Computer-Mediated Communication and School Administrators: A Case Study of a University In-Service Course

Janice Ahola-Sidaway
Margaret MacLean
Jack Treuhaft

Abstract: As computer-mediated communication (CMC) becomes more widely known in educational circles, the socialization of new users and job-related contextual factors will become increasingly important issues. This article reports on a qualitative, exploratory case study that focused on these two issues. The participants were a group of twelve experienced school administrators who were introduced to CMC as part of a non-mandatory. university in-service leadership course. Data were gathered by means of online participant observation, questionnaires, and focus group interviews.

The socialization process of this 'new user" group was found to be very complex. Access to equipment and a local resource person, knowledge of the system, and the incentive/motivation structure emerged as the three most important factors influencing this socialization process, CMC findings that were related to the participants' professional role as school principals were of two types, those related to time implications and those related to actual and potential CMC relevance for the principalship.

Computer-mediated communication (CMC) — that is, typed computer exchanges between individuals (electronic mail) and among individuals (electronic conferencing) -is a relatively new phenomenon in the field of education and, as such, we know very little about its innovative educational applications. There is some limited empirical evidence that specifies the relative merits of CMC as a teaching-learning tool for graduate and undergraduate students (e.g., Mason, 1988; McCreary &Van Duren, 1987). There is also some evidence of its potential for distance education (e.g., Kaye, 1987). Many questions regarding its educational applications, however, still remain to be investigated.

One of the most striking elements of much of the CMC research published to date is the type of research samples that have been examined. Typically, these samples have consisted of groups ofgraduate orundergraduate students who have familiarity with computer technology and/or are interested in computer-related issues before getting involved in CMC activities (e.g., Harasim, 1987; Hiltz, 1986; McCreary & Van Duren, 1987; Siegel, Dubrovsky,

CJEC, VOL. 19, NO. 1, PAGES 53 - 73, ISSN 0710 - 4340

Kiesler, & McGuire, 1986). As a result of this focus on computer literate samples, the research has tended to gloss over the complexity of the issues associated with movingfromnon-user to more experienced CMC user. A second limitation of the research is the tendency to ignore contextual factors which might influence how CMC users, other than university students enrolled in credit courses, participate in CMC activities.

As CMC becomes more widely considered as a potential pedagogical tool for a broader segment of the educational community -whether as an adjunct to regular face-to-face meetings or as part of an integrated or stand-alone educational delivery system for university-based courses, distance education, or in-service education, the socialization of new users will become an increasingly important issue. As CMC expands into other educational settings — especially beyond the confines of credit-based courses- the issue of contextual factors influencing CMC use will also become an increasingly important topic.

FOCUS OF THE STUDY

The present study was intended to identify some of the key issues associated with CMC socialization for a group of new users who were enrolled in a university in-service course for experienced, practising school administrators. More specifically, we were interested in monitoring the socialization process ofmovingfrom non-user to more experienced CMC user, and exploring the implications of CMC for the professional role of the participants.

CONTEXT OF THE STUDY

The Faculty of Education at the University of Ottawa offers an Ontario Ministry of Education course entitled the Principals' Refresher Course (PRC). This is a non-mandatory, in-service course for experienced, practising school administrators. PRC '88-'89 ran from early November, 1988 until mid-May, 1989. Participantsmet once a month (on average) on campus to discussvarious leadership themes presented by invited professors or practitioners. Each of these monthly meetings lasted approximately seven hours.

Twelve school administrators, representing seven school boards in Eastern Ontario, were enrolled in PRC '88-'89. All of the participants were male, with an average age of 45-50. Both as a group and individually, they had contributed many years — anywhere from 6 to 31 years — to administration of education. The average number of years they had served as a principal or vice-principal was 17, with approximately 15 of those years as principal. At the time of the study, eight of the participants were elementary school principals, three were secondary (two high school and one intermediate school) principals, and one was a high school vice-principal.

The CMC component of the course spanned the entire November-May

timeframe. Preliminary training and information sessions were held during the three on-campus meetings in November, December, and mid-January. For approximately 16 weeks, from mid-January to mid-May, participants became users of CMC, and a part of each PRC meeting during that timeframe was devoted to CMC discussion/data gathering activities in the form of descriptive questionnaires and focus group interviews.

Because participants were not told about the CMC study prior to the opening session of PRC and because they would be expected to use their own computer hardware and software, the CMC component of PRC '88-'89 was presented to the group as a non-mandatory, yet important part of the course. Because it was notmandatory, not all were activelyinvolvedin online activities — although all participated in large group training/information sessions and focus group interviews and all completed the questionnaires related to CMC.

The CMC system that was used in this study was "Chimo" -an electronic network specifically designed for use by educators (Wilton, 1988). In January 1989, there were approximately 300 Chimo users; by May 1989, approximately 500 educators were online. The Chimo system permits typed computer exchanges between individual users (mail messages) and conferences in which many individuals can share ideas on topics of common interest. Conferences are designated as "open" (anyone can join) or "closed" (restricted to those who have requested and are granted access).

During the sixteen-week hands-on CMC experience, participants were encouraged to learn and use mail messaging, closed conferencing, and open conferencing. For example, they were encouraged to discuss the relative merits of CMC vis-a-vis other more traditional means of communication, to comment on specific class lectures and readings, to make suggestions and receive information concerning upcoming class activities, and to exchange information on topics of common concern with other educators in Chimo.

