Computer Mediated Communication Inside a Classroom: A Study Using CMC Technology with ELT Students

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Abstract: A team of teachers, with little prior experience of CMC technology, learned how to design and conduct activities to teach language, communication, and employability skills to a culturally and linguistically diverse class of students. The learning activities were unique in that they used the potential of CMC to foster collaboration among students and between students and teacher to teach students the employability skills they need to perform successfully in today's work place with its emphasis on teamwork. Group journals, audio- and videotaped observations, and interviews were used to provide an on-going record of the students" and teachers' responses to CMC technology and its usefulness in learning and teaching.

Resume: Une equipe d'enseignants qui avaient peu d'experience avec la communication par ordinateur (la technologic CMC), ont appris a elaborer et a mener des activites visant I'enseignement de la langue, de la communication et des competences relatives a I'employabilite a un groupe d'apprenants avec des antecedents culturels et linguistiques divers. Les activites d'apprentissage etaient uniques en ce sens qu'elles profitaient du potentiel de la technologie CMC pour encourager la collaboration entre apprenants d'une part et entre les apprenants et I'enseignant d'autre part, dans le but de faire acquerir aux apprenants les competences relatives a I'employabilite qui sont necessaires pour reussir sur le marche du travail actuel qui favorise le travail en groupe. Les reactions des apprenants et des enseignants a la technologie CMC et a son utilite pedagogique ont etc saisies par le biais de journaux de groupe, d'enregistrements audio et video, ainsi que par des entrevues.

Introduction

To prepare for post-secondary studies in business, technology, trades and career programs and for success in the workplace, English language training (ELT) students (also referred to as ESL students because so many have English as a second language) need to acquire high-level communication, cultural, and employability skills as well as language skills. We conducted our study to explore the potential of e-mail, conferencing, and chats for helping students acquire those skills.

We will begin by providing background information on the need for ELT students to acquire such a wide range of skills and by giving an overview of our study. We will then discuss the unique features of our use of CMC and make recommendations for our co-pioneers in the use of CMC in and outside the classroom.

Needs of ELT Students

Each year thousands of new immigrants (41,252 in 1994) arrive in British Columbia, mostly from Asia, the Middle East, Eastern Europe, and Central America (Ministry of Education, Skills, and Training [MEST], 1996 August). Nearly half of the elementary and secondary students in Vancouver (49%) and Richmond (42%) need ESL support. The need for ESL support for students in the other municipalities of the Lower Mainland ranges from 15% (North Vancouver) to 21% for Burnaby and 25% for Surrey (The Province, 1996 November 19). Relevance and access are two primary goals for the public post-secondary education and training system in British Columbia, as outlined in the Ministry planning document, Charting a New Course (MEST, 1996 March).

Need for Relevance of Instruction

Relevance for ELT programs in B.C. is defined in terms of the students' employment, settlement, and citizenship needs and their need to understand and interpret the context in which they live and to make informed choices (Koehle, 1996 June). While 42.7% of students in a MEST survey reported participating in Canadian life as their single most important reason for studying English, 17.8% reported they were studying English to get into a college or university, and 15.5% said they wanted to improve their English so they could get a job (1996 August).

The main reasons for students entering our ELT program at the British Columbia Institute of Technology (BCIT) are, according to the same MEST survey, to prepare for further studies (49%) or to improve career prospects (23%). In 1993, BCIT surveyed instructors, graduates and employers on the skills needed for all graduates of its two-year technology diploma programs. The nine skill areas identified in the survey, in order of importance, were: problem solving and creative thinking, oral, interpersonal, teamwork and leadership, writing, reading, visual literacy, electronic office, and intercultural (BCIT, 1994).

Debling and Behrman identified 13 employability skills required in new recruits by small- and medium-sized businesses in B.C., including knowing the business, exploiting information technology, behaving appropriately, speaking and listening, and writing (1996 July). The Conference Board of Canada identified three areas of "foundation skills for employability": academic (communicating, thinking, and learning skills), personal management (positive attitudes and behaviours, responsibility, and adaptability), and teamwork (1992).

