A MULTI-NATIONAL VIEW OF COMPUTER-MEDIATED COMMUNICATION USE IN PRIMARY AND SECONDARY SCHOOLS

Mauri P. Collins
Adjunct Assistant Professor
Northern Arizona University
Box 5751
Flagstaff, AZ 86011-5751
520-523-4059
mauri.collins@nau.edu

Zane L. Berge
Director, Training Systems
ISD Graduate Program
UMBC
1000 Hilltop Circle
Baltimore MD 21250
410-455-2306
berge@umbc2.umbc.edu

Keywords: computer-mediated communication; primary education; secondary education; multi-national education

Introduction

In the spring of 1992 a call for proposals was sent out to a number of online discussion groups, seeking chapters for a series of edited books on the educational uses of computer-mediated communication (CMC). Over a hundred proposals for chapters were received by July, 1992 but they included only a small handful describing CMC use in primary and secondary schools. These dealt with the use of relatively unsophisticated bulletin board systems, computer-based instruction. and simple electronic mail.

However, when the call for proposals went out for the new book series on the use of CMC in primary and secondary schools in 1995, almost a hundred proposal were received from primary and secondary school teachers and from teacher educators. Eventually 74 chapters were accepted, involving over a hundred authors from nine countries: Australia, Canada, England, India, Japan, Malaysia, Russia, Scotland, and the USA. Many of the issues raised are grounded in the teaching of primary and secondary students and the impact of computer mediated communication (CMC) on schooling, rather than differences of country and culture. The following is the editor's summary and commentary on information drawn from the four books in the series "Wired Together: Computer Mediated Communication in K-12" (Berge and Collins, in press a-d).

Technical Issues

It appears as if the Internet provides a global meeting place were everyone faces the same kinds of technical problems involved in gaining initial access and then dealing with the vagaries of telephone lines, modems and computers. Communication problems are encountered by all but the most eloquent in terms of conveying the richness of human communication in words appearing on a computer screen that effectively hides the physical characteristics and attributes of the writers. Distance is most obvious, not in terms of miles or kilometers, but is felt in the time a browser takes to retrieve a file from a web-server (which can be a longer time from a local, busy server than one half a world away) or the lag in response time during a real-time chat session, or perceived in the delay caused by less than prompt response to email correspondence.

Acquiring Computer and Communication Technologies

Regardless of the geographic location of the school there are some issues that all face when implementing the use of CMC. The initial acquisition of computer technology is expensive and this can place a burden on schools that do not have an affluent tax base from which to draw. In post-soviet Russia, for instance, schools have difficulty finding the hard currency to purchase computer equipment in an economy that is only slowly turning to the manufacture of consumer products. They must sometimes rely on “computer enthusiasts” for help. Students must focus on using classroom time where computers are available when they do not have the luxury of computers in their homes for practice. Modems require phone lines and there are few, if any, nations in the world where it has been normal practice for each classroom in primary or elementary schools to have their own telephone lines.

Acceptable Use

The Internet was, for many years, the almost exclusive territory of adults, and discussion groups, ftp sites and then the World Wide Web have catered to the needs and tastes of adult participants. It follows then that there is material that is relatively accessible on the Internet that both parents and teachers may deem unsuitable for children. This “adult” material has been the subject of news stories across the globe and has contributed to public concern about what students may be exposed to if allowed to “surf the ‘net” and has led many to question the appropriateness of the use of Internet resources in schools. To protect schools from liability, “acceptable use” policies are being developed which must be signed by both students and their parents. Some schools are installing “watchdog” software that scans incoming and outgoing files for strings of characters that have been designated as “unsuitable” and are reserving the right to monitor closely students’ usage. Some schools are creating “intranets” that have a range of acceptable information sources lodged on an internal server that appears from the student’s perspective to be open to the Internet.

Restructuring Education

The developing knowledge economy is driving school and curriculum restructuring in many developed and developing countries. While this thread ran through chapters from all nine

countries represented, this is apparent in its most extreme form in post-soviet Russia. In soviet Russia curricula, textbooks and teaching methods had been rigidly prescribed by the State; teachers were required to teach without deviation only what was found in the approved textbooks and prescribed teacher guides in the precise way in which it was presented; and students were required to passively pay strict, uncritical, attention to the content and explanations presented to them so they could replicate that content on demand. This produced a highly teacher-centered system that did not encourage students to think critically, question authority, develop their own point of view or try to find arguments to support them. It was socially and politically unacceptable for a student to disagree with a textbook or the opinions of a teacher.

Changing political and economic conditions now require a Russian populace who can think critically and independently and who can work collaboratively. This has led to the development of a set of prescribed competencies for each grade level, and given teachers the freedom to choose teaching and learning approaches, textbooks and other informational materials for themselves. This has led in turn to a need for increased and improved teacher education and in-service as teachers must first change their own perspectives, mental models and attitudes and learn to share the responsibility for learning with the students. It was evident in the chapters from the teacher educators that the use of CMC is only slowly being adopted by teacher educators, so many pre-service teachers are not exposed to good models during their training.