METHODOLOGY

The study used a qualitative, naturalistic research approach. In this section of the article we discuss our rationale for adopting this research stance. We also describe the basic design of the study and the specific techniques used to conduct the study.

Rationale for a Qualitative Research Approach

Four compelling reasons underpinned our decision to use a qualitative, naturalistic research design. First, as noted earlier in this article, CMC in education is a relatively new phenomenon; and research on CMC applications in education is understandably in its infancy. To our knowledge, no published research has investigated CMC applications involving practising school administrators enrolled in a university in-service leadership course. It seemed

appropriate, then, to use an "exploratory," descriptive research design — a design where the emphasis is on discovery rather than on testing and refinement (see, for example, Everhart, 1988).

Second, the types of questions that we used to guide our inquiry also pointed to using a naturalistic approach. For example, we were interested in exploring the Chimo experience from th perspective of the PRC participants, what is typically referred to as focusing on "multiple constructed realities" (Lincoln & Guba, 1985). We were also interested in unraveling some of the mysteries associated with the group's transformation from complete non-users of CMC to more experienced users, that is, on the process of their socialization.

Third, we wanted to capitalize on the fact that we, too, were participants in the study. By doing so, we could turn such issues as subjectivity, observer bias, and reactivity into methodological strengths rather than limitations (see, for example, Lincoln & Guba, 1985).

Fourth, we were also sensitive to contextual factors. The group that we were studying was a special sub-group of educators — school administrators — and we believed that it was important to explore their Chimo experience in relation to this fact.

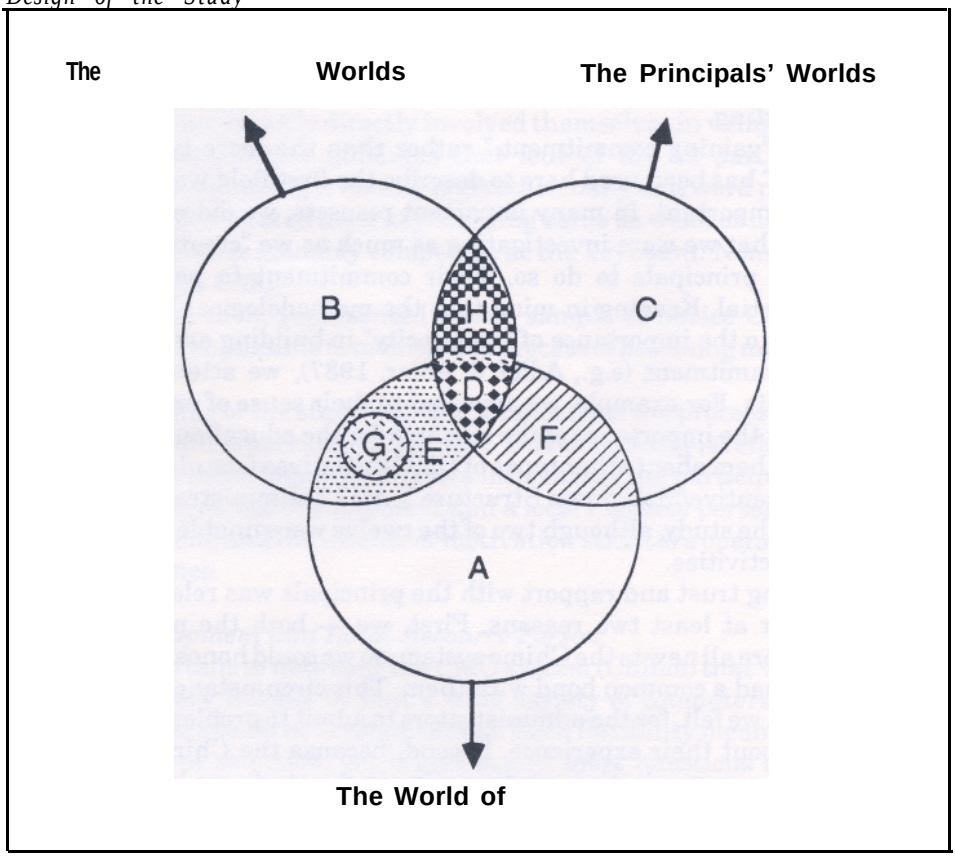
Basic *Design of the Study*

The basic design of the study is best conceptualized using three overlapping circles, as depicted in Figure 1 (see following page).

The three large circles, in their entirety, represent the "world" of Chimo, the "worlds" of the three investigators, and the "worlds" of the 12 participants enrolled in PRC '88-'89. The unshaded areas of these three worlds (labelled A, B, and C) represent domains that were outside the scope of the study. Domain A is that part of Chimo that neither the investigators nor the principals entered (e.g., conferences that were never joined). Domain B includes work responsibilities of the investigators that were not part of this research (e.g., teaching, other research). Domain C represents the collective professional lives of the 12 principals that remained unknown to the investigators.

The overlapping shaded areas across the three worlds (Domains D thru H) depict the research contexts that comprise the study. Domains D thru G represent specific Chimo-world contexts. D represents the Chimo experience that was collectively experienced and directly observable by both the principals and the investigators, that is, the closed PRC conferences, several Chimo open conferences, and mail messages involving at least one PRC participant and one investigator. Domain E represents that part of the Chimo world that was explored by the investigators as participants and observers in the larger Chimo world. These included open conferences and the investigators' mail messages sent between each other or that were sent to or received from outside the PRC group. Domain F represents that part of Chimo that was explored by the individual principals but was not directly observable by the investigators, that is mail messages (which are private exchanges between sender and

Figure 1.
Design of the Study



receiver) between two of the PRC participants or between a PRC participant and another Chimo user. Domain G represents a closed Chimo conference created specifically to allow the three investigators a private online meeting place, Domain H represents the part of the administrators' worlds that were outside of, yet linked to, Chimo that the investigators explored. Data from this domain were limited to questionnaires and focus group interviews.

