

An Instructor's Guide to Teaching and Learning Online

by

**Dirk Morrison
and
Margareth Peterson**

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Extension Division



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Introduction

So, you have found yourself with the responsibility of moderating an online course—congratulations! In all likelihood, you have not had any such opportunities in your past teaching experience; you may even be a little intimidated by the prospect. Not to fear! We have prepared this manual to help you understand and deal with the unique challenges involved in teaching a course using computer conferencing. First, we clear up some definitions and explore some of the literature that points to computer conferencing as being a valid and valuable choice for teaching and learning. Next, we talk about the "how-tos" of computer conferencing, and address some of the obvious and not-so-obvious issues. Finally, we supply you with a comprehensive bibliography as a resource for further reading in the area.

We should state that using computer-mediated communications technology will present most of the challenges of any traditional teaching and learning context. For example, you will still need to structure course material in a coherent manner, choose pedagogical techniques and instructional strategies that best suit the content, construct valid and fair evaluation tools, etc. However, in addition to these, a computer conferenced course will add a few other instructional challenges. For instance, you may have to re-think your style of teaching and be willing to adopt a new one (e.g., move from a directive to more facilitative style). Or, given the sheer volume of text-based communications you and your students will need to read on a daily basis, you may reconsider the emphasis you place on outside readings. These, and other challenges, point to the fact that one cannot approach teaching and learning in an online environment in exactly the same way one does a face-to-face, classroom-based course.

Before discussing any of these challenges in further detail, we need to answer, "*Exactly what is computer conferencing?*"

Definitions

What is CMC?

“CMC” is an acronym for “computer-mediated communication.” It is a term sometimes used interchangeably with “computer-mediated conferencing,” which just adds to the confusion. Think of CMC as an “umbrella” term, that includes computer conferencing, but also includes rudimentary e-mail, listservs, usergroups, and World Wide Web-based information. CMC would also include connecting with remote computer systems to carry out some particular task (e.g., via Telnet) such as accessing remote electronic databases (e.g., University of Saskatchewan library holdings). For the purposes of this manual, we shall restrict ourselves to a discussion of computer conferencing.

What is Computer Conferencing?

Most of you are likely familiar with some sort of e-mail system. Computer conferencing (CC) is similar to standard e-mail in the sense that it uses an electronic messaging system to facilitate primarily text-based communication between parties separated by time and/or distance; these communications can be synchronous (during the same time) or asynchronous (at different times). CC allows you to communicate to individuals on a one-to-one basis (e.g., instructor-to-student) or to communicate to groups of people simultaneously (e.g., instructor-to-class). More importantly, CC allows course participants, whether grouped or individual, to communicate with each other independent of time and place restrictions.

While the fundamental similarities between e-mail and CC systems are quite clear, there are more subtle differences that are worth mentioning. In a CC system, the software allows course designers, instructors, and participants to easily manipulate various aspects of the messaging. For example, if you deem it necessary for two or three people to form a group, and to have clusters of such groups interacting, it is quite easy, in a contemporary CC system, to set up electronic "spaces" in which students can "meet" and complete the work assigned. If you wish to isolate discussion of a specific issue from more general conversations, it is easy to set up a separate conference space for that discussion. Most e-mail systems do not easily allow such organizing and management of the incoming messages. The CC system may also have other features which may be

useful to the management and general "useability" of the electronic learning environment (e.g., *First Class*™ allows easy following of the "threads" of a conversation, even though they may not have occurring in exact sequence). Whatever computer conferencing system is used, the emphasis must be on elegance and ease of use when it comes to structuring and maintaining the electronic learning environment.

We need now to turn to the question: "*Why use CC in your teaching?*"

Why Use Computer Conferencing?