Need for Access to Instruction

Koehle's study (1996) of ELT programs in British Columbia found that access to ELT programs is provided only to "a reasonable extent" (p. 5). According to Koehle, interactive technology and distance delivery have attracted interest as a way to "improve and enlarge access" (p. 5). However, he also points to problems anticipated with students of certain levels in certain skill areas. The study concludes that questions of student acceptance have been raised and that "ELT service providers should thoroughly research and assess technologically accessible learning

systems in order to ensure that these systems not only provide access within financial constraints but do so with a human face accessible to ESL students" (Koehle. 1996, p. 5).

The challenge for teachers, curriculum designers, and program administrators is to transform the classroom into a site where such a sophisticated combination of skills can be acquired and practised by such large numbers of linguistically and culturally diverse students.

Overview of the Study

BC1T offers certificate, diploma, advanced diploma, and degree programs in business, engineering, and health technologies and in trades. The Institute has approximately 6,000 full-time and 36,000 part-time students. The goal of BCIT's Pre-Entry Program is to give students the language skills they need to communicate effectively at BCIT, and, later when they graduate, in the technical and business work place. Over 800 students a year are registered in the program, which is taught by 10 to 12 instructors.

For our study, we developed two CMC modules for an existing 88-hour course in the Pre-Entry Program, Introduction to BCIT for Students of English as an Additional Language. The course met from September to December 1996, with 14 students, in an Advanced Management Technology Lab, for which the School of Business waived its normal lab user fee. The two CMC modules were taught in the first hour of one of the course's twice weekly four-hour sessions. Each module consisted of five one-hour sessions, for a total of 10 hours for the entire CMC component.

Objectives and Assumptions of the Study

The two objectives of the study were 1) to use CMC to teach language, communication, culture, and employability skills, and 2) to build a team of teachers with the attitudes, knowledge, and skills needed to design, develop, and teach curricula using CMC.

The study was based on two beliefs. The first belief is that people with limited English language skills can wrestle successfully with a high level of computer technology, communication tasks, and intercultural techniques, at the same time they are learning English. Students with limited English language skills should not have to wait until their English is "good enough" before engaging in higher level and high status tasks. The second belief is that CMC technology might offer unique techniques for teaching and learning. These techniques could only be discovered by having teachers and students use CMC in the classroom. The study set out to discover them.

Student Participants

Of the original 16 students, 75% were male. Nine of the students were 25 to 34 years old, six were 18 to 24, and one student was 35 to 44. Three students had Grade 12 or less, four had some college or university, five had a college certificate

or diploma, one had a trades certificate, and two had a university degree or professional designation (one student left that question blank on our survey).

We decided not to pre-screen the students for high levels of interest in or familiarity with computers or for an advanced level of English. Because the Pre-Entry Program is a revenue generating program, we could not afford to use CMC if it meant turning away otherwise eligible students who were prepared to pay the tuition.

We surveyed the students in two other sections of the same course to ensure that our group was representative. We also compared the student demographics in all three sections of the course with the demographics for the whole program in regard to sex, age, and level of education. In addition, we examined the written pre-tests of the students in all three sections to ensure their level of English was similar.

All but two of the students in the study had their own computer at home or had access to a computer. Almost 70% had used a computer at work, and seven had taken computer-based training. Thirteen had used Windows, and five had used e-mail and six the Internet. Fifteen of the students either strongly or completely agreed that computers could be helpful in learning English; one student was not sure. We surveyed the students' feelings about computers and computer-based training for learning English by giving them an illustrated series of five facial expressions from a large smile to a large frown. None of the students chose a frown to illustrate their feelings about computers, although two chose a neutral expression. Ten chose the large smile. In regard to computer-based training for learning English, eight students chose a large smile, six a medium smile, and two a neutral expression.

Teacher Participants

As early as May 1995, six teachers, including the Pre-Entry Program Head, began to think of ways of using technology in the course for which we later developed the CMC modules. These teachers had been part of a team that had been developing three modules to revitalize and update the course, and the idea to use CMC was an outgrowth of that project. We received an Instructional Enhancement Grant from our institution's Learning Resources Unit for training on how to use the CMC software to teach.