Specific Methodological Techniques

The research team, consisting of two principal investigators and one research assistant, fulfilled multiple roles within the study, Although we presented ourselves as a research team and all three of us fulfilled a research role, each investigator also served a specific "public" role. One investigator served primarily a co-ordinating role; the other principal investigator primarily fulfilled the public role of "researcher;" and the research assistant served as the local computer consultant, offering assistance on-campus, by telephone,

and online. Our respective public personas were recognizable both online and during face-to-face course sessions. All three of us also participated in and observed, to varying degrees, online activities.

The stages involved in conducting the study included gaining commitment from the administrators, maintaining rapport, data collection, data analysis, and final reporting.

As noted, "gaining commitment," rather than the more typical term of "gaining entry" has been used here to describe the first field work stage. This distinction is important. In many important respects, we did not "enter" the social system that we were investigating as much as we "created" the opportunity for the principals to do so. Their commitment to participate was therefore essential. Keeping in mind that the methodological literature frequently refers to the importance of "reciprocity" in building and maintaining respondent commitment (e.g., Adler & Adler, 1987), we attempted to offer tangible benefits. For example, we appealed to their sense of professionalism by pointing out the importance of the research for the educational community and by telling them about other types of CMC initiatives (see also subsequent discussion "Incentive/Motivation Structure"). All 12 administrators agreed to participate in the study, although two of the twelve were unable to participate in the online activities.

Maintaining trust and rapport with the principals was relatively easy to accomplish, for at least two reasons. First, we — both the principals and ourselves-were all new to the Chimo system, so we could honestly and openly state that we had a common bond with them. This circumstance also made it relatively easy, we felt, for the administrators to admit to problems and to offer candid data about their experience. Second, because the Chimo experience itself rested on communication, participating in the study, we believe, served to enhance rapport within the group.

Data were collected prior to, throughout, and at the conclusion of the study by means of online participant observation, descriptive questionnaires, and audio-taped focus group interviews. As is typical with naturalistic studies, data analysis and interpretation were also ongoing activities throughout the investigation, with the investigators meeting regularly both face-to-face and online via a special Chimo conference and electronic mail. These activities helped us to keep track of the unfolding experience and to shape the investigation according to emerging questions and needs (see also discussion of Figure 1).

FINDINGS AND DISCUSSION

We were interested in monitoring the socialization process of moving from non-user to more experienced CMC user and identifying the contextual factors influencing participants' experiences with and perceptions of CMC. This section of the article discusses our findings related to these two issues.

Socialization Process

Our group was unique in that it consisted of school principals who were not experienced computer users. An initial survey revealed that while all but one had computers in their schools for administrative and instructional purposes, they were not necessarily directly involved themselves in using the machines. The survey results also indicated that four of the 12 participants had a computer at home, using it mainly and occasionally as a word processor. Six of the administrators rated their keyboarding skills as weak or non-existent; six rated themselves reasonably competent at the keyboard. None had had prior experience with CMC.

The group, then, represented a true sample of novice CMC users with whom it would be possible to monitor the process ofbecomingmore expert CMC users.

A key finding of the study was the complexity of the process of moving from non-user to more experienced CMC user. This complexity is reflected in the fact that we found three important factors influencing the participants' use of the Chimo system: access to equipment and a local resource person, knowledge of the CMC system, and the incentive/motivation structure operating during the CMC experience.

Access to Equipment and Local Resource Person

It is important to note that the CMC system (Chimo) that was used in this project was very flexible in that a wide variety of computers, modems, and related software could be accommodated. Such flexibility meant greater choice over equipment selection, yet it also meant more questions about and non-standardized answers to equipment decisions. Added to this were such issues as difficulty in setting up equipment, problems with faulty modems, deciding whether to install a second telephone line, blocking time to use CMC within the constraints of a busy daily schedule, and deciding on the best permanent location of the equipment (at home or at work). These latter two points are highlighted in this comment by Bob:

> "Even though I have it set up in my office, I still have to wait till the secretary's finished and try to sneak her computer away, and by the time I get to it, I'm tired...or come in early in the morning and do it...So it's awkward. Then you have to set it all up and then as soon as it's time for the secretary, get it all back, set it all up [for her]...It's easy to spend two hours on it without much trouble."

As the CMC literature suggests, two of the most compelling reasons for using CMC are time and place independence (e.g., Harasim, 1989). This means that users can login and use the system at any time of the day or night and from any location that provides a connecting telephone line. These very strengths however, pose serious challenges for new CMC users, who are faced with the

difficulty of selecting, acquiring, and setting up equipment and then acquiring the necessary skills and knowledge to use the system independently.

One of the options that the group discussed as a solution to the problems of limited access to equipment was to have a computer at home. However, having a computer at home was not necessarily an easy solution to increasing access to CMC. Bob commented: "I'd rather [have it] at home, but I'd be dragging my computer back and forth each day." The home option also meant no secretarial assistance (useful for typing in particularly long messages). Thus, the home option could further contribute to the awkwardness of using the system. Furthermore, Bill, who opted for the home setup, found that although he was able to schedule access to the machine more easily at home than he might have from his office, he felt quite isolated in the sense that he had no direct access to a computer resource person. As he put it, "I'm 100% on my own."