Introduction

The field of education, especially distance education, has, historically, been particularly willing to adopt new communications technologies to the challenges of teaching and learning, in a wide variety of contexts. For example, it did not take long, relatively speaking, for television to be adopted as a medium for the delivery of educational programs. The invention of the computer, and more specifically, the *personal* or microcomputer (i.e., PC), soon had educators thinking about ways in which one could use this powerful technology for educational purposes. While early attempts were rather dismal (more like electronic books), the advent of inter-networked computer communications technology really generated a giant leap forward in terms of now being able to use the computer to allow students to communicate with, and learn from, one another.

Following is a brief discussion of some of the reasons why one might want to use computer conferencing, per se, for teaching and learning.

A Versatile Technology

Computer Conferencing and Distance Education

One of the persistent criticisms of distance education has been that it often does not include any opportunity for student-to-instructor interaction. Equally neglected is peer-to-peer interaction, an extremely valuable part of the learning process. For students learning at a distance, the use of computer conferencing is particularly exciting because it creates opportunities for interaction among students who would normally not easily be in communication with one another. Through computer conferencing, distance education students can become a part of an active learning community. They can dialogue with each other at any time of the day, from the comfort of their own home, and directly profit from the benefits that such

dialogue contributes to their learning experience. Within such a setting, a sense of community can be fostered, promoting important affective ties, thereby meeting learner needs beyond the cognitive domain.

Computer Conferencing and On-Campus Education

In addition to being a powerful medium for distance education, computer conferencing is also a valuable adjunct to traditional classroom teaching. For example, using computer conferencing, you can extend the discussion beyond time and place boundaries of the regular classroom. Furthermore, Harasim (1995, 1989) and Kaye (1989) claim that computer conferencing is a powerful and effective tool in the support of collaborative learning and group projects, both of which are often viable and important pedagogical methods for classroom-based learning.

Regardless of whether CC is used in a distance education context or as an adjunct to a face-to-face class, it should be pointed out that supplementary media will likely be used. For example, most CC courses will have a print component, say, a collection of readings and guidelines for participation. While it is *possible* to use computer conferencing as the *exclusive* mode of delivery, we would agree with Berge (1995) who claims that the strengths of CC are often not so compelling if CC is relied upon as the sole delivery method of instruction.

Instructional Methods and Strategies

Computer conferencing is a versatile technology in the sense that many instructional strategies and methods are available. For instance, you might use CC in conjunction with print-based readings, videotapes, audioconferences, and face-to-face meetings. Within the computer conference itself, good software will allow you to construct many unique learning "spaces." For instance, you may have conference areas where students can "socialize," that is, they can send messages to each other in the context of a social space. You could have spaces where students find answers to frequently asked questions (FAQs), spaces where they can get help regarding the online experience. Finally, you can have many different pedagogical spaces, namely, conferences and sub-conferences wherein participants actually do their online work. Within these pedagogical spaces all sort of activities can take place. For instance, you might have a group of students working on a collective and/or shared document. You might have participants discuss particular topics in an open forum or within the confines of smaller groups. Online students can prepare reports, to be discussed and evaluated by fellow class members. In addition to these, Henri (1988) states that many other educational applications of CMC can be imagined, such as: a) replying to queries and requests from students, b) providing advice

and guidance, c) helping students to solve problems with regard to the subject matter, d) serving as a transmission medium for homework and test papers, e) discussing projects and work with the tutor, f) bringing students together in accordance with their interests and their needs, and g) encouraging team projects and setting up self-help groups. The point is that a wide variety of learning activities can be conducted online, more than one might at first realize. In fact, with a little bit of imagination, many of the activities in an active learning classroom may be adapted to CC.

An Interactive Technology

The importance of the opportunity to facilitate interaction among learners, in a context that does not impose time and/or space constraints, cannot be overstated. Nalley (1994) claims that students who have easy access to their instructors and to each other will also have access to continued opportunities for intellectual growth. Nalley goes on to state, and we would concur, that it is precisely the opportunity to gather with other students, to discuss, and to construct meaning from their experiences that leads to the creation of what we would call a "community of scholars"; this interaction may be as important as class attendance itself!