A Canadian educator points out that many senior faculty are intimidated by the complexity of learning to use technology and inhibited from its use in their classrooms by their own stagnant mental models which will not admit the notion of students as fellow-learners.

Some American schools have been created with an emphasis on critical thinking and problem solving as opposed to rote learning, and technology is one tool that is used to motivate, enhance and stretch student thinking. The use of technology also allows students to show what they have learned beyond paper and pencil tests. The outcome is a community of self-motivated, life-long learners who are technologically literate and can confidently travel the information highway making connections, adjustments, assessments, crossovers and/or knowledge transfers.

An English instructor created an electronic journal as a tool for allowing and encouraging students to use it as a medium for communicating science with others around the world. He discovered that to bring the Internet into schools not already using it required substantial structural change--changes in such things as organizational arrangements, roles and finances. In that sense it was little different from any other major curriculum innovation--except for the technical dimension. Teachers became agents of institutional change, as they incorporated the planned use of the electronic journal into their teaching. They were aware at the outset of the time involved in learning the new technology and their greatest challenges were to find the time to implement the changes and to convince colleagues at all levels of the possible benefits. This particularly impacted administration when teachers sought permission for their students to use computer connections that had been formerly used only for administrative purposes, in the hope of being able to use existing resources.

This provoked negative reactions from computer management personnel who were afraid of security breaches and the potential for student misuse of resources. This led to the suggestion that before implementing similar projects, all stakeholders in each school should be involved in discussions about the scope and nature of the project, and given some sense of ownership.

Changing Roles of Teachers and Students

Both pre-service and in-service teachers have to acquire a full command of the skills that the new pedagogical and information technologies demand. Then, together with their students, teachers have to learn to negotiate the sea of electronic information becoming available, discover how to work with it, critically process it, develop hypotheses and then find the facts and arguments to support them. The use of CMC precipitates this fundamental change in the interactions between teachers and students at all levels because it enhances a learner-centered model and makes collaborative projects possible, even when students are widely dispersed.

“Characters on line” is a project that has been used successfully in Australia and other countries to help pre-service teachers learn to use electronic mail in a meaningful context and interact with students online. The pre-service teachers each take the role of a child in children’s fiction book and answer letters from children. Many of these pre-service teachers are anxious and have avoided the use of technology. An understanding of the stages these anxious adults go through as they learn builds self-esteem and confidence in their own learning.

Students often change roles and become the teachers as they have more time and energy to invest in using computers and exploring the Internet. Raised with electronic games and access to computers, students are often more comfortable with new technologies than their teachers and are willing to guide and train both their less accomplished peers and their teachers. One American project actually trained students to serve as technology tutors to their teachers.

Technological Problems

It doesn't matter where you are, implementing CMC is always attended by frustrating technological problems, and this was a thread running through many of the chapters. A teacher in India noted that technological and logistical problems dimmed the initial enthusiasm for bringing CMC into the classroom of a school for American children and turned the “information highway” into a rocky road, and an Australian teacher noted that students are willing to persevere despite the difficulties they encountered. Technology difficulties may manifest themselves in different ways in different locations, but are general in character: lack of electricity, of phone lines, or unreliable telephone service; lack of Internet access; lack of funds to buy computers with sufficient memory or speed to run new programs; expensive equipment that rapidly becomes obsolete; lack of funding built into budgets for replacement; software and hardware incompatibilities; technologies that won’t “talk” to each other; unexpected and unexplainable equipment failures and network

breakdowns. But many teachers and students are willing to struggle with the technology so they can communicate with others in unprecedented ways.

Students Communicating with Students

International email penpal writing projects are a common introduction to the Internet for many students. Students have the opportunity to use their new language skills with native speakers and to practice in an authentic context that is both motivating and interesting. Students are anxious to present themselves well, and when using electronic mail, that involves using correct grammar and vocabulary. Among students in Singapore learning German, the dictionary became the most popular book in the classroom. Interacting with their peers in other countries promotes a positive attitude towards the new language and culture and motivates students to spend more “time on task”, thus enhancing their learning.

Francophone students in Canada were connected via email to students in the United States and Belgium. They started out exchanging group-to-group communication structured in the form of a bi-weekly newsletter. Dialog was quickly established where students were able to exchange personal introductions with another class. Some responses to individuals received responses from individuals and some from groups. The volume of message exchange was high and with the flood of messages, there was a corresponding increase in enthusiasm among the students.

Such projects, however, have to be carefully designed to include tasks appropriate to accomplish the learning objectives in a way that is meaningful to the students, as an instructor in Scotland discovered. The project involved four essays from Scottish students learning Japanese being sent to student teachers in Japan for correction. The essays were duly returned, heavily corrected. After some consideration, the instructor wondered if such a traditional activity were the best use for electronic correspondence when it could perhaps better be used for the development of communicative competence, rather than activities that focused so narrowly on correct grammar and syntax. The instructor felt that students and student-teachers needed room to negotiate their respective roles and develop a social relationship and a common ground for discussion before tasks could be comfortably accomplished. Before the students could care about the feedback they were receiving, they needed to feel that the persons correcting their work knew them and cared about them.