As implied in the above comment, access to a local computer resource person was also an important factor influencing the group's socialization. Because the participants were not expert computer users, and because they would be setting up and using their equipment at their own locale, we encouraged them, right from the beginning of the project, to link with a computer resource person within their board who would be able to help them choose and set up equipment and use the system. It should be noted, however, that we did not rely on this individual as a key socialization agent; but instead, we incorporated a broad range of socialization strategies involving lectures, group discussions, demonstrations, exercises, personal manuals, and access to experts (see also "Knowledge of the System").

As the CMC experience unfolded, it became clear, however, that the computer resource person within the board could play a pivotal role in diminishing an individual's frustrations by helping set up equipment, demonstrating how to use specific terminal software, and re-explaining how to get online. For those participants who had access to an on-site person, such frustrations were greatly reduced as the following comment by Andy indicated:

> "I just handed it over to my computer resource person because we have him in the school and said, 'Fix it up. I don't have time to screw around. I wanna get in and out of that machine.' He came back a day later and said, 'this is what you've got to do'."

This arrangement was ideal in the sense that not only was the computer person on-site and therefore easily available to Andy, but also, the person was knowledgeable about CMC and prepared to be supportive in helping Andy become a more experienced user.

For many others, however, the local infrastructure was not so well-established. Having a computer resource person on-site was not the norm. A more typical arrangement was limited access to the board computer resource person who made a quick visit to the school to set up equipment. As John

explained, help tended to be restricted to the initial stages:

> "The computer person with the board came in and...set all the hardware up, [then] said 'You've got the manual, congratulations, read it, and away you go'."

These two comments, then, highlight the importance of having easy access to a local resource person who can support the new user as she/he gains more experience in using CMC. This is especially important for the new user who does not have much computer experience. Technical and conceptual support is important to help new users feel comfortable and confident in using the system independently.

Knowledge of the System

The second factor influencing participants' use of CMC was their know1 edge of the system. As relatively inexperienced computer users and new users of CMC in general and Chimo in particular, the group faced a much greater challenge than the current literature on CMC would lead one to believe. The learning process involved understanding and mastering a myriad of unfamiliar tasks and concepts. These included:

- gaining a conceptual understanding of CMC;
- learning how to operate the computer/modem/printer/ communications software program;
- acquiring some basic, but essential, typing skills;
- learning the correct login procedure;
- understanding the different levels of Chimo activity;
- becoming familiar with the Chimo structure of mail, open/closed conferences, and topics;
- mastering Chimo commands to send/receive mail, learn about different conferences, join conferences, read/reply to conference messages, search conferences, find user identifications; and
- learning advanced skills such as edit/upload/download text and word processing programs.

In addition to these specific skills for using the system, participants also had to develop strategies to distinguish among problems associated with hardware, with software set-up, with their ignorance of the system and with the telephone line or host computer. The following comment John highlights some of the frustrations of the learning process for a new user:

> "As a first time user, . . . I found that I wasn't sure whether I was making a mistake . . . I worked on something for approximately 12 hours before I gave Jack a call and said 'what the hell am I doing wrong?'. . .He said 'you've got a problem somewhere out of Toronto...Call your consume;

> rep' . ..[The rep] walked me through the problem...and in about 30 seconds he had the problem solved."

What's more, because they did not have much experience with computers or the Chimo system, participants often had weak trouble-shooting skills. As a result, they found that they were spending considerable time trying to deal with minor problems which a more experienced user could have easily resolved. Frank commented on how his lack of experience limited his ability to resolve problems easily:

> "...a11 the frustration ,...not only the technical stuff, which I know nothing about and don't care to know anything about, but if something goes wrong with the computer, they [computer experts] know which buttons to push, who to call to get it corrected, [and whether] it is correctable on-site."

In order to help participants cope with the complex task of learning and mastering the system, we provided a number of different support structures both online and offline. These included an overview of CMC before the project began; an introduction to Chimo at the initial training session; a limited hands-on session demonstrating correct procedures for logging in; periodic demonstrations for individuals or small groups who were experiencing specific problems; telephone access to the computer consultant for the project; online access to local and Chimo level "experts;" manuals for iNet and Chimo; occasional reviews of essential commands; and regular debriefings to discuss current concerns and to exchange information about technical and conceptual problems. Also, participants sometimes informally assisted each other. During the early hands-on stage, two of them arranged a session together on the same computer. Others sometimes telephoned each other or discussed specific problems informally during on-campus meetings.

Despite the difficulties in learning and mastering the system, participants did manage to get online and explore various aspects of the system. The following section highlights what incentives motivated them to persevere with the CMC experience.

Incentive/Motivation Structure

Incentive/motivation structure was the third factor that emerged from the data as important in terms of influencing the group's participation in the Chimo experience. This factor can be thought of in terms of two types of motivation: intrinsic (rewards related to outcomes mediated within the individual) and extrinsic (rewards provided by other people).