The teachers on the team were not experts in the technology: one teacher had to learn Windows in order to use the CMC software. They were all enthusiastic and willing to learn. In addition, the technical support person for Distance Education at our institution, gave us technical training and assisted in all sessions with the students.

In May 1996, we received a Locally Initiated Curriculum Project grant from the Centre for Curriculum, Transfer, and Technology of MEST to prepare curriculum materials which would include the rationale, learning outcomes, resources, student learning activities, class organization, skills taught, and assignments and evaluation instruments.

Advisory Committee

We formed an advisory committee of people at our institution who were unconnected with our subject matter but interested in Internet technology, distance education, curriculum development, and other subjects taught at BCIT.

Unique Features of the Study

Unique features of the study include the student learning activities which reflected our integrated approach to the teaching of language, communication, computer, and employability skills and cultural awareness, and our use of journals, videos, and audio interviews to provide an on-going record of the students' and teachers' responses to CMC technology and its usefulness in learning and teaching.

Student Learning Activities

The CMC course component consisted of two modules. The first module, Learn How to Do CMC, taught students how to open, reply to, and send e-mail and how to open and send conference messages. The students learned CMC while they were using it to do something else and they had to communicate with each other to do it, in the same way, for example, that many teachers learn to word process in order to produce their teaching materials, that the general public learns how to use a VCR in order to watch videos, and a technician learns how to operate a certain piece of equipment in order to test the quality of a product. In all these cases, the technology is a tool, which people learn how to use so they can do something else they need to do.

Emphasis on Work Place Language and Employability Skills

This approach to technology as a tool for getting a job done is similar to the function of language in the work place, where language only commands attention when it is related to content, that is, when it either aids or interferes with successfully completing the work task at hand (Vance & Fitzpatrick, 1994).

In Module 1, the students learned how to do CMC in order to survey their class. We chose to have the students survey each other on their knowledge, skills, and attitudes toward computers, but they could survey each other on any topic. Module 2, Learn How to Use CMC to do Group Problem Solving, taught students how to use chat and conferencing to follow a common approach to problem solving: to decide upon criteria, gather information, evaluate according to the criteria, and arrive at a consensus solution in groups.

The problem we selected for the students in Module 2 was to choose a business, engineering technology, health or trades program they wished to enter. Again, the students could have turned their attention to a very different problem, using the same problem-solving approach and developing the same skills. Because the module is designed to teach employability skills and cultural awareness in context, the problem should be practical and applied, rather than theoretical. For example, proposing an office recycling system is practical and applied, as opposed to discussing the Greenhouse Effect. In addition, the problem must be presented in a

way that requires the students to make choices, so that students are not merely learning the rules and conventions of English, but also engaged in deciding what to say and what to do in order to achieve an intended, immediate, practical result (Mohan, 1986).

Students received a schedule of activities for each session. In the list of outcomes for each module, language skills were always listed third, between computer skills and communication skills and organizational skills and employability skills, so that the students could see that the skills were interrelated and that it would be impossible to develop language skills without developing the other skills and impossible to develop the other skills without having language skills.

The communication and language skills.featured were those most needed in technology: defining terms, asking questions to gather data and to ensure data is clear and adequate, and giving and receiving instructions. The emphasis on feelings (students were expected to identify and use four common expressions each for describing positive, negative, and neutral feelings) was based on the increasing demand in the work place for effective oral and interpersonal skills (Cradock, 1992; Maes, Weldy, and Icenogle, 1997; Waner, 1995).

Netiquette Exercise and Culture Surveys

By culture, we meant a system of beliefs, values, customs, and behaviours that a group of people shares and that causes them to see the world differently from another group. We also meant the "unwritten manual" that members of a group often do not even realize they are living according to but which causes them to feel uneasy and sometimes even hostile when someone else doesn't live by their manual.

We used the term culture in its broad meaning so as to include, for example, the culture of a people with its own language and its own country, the culture of the Interior of British Columbia, the culture of a specific business, and Internet culture. Thus, our Netiquette Exercise, which is based on a handout distributed in an informational technology department in the work place, covers the need to respect confidentiality and privacy, ignore hoaxes, avoid flaming, and be sensitive to cultures that may be more or less formal and more or less direct than yours.

