes to sustained interaction in the online discussions.

Establishing a shared set of dimensions and criteria for analyzing online discussions: How can teachers and researchers assess student contributions?

Alex J. Cuthbert & James D. Slotta, University of California at Berkeley

Students need to be guided as they develop an understanding of how to participate in a discussion, provide constructive comments, develop shared criteria, and select different representations and comment types (Cuthbert, 1996). Similarly, teachers need to be able to generate engaging and productive topics as well as assess student contributions to those discussions. How can teachers and students establish a shared set of criteria for online discussions? Can shared criteria encourage convergent processes such as negotiation and consensus building?

As part of a seed grant from the Center for Innovative Learning Technology (CILT, <http://www.cilt.org>), a group of expert critics, teachers, and researchers are analyzing a series of experiments involving online discussions. The discussions were integrated into different learning activities in eighth grade science classrooms, undergraduate engineering seminars, and teacher professional development courses (see <http://wise.berkeley.edu> for examples). The criteria for analyzing the discussions will be presented along with new representational strategies for structuring those discussions.

TAPPED IN: Creating scalable, sustainable online professional development communities

Judi Fusco & Mark Schlager, SRI International

TAPPED IN™ is a platform-independent, Web-based, real-time environment designed to create a scalable, sustainable online community for teacher professional development (TPD) (see <http://www.tappedin.org>). A central tenet by which the community has been developed is that a scalable and sustainable community requires the participation of many organizations representing a variety of approaches and perspectives. By sharing TAPPED IN, the organizations enable their affiliated teachers to gain access to expertise, ideas, and resources that no single organization could provide by itself. By having a larger community that surrounds the many organizations in TAPPED IN, we hope that our members (teachers and other education professionals) will be able to easily find different resources to suit their needs through the course of their career.

Our research investigates the implementation process, TPD benefits and outcomes, community building, and technology use and satisfaction using a combination of qualitative and quantitative methods. We have found that enthusiasm and presence of leaders are important, but how much and in what form seems to be the important question, not so much who. Leaders are needed to stir the pot, adjust the heat, and add new spices to taste. With over 5000 members (as of July '99), we seem to be reaching a point where designated leaders are not needed on a day-to-day or even week-to-week basis. Will we ever be able to walk away and have it stand on its own?

Sustaining online interaction in a CSILE classroom

Jim Hewitt, University of Toronto, Ontario, Canada

There is often a curious lack of sustained interaction in electronic instructional communities. Guzdial (1997), in a study of 35 university-level conferences at Georgia Tech, discovered that the average size of the online conversations was only 2.8 notes (S.D. 6.5). Hewitt and Teplov (1999) performed the same analysis on 9 courses at OISE/UT and found similar results (mean

thread length of 2.69 notes, S.D. 3.01). In the latter study, over 80% of the online conversations contained 4 notes or less. It is not clear that these findings are representative of web-based courses in general, but they do contribute to a growing concern that relatively few electronic discussions last more than 3 or 4 exchanges.

Why do so many online threads fail to develop? This paper argues that there are significant technical and logistical impediments to the growth of sustained discussions in conventional threaded computer conferencing. In particular, certain patterns of interaction often lead to the unintentional and premature termination of a conversation (Hewitt, 1999). Threaded architectures are compared to a promising discourse facility in a learning environment called CSILE (Computer Supported Intentional Learning Environments). The paper describes how the design and use of the CSILE discussion facility differs from threaded computer conferencing, and how these differences can promote sustained interaction and in-depth inquiry.

**Didn't your mother ever teach you to share? Supporting collaborative
education research in the CILT Knowledge Network**
Christopher Hoadley, Center for Technology and Learning, SRI International

The Center for Innovative Learning Technologies (CILT) is charged with improving collaboration and cumulativity across researchers, teachers, and industry in educational technology research. I present empirical results on what sorts of information researchers can and do share, and barriers to doing so more effectively.