Questionnaire data revealed that intrinsic factors such as stubbornness, curiosity, and the challenge of a new experience were important factors in stimulating participation. In addition, participants were predisposed to learning about CMC. Even before they had any extensive 'hands-on" experience

with CMC, the principals were enthusiastic about getting involved in the project. Among the more popular reasons that they cited for their positive attitudes were the following:

- opportunity to explore the potential of this emerging technology;
- opportunity to improve personal knowledge of computers;
- possibility of interacting with people in the course; and
- exposure to other educators.

There were, however, few formalized extrinsic benefits to warrant time spent online. In other CMC projects, participants were often required to be online in order to receive information or to meet course requirements. In the present study, however, the CMC experience was non-mandatory and formed only a part of the non-credit, in-service course. Thus, no sanctions could be applied to compel people to be online. Instead, we offered ongoing support in several ways. As indicated in the previous section, we provided a number of online and offline support structures to help the participants learn and master the system. Occasionally, the local computer resource person provided critical technical and moral support. In addition, as an initial symbolic incentive, we offered a free car wash to the first person to complete the first technical exercise (this also became an ongoing sharedjoke that seemed to enhance interpersonal relationships). We also encouraged and persuaded participation via online course exercises and messages, suggestions to read specific messages in open conferences, and quick feedback to incoming mail. During face-to-face sessions, we also appealed to their sense of professionalism (see also "Specific Methodological Techniques").

To some extent, too, -both the investigators and the participants themselves — served as "cheerleaders" by acknowledging tiny successes on the system. Online conference exchanges were occasionally humourous, which seemed to simultaneously acknowledge frustrations yet inject a sense of fellowship. The following set of conference exchanges between two participants provides a noteworthy example of this peer support system:

> Message 1: "..I have no idea if you will ever read this [conference] message, which is just as as [sic] well because i stillxD [sic] don't know what the hell I'm doing..."
> Reply by peer: "Yes....your message came through clear as mud...[I'll] look for your next message with great anticipation."
> Message 2 (Titled "Don't worry, be happy!"): "COME IN FRANK ! DO YOU READ ME? TEN FOUR OVER AND OUT OF MY MIND. ##$%"&*()*&A% so there!"
> Reply by same peer: ". . .I think we are on board and have this conference format well in hand"...
> Later comment by same peer: ". . .nice to see that you have mastered this.. . ."

While there were few explicit extrinsic rewards in the project, one of the positive features that was mentioned by participants in debriefing sessions

was the fact that participating in online activities represented no financial cost to the participants. As a result of this no-cost feature, one could suggest that the project represented a low-risk opportunity in terms offinancial considerations for exploring the potential of a new communication medium. Thus, participants were likely motivated to use the Chimo system for the duration of the project in part because it would not cost them anything in terms of their own school or board budget.

It is indeed noteworthy, then, that despite the challenge of access, the complex learning process associated with CMC mastery, and the relative absence of explicit extrinsic motivating factors, most participants devoted many out-of-class hours to the project, and, by the end of the project, all but one of the ten online participants had mastered the basic elements of CMC. At the same time, it is also important to note that, by the end of the study, only four had judged themselves capable of using (sometimes with outside help) the more sophisticated aspects of the system that seem to us necessary for meaningful online problem-solving interactions (e.g., uploading and downloading text to and from the system). What's more, only one of those four had reached the stage where he was able to easily download and upload information to and from his computer disk and the system.

Key Contextual Factors

Our second set of findings relate to the contextual factors influencing the participants' experience with and perception of CMC. Because the 12 participants of the Chimo study represented a special sub-group of educators — school administrators — we were interested in exploring with them their experience with and perceptions of CMC in relation to their position as school principal (as noted earlier, eleven of the twelve were practising principals and one was a vice- principal). Our findings can be grouped into two broad categories: time implications and the issue of relevance.

Time Implications

In a recent thoughtpiece on the role of the principal, Fullan (1988) made the point that today's principal faces the problem of demand overload. Citing a recent study involving 137 principals and vice-principals in the Toronto Board of Education, he noted, for example, that in the last five years

> time demands . . . were listed [by the respondents] as having increased in dealing with parent and community groups...trustee requests... administration activities . . . staff involvement and student services...social services . ..[and] Board initiatives. (Fullan, 1988, pp. l-2).

It is understandable, then, that the participants of the present study viewed CMC in terms of its real and potential impact on their time.

As already noted in this paper, moving from new-user to more experienced user of CMC was a challenging, complex process. The administrators also found the process very time consuming, as a re-reading of several already cited comments would reveal. Finding time at school to use CMC was also a challenge, for several reasons. Time online meant "shutting down office time" because a telephone line reduced or, in the case of some elementary schools, temporarily severed all telephone access. When equipment was shared it could also mean added set-up time and/or interfering with a secretaj's routine. When they did attempt a login, they sometimes experienced frustrating and time-consuming system problems, beyond their control, that bumped them offline. Once logged in, they were also sensitive to how they used their time. In their view, using the system for more social, as opposed to purely professional exchanges, was wasteful, as suggested by this comment by Joe:

> "My time is budgeted.. .I don't have time to CHAT. I have time to share information and hopefully to obtain information."

They also pointed out the potentially heavy time commitment and low personal payoff for a peer willing to share a good idea, as suggested here by Bob's comment:

> "...I could see another cost — the cost [to] the person who has something good that everybody wants to hear about . . . a really interesting project...So where does he get the time to answer? I know he can put it on a bulletin board, but he's got to upload a lot of stuff. I'm wondering, where does he get the inclination? . ..Why should he invest all that time to pump out that information..."