We understood multiculturalism in Canada to mean that all cultures are respected, that individuals define their own cultural identity, and that no individual is required to assume any other cultural identity. The object is to increase the students' and the teacher's awareness of cultural differences and similarities and the effects they can have.

Thus, the outcomes for the second module include being able to recognize the importance of stating personal preferences for an individualistic approach to problem solving, being able to explain four characteristics of an individualistic approach, and being able to describe the problem-solving approach the student prefers.

Students completed a problem-solving survey which consisted of a series of statements requiring them to agree or disagree on a five-point scale. While the statements, for example. "Conflict within a group can lead to better decisions" and "I sometimes have to pretend I understand what someone has said in order not to embarrass them or make them feel bad," are based on research on cultural difference (Bosley, 1993), the survey is meant to be no more "scientific" than self-administered surveys from popular magazines and is intended solely to stimulate self-reflection and discussion. The culture survey applies to the teacher's experience as well as to the students, and there are no right and wrong answers. In this way, the survey avoids a hazard of some activities for teaching culture to ELT students where the activity is "used as a club over the head of the student or as a subtle method of having students give up their 'bad behaviour' and learn how to 'do it right'" (Archer, 1986, p. 176).

Teamwork and the Changing Role of the Student

Most of the activities in the two modules required the students to work in groups of three. The teacher assigned the groups so that each group included at least one student with relatively strong computer skills. We justified teamwork to the students as being critical to their success in their post-secondary studies and in the technical and business work place. The employability skills taught to students were the ability to assess their work team's strengths by identifying the knowledge, skills and attitudes of the team members; assess their work team's effectiveness by recognizing what they are doing well as a team and what they need to improve; compare themselves to others in a balanced, objective way in order to develop an appropriate level of confidence; give and receive effective feedback by stating the positive, the neutral and the negative and by providing sufficient detail; and work together to reach a consensus decision.

The effect of having the students working in groups was to move the students from a "passive-receptive" into an "active-productive" mode and to "shift the responsibility for discovering and creating knowledge from the teacher back to groups and individual learners" (Gajdusek and Gillotte, 1995, p. 51). The students' schedule of activities consisted of a series of tasks with models, notes, questions, examples, and evaluation tables, which served as a "scaffolding" or "stepladder" for the students to use to guide them through the tasks at hand and subsequent activities (Applebee and Langer, 1982; cited in Gajdusek and Gillotte, 1995, p. 49).

The Changing Role of the Teacher

The teacher did not teach front and center; the students received her instructions and her feedback on their work by e-mail. She observed the students at their terminals, intervening only to encourage, recognize achievements, and lead those who had gone astray back to the right path. The emphasis on teamwork had an effect in the classroom similar to the effect it has in the work place: the classroom

became flatter and less hierarchical in structure, and the students less isolated, more interdependent, and more apt to cooperate and take risks.

The teacher's role changed in ways similar to the ways a manager's role changes in a work place that adopts teamwork (Sherriton and Stern, 1997. see pp. 53-60): the teacher was less in control, responsibility was shared between teacher and students, much of the work formerly done by the teacher was delegated to the students, the students were empowered and the teacher ceased to be the center, information sharing increased, the teacher became less distant and autocratic, and the teacher was better able to observe the process and evaluate the results.

At the beginning of each session, each group of students opened a journal message from the teacher responding to the group's last journal entry and giving the group instructions for the next. At the close of each session, the group completed its journal entry for that session. Students were frequently asked to report in their journal on how they were functioning as a group. Thus, by structuring a time-out for reflection on process, the journals formed the foundation for effective teamwork, which is to ensure that "teams are mindful of how things get done as well as what" (Sherriton and Stern, 1997, p. 185).

On-going Record of Students' and Teachers ' Responses to CMC Technology

The weekly journal provided an on-going record of the students' response to CMC and served as a "feedback loop" for the teacher and students on the effectiveness of the CMC modules for learning computers, English, and teamwork. The students always received specific questions to answer in their journals, and we composed the questions weekly based on the current week's outcomes and the last week's journal entries. The teacher's journal entries included detailed feedback on the language and content of the groups' entries.