In a CC-based course discussion, there seems to be a higher level of equity of participation. In other words, unlike the face-to-face classroom situation, more "vocal" students do not get to dominate the discussion; also, the more reflective, perhaps shy or quiet students have the time needed for reflection before responding and benefit from the relative anonymity of the CC class. This is not to say that verbosity cannot still be a problem—certain students will still feel it necessary to post their entire thesis on what's wrong with the world in one, long message! The wise CC facilitator will, therefore, set out guidelines regarding posting frequency, message length, etc. to ensure a fair and equitable "playing field" for all involved.

An interactive learning environment such as CC can lead to a better comprehension of content. As Riedle (1989) claims, "...the *instructor* can participate with the student in the interchanges, gaining valuable insight into the students' comprehension of the course content and provide further guidance, stimulations, or correction as needed. The distance education class becomes a much richer environment for the student as a result. The students can actually come to feel a part of a group learning effort."

Following are some CC-based instructional methods and characteristics of the medium that we feel emphasize opportunities for increased interaction.

Open-Forum Discussions

Open-forum class discussions give students the opportunity to exchange ideas and to discuss their own experiences, as they relate to the content, within the context of the whole online class. With other class members, individuals clarify their understanding of course content as they exchange interpretations of course materials, earlier messages, instructor postings, etc. As mentioned, class discussions also help instructors understand how well students have understood course material and help to identify where they are having difficulties. Importantly, students at a distance can add "discussion with other learners" to their repertoire of strategies for learning course content.

Collaborative/Co-operative Learning Groups

Harasim (1995, 1989) stresses the value of computer conferencing to support collaborative learning and group projects. The opportunity to engage in collaborative and/or cooperative projects is greatly enhanced for both distance learners and campus-based learners, partially because computer conferencing is time and place independent; learners can work on-line when it is most convenient *for them* and do not need to spend precious time scheduling and travelling to face-to-face meetings. Also, because the "space" in which group work is to be conducted is always available, participants have a sense of continuity and the collaborative project is not so "piece-meal" as it might be if people were required to get together for face-to-face meetings. Finally, certain CC tools (e.g., being able to create an "interactive document") allow participants to conduct group work in entirely novel ways.

Knowledge Building

The construction of complex knowledge almost always takes place within a social milieu. Harasim (1990) argues that computer conferencing facilitates the building of knowledge through the generation, linking, and structuring of ideas within the context of an online community of learners. Teles (1993) suggests that the social learning activity can occur in the form of "coaching or help offered by people who know the target skill (masters or experts) or are in the process of learning (peers)." (p. 272-73). While Teles's approach to on-line knowledge building is a *cognitive apprenticeship* approach, where content is mastered through the mentorship of an expert, peer critique, advice, and encouragement, most applications of computer conferencing take advantage of the asynchronicity of the communication, giving learners time to research and reflect before responding to issues raised by the instructor or peers. The previously mentioned emphasis on CC as an environment which can facilitate collaborative learning points to opportunities for collective knowledge-building activities among a "community of learners."

Access to Instructor

While interaction between peers has been emphasized as a primary strength of CC, equally important is learner opportunity to interact with their instructor in meaningful ways. Distance education students especially benefit from increased access to their instructor, as often their only connection in traditional distance education courses is by means of written correspondence or infrequent telephone calls. Interestingly, despite greater opportunities for access to instructors than their distance counterparts, on-campus students also appreciate the way in which computer conferencing facilitates instructor contact; in our own research (Cram & Peterson, 1996), on-campus students indicated that they were more comfortable contacting their instructor by computer conferencing than by telephone or in person because the on-line contact seemed less intrusive.

Regardless of instructional setting, access to the instructor, facilitated by the characteristics of computer conferencing, translates into more opportunities for students to *interact* with their instructors. This may span the range from asking basic administrative questions to in-depth dialogue around a pertinent, perhaps controversial, piece of content. You should be prepared for more, rather than less, interaction with your students; if this is disconcerting, the upside is you can respond at a time that is convenient to your time schedule. Be aware, however, that student expectations for timely responses to queries is increased; as in your personal work, you cannot claim "I didn't get your message." You are always "in" your office.