Finding time to use CMC at school may also be complicated by the fact that principals do much of their work outside their office. In a recent well known study by Morris, Crowson, Porter-Gehrie, and Hurwitz (1984) both elementary and secondary principals were found to spend less than half of their workday in their inner office. In the present study, Andy made the same point this way:

> "[Your staff] want to see you in your school. They want to see you visible. They want to see you walking in and out of classrooms and knowing what's happenedin terms ofinstruction and where the school is going...1 read the [school] announcements, and I get into the halls before the bell rings..."

Thus, even under the most ideal school conditions -a separate phone line and a computer-and-modem within arms' reach -finding time to log in could still prove problematic.

On the positive side, the administrators also noted a number of ways that CMC could potentially be used to reduce the time constraints associated with

the principalship. After experiencing the electronic mail facility of Chimo, they quickly saw the potential for eliminating frustrating telephone tag, providing of course that others would be hooked into the system. Another advantage to mail, as opposed to conference messages, and, of course, the traditional telephone message, was that it was possible to easily see whether or not a person had read your message. In addition, mail messages could be handled in the same way as phone messages might be handled, by simply "stacking" them (a term used by one of the participants) and then dealing with them at a particular time of day.

Perhaps the most important point they made with regard to using CMC to solve the time dilemma facing principals has to do with its perceived relevance to the job, as highlighted here at two different times by Phil:

> 'Create a need. . ..somehow provide to administrators a service, information, [something] that is going to have value to them to the extent that they are willing to sacrifice of their current time, whatever the cost..." [Later he adds]: "I'd [use it then] because I'd become more knowledgeable. [with] more information [I] could make decisions quicker, put things together faster. In fact, you'd have more time!"

We turn now to this issue of relevance, the second and final contextual factor influencing the principals' experiences with and perceptions of CMC.

CMC Relevance to the Principalship

A second key contextual theme emerging from the data was the extent to which CMC was or could be a relevant tool for principals. As already noted, CMC could be both time consuming and time saving, a particularly relevant issue for an already busy administrator. Also, as suggested above, CMC's relevance to principals hinged on its utility as an information-gathering and decision-making aid. This latter point warrants additional clarification.

The administrators' insights on CMC relevance can be grouped into three sub-themes: their experiences with Chimo open conferences, their role as principal, and the potential value of CMC for the principalship.

Regarding their experiences with Chimo open conferences, it should be first recalled that Chimo was designed specifically for and open only to educators and that subscribers increased from 300 to 500 over the course of the present study. One would think that such a system could offer a viable and useful forum for school administrators. For that reason, we encouraged the participants of our study to explore and exploit, if possible, the "open" Chimo conferences.

The administrators expressed several reservations with their open conference experience. First, they felt that many exchanges were of a social and personal nature, and therefore irrelevant to them. They felt strongly that, to be relevant to them, clear expectations should be laid out for all users, and that "it's for business and not for personal communication." What's more, the

system did not easily permit conference participants to bypass irrelevant exchanges prior to first reading.

Second, the open conferences lacked relevance in that there was no guarantee of feedback from a deposited question or comment. We dubbed this tendency the "black hole phenomenon", because of the real possibility that a comment or question would remain forever within the conference yet yield no visible response. Phil explained the problem this way:

> "...it's really a hit and miss situation....If you have a particular interest, you tack it up. . . .hope somebody will take the time to read it, and then hopefully take the time [to respond]. [What's more] you hope they know more than you."

Third, a lack of relevance was also felt in terms of a lack of suitable reference group. True, Chimo was composed of educators. However, there were few principals online, and it appeared from conference comments that much of the information being exchanged was most appropriate for subject area teachers, department heads, or very knowledgeable computer users.

The issue of CMC relevance can also be directly linked to the nature of the principalship itself. Viewed strictly in terms of how the principal spends most of his or her work time, CMC use may well be an inappropriate or, at least, peripheral communication tool. Other research on the principalship suggests that the principal's role revolves around on-site and verbal interactions with a variety of people. Gronn (1982), for example, found that six of the eight studies on the principal's work that he analyzed reported that principals talk from two-thirds to three-fourths of the working day. Similarly, Morris and colleagues (1984) conclude that

> the principal is a talker and listener...a quintessential paradigm of what Marshall McLuhan called the "cool medium" (non-print) communicator, relying almost exclusively on the spoken word in conducting the work of the school (pp. 55-56).

CMC comments from the participants of the present study reflected this bias toward verbal interactions; these included, for example, the medium's lack of "brainstorm effect" of a personal dialogue, the lack of spontaneity, of affective dimensions and of immediate feedback, and a sensitivity to the permanence of conference exchanges. What's more, they seemed to question the appropriateness of using CMC or the computer while on the job. Joe, for example, questioned the behaviour of a colleague in his board who spends, in his view, too much time at the computer terminal, and then he added, 'We're people people. That's the secret to our success as a principal." Bob agreed that there was little scope for CMC or computers in a principal's daily routine. He commented:

> "It's the kind of activity, though, that I don't think that I'm going to do alotofasaprincipal. Like if I'm going to do it, I'm going to do it at home as a sort of hobby. To me, to spend my hours of my day on a computer is ridiculous. I don't thinkit's the right thingforme to be spending time in front of the monitor."

