

Sustaining Online Collaborative Problem Solving with Math Proposals

by Gerry Stahl

Gerry Stahl directs the Virtual Math Teams research project (mathforum.org/vmt) and teaches HCI and CSCL at the College of Information Science and Technology at Drexel University in Philadelphia, USA, where he is an Associate Professor. He studied computer science and Artificial Intelligence at the University of Colorado, where he was later a research professor. He was program chair of CSCL 2002, is founding Executive Editor of the "International Journal of Computer-Supported Collaborative Learning" (ijCSCL.org) and has published a book on his research and theories: "Group Cognition: Computer Support for Building Collaborative Knowledge." His papers and other information are available at his website (www.cis.drexel.edu/faculty/gerry).

Interviewer: Gerry Stahl, you won a Best Paper Award at ICCE 2005. Could you tell us what the paper was about?

Gerry: It focused on a fascinating moment in an online chat among three young students about a math problem. Two students were incredibly skilled at making proposals that were taken up by the group in the chat room and that sustained their discussion and exploration of math. The third student had trouble making successful proposals, and this provided us an opportunity as researchers of computer-supported collaborative learning (CSCL) to see how chat contributions have to be structured and situated within the flow of the chat to succeed. The paper goes into some related issues, but the focus is on a detailed look at a particular failed proposal. Recently, I extended the paper considerable; the new version has appeared in RPTEL.

Interviewer: How did you get interested in chat?

Gerry: When I graduated with a degree in artificial intelligence (AI), I decided to shift to CSCL. I built several asynchronous discussion forum systems and studied their use and non-use. When I taught my first fully online course at Drexel University, my students convinced me that synchronous text chat was a potentially much more powerful medium for small groups to build knowledge collaboratively. This evolution in my thinking is documented in my new book on Group Cognition, which discusses the nature of the discourse, shared knowledge and interaction that can take place in small groups.

Interviewer: How do you explore what happens in chat?

Gerry: We just try to look really closely at brief segments of interaction among groups in chat rooms. People are social animals. They have learned over millennia how to interact in small groups using spoken language and body language. Exchanging text messages through a computer is quite different, but people spontaneously adapt their communication techniques to the new media. We can see how they do this by analyzing the record of their chats.

Interviewer: What have you found out about chat already?

Gerry: We have learned a lot about how different chat is from both speech and discussion forums. It has a great potential for collaborative learning, but it needs a lot of supports that we are only beginning to explore. My recent journal papers (see <http://www.cis.drexel.edu/faculty/gerry/>) discuss deictic referencing, sustaining the collaboration with math proposals and the relation of individual to group cognition. The International Journal of CSCL, which I edit, has been publishing articles on chat as well.

Interviewer: Can people in the Asia-Pacific participate in VMT?

Gerry: My research involves the Virtual Math Teams service at the Math Forum. This is available around the world at <http://mathforum.org/vmt/>. Individual students are welcome to come here and participate. Teachers and schools should contact us from that website. We are working with researchers in Singapore whom I met with during ICCE 2005 to involve Singaporean students. I am organizing a workshop on chat at ICLS 2006 in Bloomington in June and one on CSCL at ICCE 2006 in Beijing in November.

Interviewer: Thanks for chatting with us!