First Things First—You

Before we move on to a discussion focussed on how to design an online course, it is important to spend a bit of time looking at the roles and responsibilities of the online instructor. As in the face-to-face setting, the quality of learning will be strongly influenced by the goals and values of the instructor, even when great pains have been taken to optimize the overall course design.

Your views on teaching and learning...

No matter how hard we try, we cannot separate our philosophical views concerning teaching and learning from our tendencies of practice. As an instructor, you will invariably harbour certain beliefs, values, and goals as central to what you think teaching and learning is all about. For example, your beliefs about what the purposes of education are, will, in all likelihood, influence your propensity to

choose certain instructional strategies over others (e.g., using formal essays rather than reflective narrative to evaluate student learning). Personal biases regarding teaching and learning are *inevitable*, are part of being human and, therefore, cannot be avoided; your beliefs, values and biases must, however, be made conscious and, ideally, articulated if you are to understand why you make the pedagogical decisions you do. It is important that you understand, and make clear to your students, your views on what you think is important, who is responsible for what, standards of performance, etc.

If you haven't done so already, take some time now to articulate your views on teaching and learning. Be as honest as possible, being careful not to respond as you think you *ought* to but rather as you really feel. The following questions may provide some guidance.

What do you believe the role of education is today? How do you think it has changed in the last ten years? How do you think it will change in the next ten years?

What is the role of the educator, teacher, trainer, facilitator, moderator, etc. in the teaching and learning context? What role description would you give yourself for this course?

Where does your particular course fit in, overall, in the education of your participants? Why do students need to take your course? What is the value of your course?

What responsibilities do you have to your students? What responsibilities do they have toward each other and toward you?

How should students be tested regarding their learning? What methods do you think work best, especially given particular course content?

Do you think teaching online will be qualitatively different from teaching in the face-to-face classroom? If so, how?

Another View

It would be unfair to ask you, the instructor, to articulate your views on teaching and learning without at least some input from we, the authors. What follows is a discussion of only one topic, namely the role of the instructor as moderator, that identifies not only what we believe that role is all about but also operationalizes, in part, what we think of as "best practices" using CC technology for teaching and learning.

Note: some of the discussion that follows has been adapted, with permission, from a handbook for online instructors published by Massey University, 1995.

Online Course Instructor as Moderator

For some, the very idea of the course instructor being charged with the role of “moderator” is antithetical to what they believe teaching at a university is all about; they would see the university instructor as a figure of knowledge-authority and teaching would be operationalized, exclusively, by the lecture method. Teaching a course online is, indeed, qualitatively quite different from most face-to-face, classroom-based experiences. For example, in CC courses, the focus is on discussion and group work, *not* on the instructor. In fact, to be most helpful as a facilitator of learning, within a context of dialogue, the CC instructor needs to develop the skills of an effective moderator. The role, then, is to maintain content focus, encourage lively discussion, and maintain group cohesiveness. In other words, the moderator’s role is crucial to the smooth-running of the conference and will directly effect the quality of learning experienced by the participants.

Romiszowski and de Haas, (1989, p.?) describe the various responsibilities a conference moderator might have:

“To assure input of the participants, an active group leadership is necessary. This leader or moderator must be the host, setting a congenial, non-threatening climate, thanking people for their contributions, and stimulating them to react (again). But next to this he or she has to be a “chairperson”: summarize the discussion, ask for clarifications, create unity, and watch the theme from drifting off track. And last but not least, the leader has to maintain the bunch of participants as a group. Group maintenance includes such duties as mediating differences that become obstructive and making comments pertaining to the group’s progress.”

Davie (1989) describes the moderator’s role in terms of task-oriented activities, and group-building and maintenance activities. We would add a third, namely, a “coaching” role. Following is a brief description of these activities. Please remember that each course will have its own mix and relative emphases of these activities.