Taking a broader view of CMC and its potential relevance to their job, the participants were, however, cautiously optimistic. In addition to providing useful communication linkages within a board, they identified several potential advantages to a CMC network that reaches beyond the regional level. CMC could be used by a principal to keep in regular contact with a group of youngsters on an extended fieldtrip. Similarly, it could be used as a planning and follow-up tool to enhance the educational value of a student exchange program or as an ongoing exchange medium among students from different parts of the country or world. It could also play a role in the "electronic classrooms" currently being piloted in some boards.

CMC could also be used to help reduce a feelingofisolation that sometimes characterizes the principal's job. John explains:

> "I started off as a vp, then the principalship without a vp. It's the loneliest position....1 felt [with] the conferences...you have somebody to kick ideas off.. . somebody to give you feedback.. . to help you in the area of curriculum implementation....How did you handle this situation?...You could call it the Maytag conference."

It was also pointed out that CMC could also be used as a tool to enhance a principal's instructional leadership. Joe, for example, explains the networking potential for himself and his staff:

> "So as a principal, I would try to say, could I use that for department heads . . . where they could come in andmonitor conferences, where you could use that as away of getting your staffinvolvedin communicating and opening doors between them and people elsewhere...you get an overview yourself. There may be some particular things that you might want to plug into."

Also, it was noted that many senior positions in school boards and at the Ministry level require incumbents to wear many hats, to be generalists. CMC, it was pointed out, could potentially provide principals access to experts, many of whom may be buried deep within the educational bureaucracy. Frank explained:

> "Networking...1 think that's its strengths. If we were all hooked up and I pick up on something like 'articulation'...Very quickly I can get online to X and say 'look can you tell me something about articulation' and bingo it's right there...1 can see potential for principals who operate from research rather than intuition."

Principals are also often called upon to sit on committees to help solve board-wide concerns. CMC could potentially serve as a problem solving tool for such committees, as this comment suggests:

> "Say we get seconded to a committee for other kinds of topics. And the problem with that...advisory committee that you get put on, [is that] it's only as good as the sum total of the people present in that room. And so you gooffandyoumake some kindofdecision, andit'sreallyarotten decision, because the sum total is rotten...I think you view this so often within our own geographical area; we constantly reinvent the wheel, And we just basically line up; we have the same kind of successes and the same kind of failures as other people have already had. Wouldn't it be nice to just short circuit that loss of time."

It is also noteworthy that, despite the brevity of the Chimo project and their very limited CMC skills, several participants initiated several CMC activities within their schools. By the time the study had ended, one principal had already completed a Chimo hookup which had helped him keep in touch with students throughout their five-week field trip, and he was already involved with similar plans to have another group of students keep in touch with the school during a student exchange project. Another had begun downloading conference exchanges and casually passing them along to appropriate department heads for their reactions; and he reported that several staff members responded very favorably to the notion of computer conferencing among peers. He was also preparing a brief to his superintendent about the possibility of using CMC within his board. Another principal had demonstrated Chimo at a meeting of his peers and during a class period involving gifted youngsters. Another was petitioning his board for telecommunications costs on behalf of one of his teachers who hoped to use Chimo for classroom exchanges and guidance counselor conferencing.

In sum, then, the administrators identified both positive and negative aspects of CMC as a real and potential tool for the school administrator. Time and relevance emerged as the two key factors affecting its real and potential use. On the whole, it is fair to say that they found CMC to be in its infancy stages in terms of its current practical applications for school administrators. It is also fair to say that CMC did not, could not, and should not, play a central communication role within the principalship. At the same time, they were cautiously optimistic about its potentials as a planning tool, an instructional strategy, a peer networking system, a professional development tool, a human resource database, and a problem-solving tool for special committees.

SUMMARY AND CONCLUSIONS

As CMC becomes more widely known as a potential communication tool in educational circles, new user socialization and job-related contextual factors

will become increasingly important issues. The present study has focused on both of these issues by examining the experiences of one "new user" group — experienced school administrators who were enrolled in a non-mandatory, university in-service leadership course.

Our findings that are related to new user socialization, that is, the process of moving from non-user to more experienced user of CMC!, suggest that the process is very complex for new or relatively inexperienced computer users. Three major factors were found to influence the participants' socialization. The first factor was related to "access," that is, access to equipment (including issues related to selection, set-up, location, and operation of local equipment) and easy access to a local computer resource person who is both knowledgeable about CMC and supportive.

The second factor influencing their socialization was the overall complexity of the CMC learning process, which required the new users to confront a myriad of questions, conceptual hurdles, and technical challenges. Acquiring CMC competence was more than learning a few basic skills. For the inexperienced computer user, it involved learning to ask the right questions; locating the general source of a problem; solving minor, yet essential, problems; and acquiring a relatively sophisticated set of CMC skills.

The third factor influencing socialization was the incentive/motivation structure operating during the CMC experience. The participants were intrinsically motivated to explore CMC by the desire to enhance their personal and professional lives. Except for the fact that their online time was cost-free, there were in fact few formalized extrinsic benefits to using CMC. Because of the non-mandatory, in-service nature of the course, and because participation in the CMC experience was voluntary, sanctions could not be applied to compel participants to be online. Extrinsic motivators took the form of encouragement, persuasion, and training-support offered by the investigators and, to some extent, by local computer resource persons and the participants themselves.

Access, system knowledge, and the incentive/motivation structure were interactive in that they limited and enhanced the participants' involvement throughout the CMC experience.

Our second set of findings are related to the contextual factors associated with the participants' role as school principal. Two salient, inter-related themes were identified: time implications in using CMC and the relevance of CMC for the principalship.