A Canadian project that was both carefully designed and engaging to students taught social studies through an interactive gaming environment. Middle school and university students were linked via asynchronous CMC in virtual worlds. These were designed to help them develop a sense of historical understanding as they exercised their imagination in a electronic gaming venue that was both familiar and appealing to them. The curriculum focus for the project was drawn from the Grade 8 social studies curriculum and the specific content revolved around life in the Middle Ages. Students were particularly charmed that the project was not required but rather a project in which they had some choice and control.

Two Canadian teachers describe the way that CMC can make possible the management of many-to-many communication among students to create new possibilities for classroom discourse where the students take control and responsibility for their own active learning.

Information Providers Communicating with Students

For some twenty-five years, a weekly news program for 5th-7th graders has been broadcast on Fridays on the United States public broadcasting network. The programs alternate between a magazine-type program focused around a pre-determined topic, and a program of contemporary news and opinion. In the past the only feedback from students received by the production team were essays written by students as part of an annual contest. The winners were invited to a local PBS television affiliate and recorded reading their essays. These were then broadcast on a special program. This exercise did not usually allow feedback from the student on their reactions to the show. Then a electronic mailing list was set up and announced on the air. The list has allowed the production team to disseminate supplementary materials in a timely manner to teachers who joined the list. For the first time, students in large numbers are interacting directly with the production team and giving them feedback on their reaction to the broadcast news stories.

Peer Support among Teachers

Support of first year teachers is increasingly occurring via CMC. This was described in a chapter in the first book series (Berge and Collins, 1995), where first year teachers in Idaho were loaned computers and modems and linked with other teachers from their graduating class and the instructors they had known and were familiar with.

Special Needs Coordinators (SENCOs) in England and Wales can now link into a network that provides them with support and immediate access to information as they work with children with special needs. The project started off with email exchanges between SENCOs and the project organizers. Once teachers realized that there was material available to them of very real and immediate use, and peers who could share both information and experience, the project flourished.

A group of Australian teachers who have been implementing telecommunication technologies in their teaching in Australia formed a collective to support each other as they journeyed from a high concern for technology to a high concern for professional development interwoven with their formation of an online community.

Conclusions

This presentation has outlined some of the problems faced and lessons learned by international authors who use CMC in their learning environments.

References

Berge, Z.L. & Collins, M.P. (Eds.) (in press a). *Wired Together: Computer-Mediated Communication in K-12, Volume 1 Perspectives and Instructional Design*. Cresskill, NJ: Hampton Press.

Berge, Z.L. & Collins, M.P. (Eds.) (in press b). *Wired Together: Computer-Mediated Communication in K-12, Volume 2 Case Studies*. Cresskill, NJ: Hampton Press.

Berge, Z.L. & Collins, M.P. (Eds.) (in press c). *Wired Together: Computer-Mediated Communication in K-12, Volume 3 Teacher Education and Professional Development*. Cresskill, NJ: Hampton Press.

Berge, Z.L. & Collins, M.P. (Eds.) (in press d). *Wired Together: Computer-Mediated Communication in K-12, Volume 4 Writing, Reading and Language Acquisition*. Cresskill, NJ: Hampton Press.

Berge, Z.L. & Collins, M.P. (Eds.) (1995). *Computer-Mediated Communication and the Online Classroom, Volume 1-3.* Cresskill, NJ: Hampton Press.

Australia

Chandler, P. & Loosley, S. Students, teachers and electronic mail: A journey of discovery in making change happen. Volume 2.

Russell, A. No longer can technology be avoided: A real email experience makes the technology invisible. Volume 3.

Stacey, E. Elementary school use of audiographics for learning languages. Volume 4.

Canada

Longpre, R. CMC in the French language classroom. Volume 4.

McGreal, R. The information highway and restructuring education. Volume 1.

Riecken, T. The Camelot project: Developing student's historical understanding through interactive electronic storying.

Tiessen, E & Ward, D. Computer-mediated distributed learning. Volume 1

Szabo, M. Updating our mental models to take advantage of modern communication technology to promote CMC. Volume 1.

England

Detheridge, T. & Bowell, B. CMC Senco project. Volume 3.

Fullick, B. Using and online journal to teach students about science. Volume 4.

India

Luthra, S. Telecommunication in the classroom in an overseas American school. Volume 1.

Israel

Oren, A. & Miodusar, D. A museum in the cyberspace as a learning environment. Volume 2.

Russia:

Polat, E., Petrov, A. & Buharkina, M. Some problems of teachers' training in new pedagogical and information technologies in Russia. Volume 1.

Scotland

O'Hashi, J. Use of email correspondence to facilitate the acquisition of Japanese language.

Singapore

Lewis, J. & Morse, U. The Deutsch Gossip Column. Volume 4