Student-Teacher Communication in Journals

In their first-session journal entry, one group e-mailed the teacher that they would like to receive and send individual messages as well as group messages. When the teacher responded by announcing that the students would be sending individual messages at the next session, the group e-mailed in their journal entry how excited they were that they had communicated by e-mail with the teacher and that the communication had worked. The teacher noted in her journal entry that she was happy the group had acknowledged her response.

When some groups reported in their journals that they needed more time to finish their work, we, in our weekly CMC development meeting, rescheduled activities to give them more time. One group reported they found it more interesting to receive messages than to send them, and so we planned activities to ensure the group received at least as many messages as they sent. We asked students in their journals if they preferred instructions on computers to paper instructions, and when we received mixed responses, we continued to offer both electronic messages and hardcopy handouts.

When we asked the students how the computer was making it easier to learn English and how it was making it more difficult, some groups reported that they found they made fewer mistakes on the computer than writing by hand, whereas others reported that it was more difficult to find and fix errors on the computer. One group reported that they didn't have enough time on the computer to explain their ideas. As a result, we had the students print some of their messages and expand and revise them by hand.

Similarities Between Electronic and Hardcopy Journals

Thus, the group journals allowed us to respond quickly to meet student needs and to let the students know we were responding. We found that the "electronic" journals served similar functions to the "hardcopy" journals used by other teachers. They allowed students to engage in "real communication directed to a real audience" (Green and Green, 1993, p. 20). According to Kirby and Liner (1988, p. 60), in their journals students "volunteer all kinds of evaluative comments about the English class, and they usually do it in ways [the teacher] can accept and profit from." Furthermore, the teacher's response, when it is to change a class routine, reinforces the students' view of communication as a real activity that produces results. In this way journals allow students "to experience the satisfaction that comes with writing to be read and acknowledged" (Spack and Sadow, 1983, p. 589) and acted upon.

Applebee (1984, 1986) complained that writing in school should not be produced solely for teacher evaluation; writing should have a "genuine communicative purpose such as informing, persuading, or narrating experiences" (Green and Green, 1993, p. 20). Thus, journal writing provides students both with a real audience and an achievable purpose for writing and serves as a "developmental bridge or scaffold" (Gajdusek and Gillotte, 1995, p. 49) to academic and transactional writing (Green & Green, 1993, p. 23; Staton, 1988, p. 198).

Abrams (1987, p. 12) describes journal writing as "interactive writing" that aids learning in a way that is similar to the way children learn language by interacting with others. In the teacher's journal replies, students are able to "read a personalized text" (Staton, 1988, p. 200). Referring to James Britton's work on The Development of Writing Abilities (1975), Hirsch (1988) describes the importance of having students explore what is new to them and relating what is new to what they already know and in this manner to make the subject matter their own. Curry (1996, p. 30) uses journals to teach managerial communication to ESL students and finds journals useful to "explore students' feelings and opinions about writing," in the same way that we used journals to explore the students' feelings and opinions about learning computers, English, and teamwork.

The students' writing, including their journal entries, was generally evaluated solely in the manner in which all work place writing is evaluated: you don't get a mark for it; the only test is whether or not the message achieves results. Only the final piece of writing, which the students printed and edited on paper, was graded. The group journal entries were never graded.

Student Groups ' Responses to Using CMC to Learn English

For their final journal entries, we asked the groups if they would recommend someone take the course with the CMC component or without it. All five groups recommended the course with the CMC component for the following reasons: 1) CMC makes learning English more interesting and exciting and less boring (four groups mentioned this reason); 2) CMC teaches you how to work with partners (one group), and partners help you learn English (two groups); 3) CMC allows you to learn English and computers together (two groups); 4) Computers help you learn English faster and better (two groups); 5) You learn computer skills (two groups) and computers are important and a must to know for the future (two groups).

We video - and audiotaped one group during Sessions 2 and 3 of the first module. At least a third of the comments made in the group were procedural: what to do next and how to do it. Procedural comments ranged from the students reading the outcomes and the schedule of activities aloud to clarifying the task ("We have to compare with Group B. Compare what?") to figuring out how to do CMC ("I don't know what happened. It's [the message] gone. Maybe we can find it."). The rest of the students' comments were concerned with grammar ("But don't put 'will' because it is past tense. 'We have learned how to.. .."') and content ("How about, 'Tell me more about you think it is a necessary skill for you'?").