Time implications of learning and using CMC skills were viewed as both positive and negative. On the negative side, the time commitment required to learn and then productively use the system was a definite drawback for participants, who already faced heavy time demands on the job. Actively participating online could represent a high-cost, low-yield use of time by the contributor. What's more, findingtime for CMC seemed complicated by the fact that the principal's job is often enacted outside the inner office and in a variety of school settings. On the positive side, the participants identified mail

messaging as a means of eliminating time-consuming telephone tag.

The second contextual finding concerns the issue of CMC relevance to the principalship. In addition to time relevance, CMC's real and potential relevance rested on its utility as an information-gathering and decision-making aid. Although the CMC system that was used in the study permitted mail and open conference exchanges with several hundred other educators, the participants of the study found that open conference exchanges were often more personal than professional, that feedback from messages deposited into open conferences could not be guaranteed, and that a relevant reference group (other school administrators) did not exist. Comments made by the participants also suggest that CMC may not be particularly suited to the principalship because principals rely heavily on verbal communication in the running of their schools. At the same time, the participants identified several potential uses of CMC that may one day enhance the principal's role. These included using it as a planningtool, an instructional strategy, a peer networking system, a professional development tool, a human resource database, and a problem-solving tool for principals seconded to special committees.

Further research is warranted to identify to what extent these uses of CMC are typical for other school administrators. Additional research is also needed to examine what role CMC can play in school administration. Do principals see it as an appropriate administrative and/or teaching tool for themselves, their staffs, their students? What other job-related contextual factors influence participation in CMC activities? What conditions at the board and school level enhance and/or restrict the involvement of school administrators in CMC? Whether or not CMC will one day become a useful tool for school administrators rests in parton the perceived value placed on CMC by their superiors, their staffs, and themselves. It would appear, from our research, that, given the right conditions, CMC could serve well in a supportive but not central role for principals. However, further research is needed in order to determine whether or not CMC becomes an enduring and useful communication tool for school administrators.

Additional research is also warranted to investigate how other groups of educators participate in CMC activities. Do similar socialization patterns emerge as new users gain more expertise? What other factors facilitate and/or limit involvement? Does CMC have a role in professional development? How does a text-based environment influence learning strategies? Whether or not CMC will one day become a viable communication tool for a broad segment of the educational community rests in part on sound professional development strategies that consider and anticipate the needs and concerns of inexperienced computer and CMC users. Further research is needed to explore how CMC can be effectively incorporated into ongoing professional development initiatives for educators.

REFERENCES

Adler, P.A. & Adler, P. (1987). *Membership roles in field research*. Newbury Park, CA: Sage.

Everhart, R.B. (1988). Fieldwork methodology in educational administration. In N. J. Boyan, (Ed.) *Handbook of research on educational administration.* New York, NY: Long-man.

Fullan, M.G. (1988). *What's worth fighting for in the principalship?* Toronto, ON: Ontario Public School Teachers' Federation.

Gronn, P.C. (1982). Neo-Taylorism in educational administration. Educational *Administration Quarterly, 18(4),* 17-35.

Harasim, L. (1987). Teaching and learning online: Issues in computer-mediated graduate courses. *Canadian Journal of Educational Communication,* 16(2), 117-135.

Harasim, L. (1989). Online education as a new domain. Forthcoming in R. Mason, &T. Kaye (Eds.) *Computers, communications and distance education*. Oxford: Pergamon Press.

Hiltz, S. (1986). The "virtual classroom": Using computer-mediated communication for university teaching. *Journal of Communication, 36(2),* 95-104.

Kaye, T. (1987). Introducing computer-mediated communication into a distance education system. *Canadian Journal of Educational Communication, 16(2),* 153-166.

Lincoln, Y., & Guba, E. (1985). *Naturalistic inquiry.* Newbury Park, CA: Sage.

Mason, R. (1988). Computer conferencing: A contribution to self-directed learning. *British Journal of Educational Technology,* 19(l), 28-41.

McCreary, E., & Van Duren, J. (1987). Educational applications of computer conferences. *Canadian Journal of Educational Communication,* 16(2), 107-115.

Morris, V.C., Crowson, R.L., Porter-Gehrie, C., & Hurwitz, Jr.,E. (1984). *Principals in Action: The reality of managing schools.* Toronto, ON: Charles E. Merrill.

Siegel, J., Dubrovsky, V., Kiesler, S., & McGuire, T. (1986). Group processes in computer-mediated communication. *Organizational Behavior and Human Decision Processes, 37(2),* 157-187.

Wilton, J. (1988). CHIMO: The new kid on the block. *ECOO Output,* 9(4), 23-25.

AUTHORS

Janice Ahola-Sidaway is an Assistant Professor in the Faculty of Education at the University of Ottawa, 145 Jean Jacques Lussier, Priv., Ottawa, ON KIN 6N5

Margaret MacLean is an Association Professor in the Faculty of Education, University of Ottawa.

Jack Treuhaft is a PhD Candidate in Education at the University of Ottawa.

ACKNOWLEDGEMENT This research was jointly funded by the University of Ottawa's Teaching Resource Service, the Teleducation/Continuing Education Department, and the Faculty of Education. A preliminary draft of this paper was presented at XVII Annual Conference of the Canadian Society for Studies in Education (Canadian Association for the Study of Educational Administration), Lava1 University, Ste-Foy, Quebec, June, 1989.