Task-Oriented Activities

These tasks act to facilitate and coordinate group effort—helping the group to select and define common problems, then find a solution to those problems. Specific strategies include:

Setting direction and pace of discussion.

The moderator works to ensure the discussion topics coincide with course topics. You might take on the role of a “chairperson,” formally opening and closing items of discussion. You might also use leading questions as a means for setting and maintaining discussion direction.

Keeping to the theme and focussing efforts.

A key role for the course moderator is to provide a focus for discussion. It is especially easy to drift away from the main theme up for discussion if your online group is very active; new topics or tangents may be introduced which stimulate contributions but are of little direct relevance. There is little benefit to students for a discussion to wander aimlessly and so they need a key person to provide focus/refocussing whenever the discussion gets off track. You may also focus student effort by providing timely and pertinent feedback to students, for example, suggesting they take a deeper look into a particular topics under discussion.

There is a bit of a dilemma here, however. As moderator, you need to be careful and cognizant of the possibility that you may, by your manipulations, stifle discussion that is tangential to the main topic but may be nonetheless fruitful. The challenge is to maintain a balance between too much and too little control over the flow and development of discussion. A handy solution is to move what appear to be distracting side-topics into separate (and optional) discussion spaces; these do not, then, interfere with the main discussion but you are not shutting down all discussion on those topics.

Summarize frequently.

A useful function for the moderator is to provide frequent summaries of the ongoing discussion. Especially in an active discussion, many different issues and viewpoints will get raised and students may not be able to keep track of all key ideas. Also, the sheer volume of messages generated in an active conference can be overwhelming to deal with. Moderators can help by providing summaries of what has been said, outlining the main points and drawing main discussion themes together.

Often the conferencing software will automate the capturing of conversational “threads” but you will still have to make decisions about what is pertinent, poignant, and powerful enough to make it into your summary. This might lead to problems regarding the perceived “favouring” of particularly active and/or high quality contributors. It is important, therefore, to follow Davies’ (1989) advice to “weave” the comments together, drawing in themes, particular notes, and your own commentaries, notes, and additional references.

Being a “Coach”

Another way to think about the moderator’s role is to think of it as a type of “coaching” role. You are pushing students, sometimes explicitly, to explore issues and provide their own answers to the questions arising from the course content. Rather than doing all the work for them and supplying all the answers, the moderator-

as-coach encourages meaningful discussion among students—which means making them feel comfortable and relaxed enough to participate. To do this, the moderator operates from the sidelines—prompting students, encouraging them, and “shepherding” them to stay on track.

The point is that the moderator-as-coach is different from a traditional teaching role where the teacher is “centre stage.” While having authority, the online moderator avoids adopting the authority figure role (McMann, 1994). This is important to make clear to students because many may not be sufficiently confident about their own views and interpretations to put them online for scrutiny from a perceived authority figure—having anxieties that their comments might not appear sufficiently scholarly or sophisticated. This problem is avoided by the moderator acting as a non-judgmental facilitator or “coach,” and adopting a policy that all (non-disruptive) comments from the class are welcome. Just as in face-to-face contexts, the “coaching” role is active, not passive and will require a vigilant involvement with the “goings on” of the course.

“The facilitator needs to pay careful attention to....reinforcing early attempts to communicate. In the first few weeks I made sure that my notes in the conference specifically reference prior student notes. I send many individual messages to students commenting on their contribution, suggesting links to other students, suggesting resources, and generally reaching out to students. The coaching function is key to easing the students’ transition to computer-mediated communication.” (Davie, 1989)

Getting the class to work for themselves rather than for you.

Instead of simply answering every question and thereby controlling the conference, the online moderator takes a different tack—encourage class members to work and think for themselves. For instance, you may choose to direct some questions back to the class as a means to encourage others to make comments, observations, and interpretations. Your job is to get the class thinking, explore the course content, help each other, and answer each others’ questions. This ultimately means you need to let go of any desire to control the class or be perceived as the source of all knowledge and authority regarding course content. Rather, your role is to ensure an environment in which students can learn for themselves, can push themselves to their current limits, and beyond. This can only happen if you have the appropriate attitude *and* you design the course to make these things happen.