In the students' chats, which they conducted in groups of three, to brainstorm their criteria for choosing a program of study, the student in charge of the chat and even the other students participating made several comments to keep the group on task, such as "to everybody, what are your criteria", "everybody, give me some other criterion, please" and "Thank you. Robert, I think this is a good criterio[n]. But, how about the cost of the program, time, etc."

Individual Students' Responses

Each person in the group that was videotaped was also interviewed individually.

Their individual responses to learning English through computers were as follows:

> Student A: [I] find computer really interesting. So, better than sitting in the classroom. At least you don't get bored. Time is really fast. Everybody thinks like that. We use [computers] because everybody in the world use the computers. If I want to study, I have to get interested. Most important thing is to get an interesting thing - learn really fast. Everybody uses the computer so you have to learn. Best way [is] to learn English and a computer. You can learn English while learning the computer.

> Student B: [I] like something I can touch like a textbook. Computer makes me feel uncomfortable. You can highlight a textbook, take notes. Computer you need to look at a screen. If you want to take notes or do writing it is impossible. It's my personality. [I] like textbook. They [others

in the class] learn write e-mail but not English. I don't think they use much writing skills in writing e-mail. Mostly just send and receive e-mail and do our schedule. [Recommend] less computer time.

Student C: Everytime you can learn something new about computer. Netiquette not usual in my country. Where I work . . . used some software, programming, never use e-mail. I didn't see clearly what I can learn. Now I can see. You must become familiar with terminology in English. When you write e-mail, you have to use grammar. Maybe some people they didn't realize they are learning but I think so they are learning. I feel more comfortable when I write on computer because I'm used to. You have more facility if you make a mistake. It's a tool for the language. You learn in the standard classroom, and you can apply that on computer.

Teachers' Responses

The team of teachers had their final training session by observing the students in one lab and then conferencing and chatting on their observations of the students, who were sending messages, asking questions, and revising and resending their messages when they were required to clarify their requests in order to get the information they wanted. According to one of the teachers, "Overall, I would say the computers were making it easier for the students to learn English - they get a number of chances to get it right, and they're able to see that the receiver was able, or unable, to understand their message."

One teacher commented on how much pressure there is on everyone in our society, including teachers, to learn the new technology or be left behind, and remarked how. for the students, "the pressure is compounded by the fact that learning new technologies, for the most part, means learning in English. In this way, lack of fluency in English and lack of computer skills become interlocking forces of marginalization." This same teacher also questioned the validity of separating computer skills from English and group work skills, "as if they were not part of one complex experience."

Recommendations for Our Co-pioneers

CMC offers unique techniques for learning and teaching by providing students and teachers with an exciting tool for communicating with each other. E-mail, chat, and conferencing tend to demand, or at least to entice others to, an immediate response and thus promote collaboration. For this reason, CMC is particularly well-suited for learning and teaching language and communication skills and such employability skills as teamwork and interpersonal skills.

Effectively using CMC for collaboration and teamwork needs to be taught: participation by groups and individuals in a valuable exchange of information does not automatically occur because someone posted a topic and told everyone to talk on-line. Furthermore, collaboration, teamwork, communication, interpersonal,

and intercultural skills are required in all fields of study. Therefore, we recommend teachers and curriculum designers, who work in many different subject areas and with students of various levels of linguistic and intercultural competence, structure activities that provide the stimulus and guidance to allow their students to build on their existing skills in these areas and to develop new skills. We also recommend that teachers and curriculum designers use on-line and in-person journals, interviews, and observation to evaluate how effective CMC is in helping students and why.

We recommend teachers collaborate in teams to use CMC in their courses. The teachers themselves can use CMC to communicate with each other and thus will become co-participants with the students in any studys with the technology. The teachers will need to be flexible, to be able to cope with sudden disaster, and to be willing to adopt the sense of confidence and humour that teamwork helps instill.

We recommend that administrators acknowledge the value of using CMC both inside and outside the classroom and allocate the support resources needed to train and build teams of instructors and to provide necessary technical support.

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