Teacher Candidate Perceptions of Telementoring in Knowledge Forum

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ABSTRACT
The success of traditional email-based telementoring rests on the ability and inclination of students to maintain open channels of communication with mentors. Telementoring in learning environments (specifically, Knowledge Forum) may offer strategic advantages by making the day-to-day evolution of student investigations more accessible. This paper describes an experiment in which University of Toronto teacher candidates worked as Knowledge Forum telementors in four elementary school classrooms. Research findings support the notion that Knowledge Forum provides valuable contextual information for mentors. Additionally, teacher candidates reported that they found the experience of electronically mentoring a Knowledge Forum class to be professionally valuable.

Keywords
Telementoring, pre-service education, computer-mediated communication, learning environments

INTRODUCTION
The rapid growth of the Internet offers exciting new possibilities for classroom learning. In recent years, it has become increasingly feasible to use email to forge electronic mentoring, or *telementoring* relationships between students and subject-matter experts outside the schools. To date, telementoring experiments have focused almost exclusively on the use of email as a communications medium (e.g., Harris & Jones, 1999; O'Neill & Gomez, 1998). The current research breaks with this tradition and investigates the possibility of situating telementoring discourse within the context of a computer-based learning environment.

The full potential of telementoring has yet to be realized. Research suggests that traditional mentor-mentee models require careful preparation and ongoing monitoring to prevent failure. For example, in a study by Harris and Jones (1999), over one-third of the telementoring relationships were abandoned prematurely. Breakdowns such as these are commonplace, and perhaps understandable. The success of telementoring rests heavily on the ability and inclination of students to keep mentors informed about their goals, their discoveries, and the challenges they are facing. Some students have difficulties in this regard. It is an unfortunate reality that those learners who could most deeply benefit from a mentoring relationship are often the ones that have the most trouble carrying out and sustaining a productive series of email exchanges.

In conventional telementoring arrangements, students spend part of their time investigating a particular problem, and part of their time exchanging email with mentors. This system is inherently inefficient because it divides the students' attention. One way to bring these two worlds together is through the use of collaborative learning environments. Tools like Covis (Edelson, Pea, & Gomez, 1996), Virtual University (Harasim, 1993) and Knowledge Forum (Bereiter, in press) allow students to work together in an electronic learning community. Within Knowledge Forum, for example, learners define research problems and then assist each other by contributing theories, discoveries, questions, and information to the on-line database. Providing telementors with electronic access to a Knowledge Forum database would enable them to follow, in detail, the evolution of student investigations. This would provide mentors with a deeper sense of the students' work than they would likely acquire through email exchanges alone. At the same time, it would reduce the need for students to keep mentors constantly apprised of developments. Students would instead conduct their investigations in their on-line learning environment, while mentors observe remotely and offer assistance as necessary.

METHOD
This study explores the advantages and limitations of mentoring through Knowledge Forum. Seven teacher candidates from the one-year University of Toronto teacher education program served as mentors. After a brief telementoring preparation program, these individuals worked over the Internet in the Knowledge Forum databases of a nearby elementary school. The teacher candidates were divided among four classrooms: grade 1, grade 3, grade 4 and grade 5-6. The goals of the research were to: a) determine the degree to which teacher candidates could glean, through their virtual visitations, an understanding of student-led Knowledge Forum investigations; b) identify difficulties experienced by the teacher candidates during their online interactions; and c) explore teacher candidates' perceptions regarding the educational efficacy of telementoring as a professional development activity.

The data consist of teacher candidate interviews, written teacher candidate reports, two videotaped conversations between teachers and teacher candidates (lasting approximately an hour each), researcher field notes, and records of online mentor-

mentee exchanges. Two parties identified reoccurring themes in the transcripts: the author of this paper and by a researcher who was not previously part of the telementoring experiment.

FINDINGS AND CONCLUSIONS

The interview data and written reports indicate that telementors had few difficulties following Knowledge Forum discourse and analyzing the progress that students were making in their investigations. The Knowledge Forum databases provided mentors with an extensive corpus of student work. In fact, mentors reported that there was sometimes too much information. Since the teacher candidates began mentoring in the middle of a unit, they were initially faced with a significant number of notes to read. As one mentor remarked, "I must admit that I was overwhelmed by the vast 'web of knowledge' that the students had created online."

The telementoring experience appeared to benefit the mentors as much, and possibly even more, than the mentees. All teacher candidates were impressed by the degree of agency that students were afforded in their investigations. They felt that their Knowledge Forum activities were much more student-centered than anything they had witnessed during their practice teaching sessions. One remarked:

"I am starting to understand that… the acquisition of rote knowledge is secondary to the development of theories and the ability to test theories and ask the right questions of other people's theories…. I must <as a teacher> create an atmosphere that allows students to take risks and not be afraid of making mistakes"

Some of the responses from teacher candidates suggest that the telementoring experience may have affected their pedagogical beliefs. One teacher candidate claimed that the experience changed the way that she interacts with her own children.

"<My> dialogue with my own two daughters <aged 8 and 9> changed as a result of this exposure…. We have adopted an open-forum type of attitude at home where questions, theories, ideas, opinion whether right or wrong are welcome in discussions…"

The research also uncovered two problems. First, the teacher candidates were accustomed to structured, teacher-centered pedagogies, and were unsure how to best support students in Knowledge Forum. This points to a need for effective telementoring models and more extensive mentor training. Second, teacher candidate messages sometimes closed down student discourse. The reason for this is unclear. Further research is required to determine why mentor contributions sometimes cause threads to end abruptly, and to explore possible ways of rectifying the problem.

If the approaches employed by this research can indeed transform teacher candidate beliefs about thinking and learning, then there may be potential for making telementoring a more central part of a teacher education program. Since Knowledge Forum preserves a record of interaction, mentor-mentee discourse could theoretically be extracted and made a subject of analysis in pre-service classes. This would provide pre-service programs with tremendous opportunities to link educational practice to educational theory.

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