Group-Building and Maintenance Activities

One of the most important tasks the online moderator has is that of developing and maintaining the group function. After all, that is one of the main points of using this technology in the first place. Your interventions (or lack thereof) will influence the way the online group works. You will need to strengthen, regulate, and perpetuate the group to function in a way conducive to a healthy and productive online learning environment. Following are a number of things you can do to help make this happen.

Setting the learning climate.

As the discussion “conveyor,” the conference “host,” etc., the moderator sets the climate for group. Initially, the aim is to make students feel at ease with using the technology and enable them to participate effectively. Once everyone is “fairly comfortable with the technology, the conference climate should be supportive and conducive to ongoing discussion. You can help to ensure this climate by clearly communicating the aims of the particular discussion (e.g., a “free-for-all,” to a formal response from one group to another). It is also critical that you make clear any conference standards and protocols which students should know about. For example, you may want them to specifically address the message to which they are responding, refrain from aggressive language, or keep their messages to a specified length.

Providing guidance and leadership.

The moderator provides a group leadership role, giving guidance and direction where and when needed. He or she also sets an appropriate model for other students to follow, in the tone and outline of their messages. Following is one author’s description of his role in modeling online behaviour:

“In addition to attempts to make students welcome, I make sure that I model expected behaviour in the main conference. I make my contributions short (one or two screens), I try to avoid fancy formatting of my responses....I try to ease the publishing anxiety by providing direct feedback to other contributors, ignoring questions of grammar, spelling, or format.” (Davie, 1989)

Coordinating activities.

Sometimes students need to be provided assistance to make sure they are on track and have a good grasp of course concepts. Also, especially with group work, there may be occasional need to coordinate students’ activities (e.g., suggest timelines/schedules for group task completion).

Getting the appropriate level of participation.

Getting students to participate is a big part of the moderator's role because without participation there is no discussion; without discussion, there is no conference. Moderators may prompt and encourage students to participate by posting leading questions into the discussion group, or by working behind the scenes to get students to air their thoughts (i.e., send private email messages to individuals, prompting them to respond or pose a question to the group). Nalley, 1989 states, "In a CMC discussion it is possible to prompt a student to comment without the larger group being aware of the personal exchange. After a prompt or two, most students will respond. Having done so, the student can be easily drawn into the discussion." Finally, once students are participating, it is important that you provide them with positive feedback and encouragement, stimulating them to respond again.

In addition to online prompts and encouragements, you can also encourage participation by making it a requirement of the course, or at least a factor included in course assessment. While some may initially feel this tactic is somewhat coercive, remember that participation, meaning actively contributing to the online discourse, is *the* central activity of a computer conference; it is therefore entirely reasonable to attach a small percentage of grades to participation.

Resolving disputes.

A handy idea is to get the group, in the initial stages of the course, to come up with their own standards of acceptable online behaviour; then, it may simply be a matter of reminding people of the rules they all agreed to follow. Occasionally, however, the moderator may need to step in and help resolve disputes or disagreements between group members, to act as a mediator between individuals who are just not getting along. As in the classroom, it is often difficult to judge accurately what has potential for damage and what is simply a healthy disagreement; challenge and critical appraisal of one's ideas need *not* be viewed as negative (in fact, these events can be powerful learning experiences). Also, everyone cannot be expected to "like" everyone else, in the classroom or online. However, as a moderator, it is your responsibility to maintain an environment of respect and safety. It is important to ensure that any disputes do not interfere with class activities and that disagreements, regardless of how heated, do not degenerate into *personal* attacks (i.e., move from a challenge of the idea into an attack of the character). If you think things are getting out of hand, a personal email to the disputing parties, firmly stating your expectations for online behaviour, is in order. Regardless of what techniques you use, resolving disputes is a tricky but necessary responsibility of the online moderator.