The CILT Knowledge Network (CILTKN) software meets these needs by straddling the boundary between information source and collaboration space, through the use of very low threshold interfaces (VLTIs) and by integrating the software into existing researcher practices. Results suggest that technology can significantly impact collaboration among researchers, even if the researchers do not directly collaborate through the technology.

**The Carnegie Foundation's Scholarship of Teaching Mission: Building community through
supporting teachers' reflective inquiry process**
Desiree Pointer, Tom Hatch, & Toru Iiyoshi, Carnegie Foundation

The Carnegie Foundation for the Advancement of Teaching, in Menlo Park, CA, has developed an online workspace for the "Scholarship of Teaching." As this term is described by Lee Shulman, the President of the Foundation, this involves uplifting the profession of teaching by introducing a tradition of scholarship, consisting of making one's work public, subjecting it to peer review, and constructing a shared sense of participation within the teaching community. The online workspace developed by the Carnegie Foundation is part of the Foundation's plans for a Knowledge Media Lab, which will assemble (both literally and "virtually") diverse media reflecting the Foundation's Scholarship of Teaching mission. Currently, three groups of teachers (two groups of higher ed. professors, one group of K-12/ teacher educators) use the workspace to post documents reflecting their inquiry into their own teaching, give each other feedback on each others' work, discuss issues facing them in their practice, and provide each other with resources. Recently, this sharing of documents has moved from text-only to a platform which will allow participants to post audio and video. The main challenges we face are those of developing an intuitive interface which participants (with a wide array of technological expertise/lack thereof) will find compelling and relevant to their inquiry process, as well as creating a stable cross-platform hardware configuration to support the entire process.

**WebGuide: Encouraging and supporting collaborative knowledge construction,
perspective-making/taking, and negotiation in discussion forums**

Gerry Stahl, University of Colorado, Boulder

WebGuide strives to extend the discussion forum paradigm in several directions: (a) Its goal is the *collaborative construction of knowledge*, not simply the exchange of personal opinions. (b) Ideas preserved in WebGuide are viewed within *individual and group perspectives*, where alternative views on shared issues can be articulated. (c) WebGuide also *supports negotiation processes*, so that ideas from different perspectives can be synthesized and adopted as collaborative results.

WebGuide is an evolving Web-based discussion medium in search of effective usage practices and appropriate social configurations. A community of users is co-evolving along with it -- learning how to exploit its affordances as they are implemented and tuned. This Fall, WebGuide will be introduced to an international, interdisciplinary group of students and researchers. They will use it as a medium for group reflection on computer support systems for collaborative learning. Small group activities designed by the participants will be structured and supported in the software in ways to facilitate the effective use of WebGuide's knowledge construction, perspective, and negotiation features. See the references section for recent papers on WebGuide and issues for the next generation of collaborative knowledge-building environments.

Fostering collaboration between national and local educational organizations

Richard Wenn, WestEd

EdGateway is an interactive Web-based environment created to foster collaboration and the exchange of information. EdGateway is currently being used by a variety of educational organizations interested in using the World Wide Web to foster collaboration. Partners include: the US Department of Education, the Environmental Protection Agency, the National Environmental Education Advancement Project, Project Wet, Bay Area CREEC, Los Angeles CREEC, the Coalition for Essential Schools, the San Diego Science Alliance, State Education and Environment Roundtable, the Distance Learning Resource Network, WestEd, the US Charter Schools Web site, and the Pacific Resource for Education and Learning (PREL). EdGateway is designed to promote learning through community-based collaboration and information exchange. It provides organizations with the ability to create stand-alone Web sites with interactive features that maintains a project's identity while being supported under the EdGateway umbrella.

EdGateway provides these organizations with powerful capabilities they could not afford to develop on their own and the flexibility they need to customize the presentation of information for their region and audience. By using the same development environment, costs are reduced and clients are provided with a more robust body of knowledge created by the participation of multiple communities working independently within a common development environment.

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