It should be clear that it is important for you to consider the specific tasks you will require your on-line participants to complete; it should

be equally obvious that a great deal of effort is required to develop and maintain an effectively functioning on-line group. We turn now to how you can design your online course to make all this happen.

Designing Your On-line Course

Course Design Principles

Following the principles of good course design is crucial to any quality learning experience and the development of your on-line course will be no different. Even though you will likely be interacting more with your learners, this does not mean you can ignore the processes involved in instructional design; they will guide the development of your computer conferencing course and its instructional spaces. Before plunging into designing the on-line activities, take time to consider your *overall* course design. For example, make sure you have established clear goals and objectives for your course, have chosen appropriate resources, texts, and learning activities, and thought through all components and activities as they relate to one another. Following are a few basic instructional design questions you need to answer before you get started.

Who is the learner?

Who is the average student taking your course (e.g., year of study, pre-requisites, etc.)? What are their present skills, competencies, and attitudes toward the course content and toward learning online? What is the context in which they will learn the skills and how will they use the knowledge presented?

Regarding the specifics of the online learning environment, Mercer (1994) adds the following factors that also need consideration:

- Time available per week

How much time do you expect students to set aside for the course? For the assignments? How much time will you expect them to spend in on-line discussion? Are your expectations reasonable in light of their other course/work/personal responsibilities?

- Rate of assimilation

Can students reasonably assimilate the amount of content you are expecting them to learn or will their learning amount to “surface” learning because you have overwhelmed them with the sheer volume of material to be learned? What kind of

practical exercises, discussion, and group work can you build into your course to help students learn the content and integrate it into their own knowledge base?

- Readiness to take to new methods and ideas.

Is your content at odds with existing understandings of many students? If so, expect some resistance from your students.

What is your students level of comfort with computers and on-line learning activities? You may need to move slowly at first so your students do not become overly frustrated with their lack of competence in using the technology.

What are your instructional goals?

The first step you will take is to determine and analyze the aim or purpose for the course. What are the goals of instruction, and can you define these as broad outcomes?

Once you have identified the overall purpose of the course, you will want to analyze the instructional goal(s) by writing down what it is that students will actually do to demonstrate that they have achieved the goals of instruction. Don't be tempted to rush through this process—it involves identifying *all* the major steps required to reach the goals; further analyzing these steps, to determine the sub-steps involved, will, in turn, lead to the development of learning objectives.

As an alternative to the above sequence, consider whether there is enough flexibility to allow the students themselves at least some opportunity to develop, articulate, and pursue their own learning goals. If so, you will still need to “lead” your participants in terms of identifying a process by which they can identify and prioritize their learning goals; you will also need to negotiate how they will satisfy the need to evaluate their performance in the course.

What are your learning objectives?

As mentioned above, the learning objectives are based on a thorough instructional analysis. After you have determined the goals for the course, your next step is to construct specific learning objectives and determine the kind of activities necessary to achieve those objectives. The term “learning objectives” here simply refers to what the student will be required to do to demonstrate whatever it is you have deemed critical in your overall goals of the course. To put it another way, how will you know that students have, in fact, achieved what you had hoped they would? It is obvious that some objectives will be more difficult to articulate than others (e.g., attitude change vs. content knowledge) but it is important that you state “up front,” as clearly as possible, the expectations you have for ideal performance in the course.

What instructional resources will you use?

It is critical that you identify, early on, what instructional resources you will need for students to complete the course. Anything from article reprints to visual media needs to be included. It is important to emphasize that you need to take special care in determining what can be left out, as well as what needs to be included. Remember: the sheer volume of reading students will be expected to do for an online course is often neglected in the “tally” of instructional resources required. Again, decide what is absolutely necessary to include and then evaluate each subsequent resource as to whether it is adding anything of significance or not. If not, eliminate it now.

How will you evaluate students' progress?

This stage in the design process is obviously tied to setting out the instructional goals and specific performance objectives for the course. In fact, it often precedes these as a guarantee that the evaluation criteria will guide the development of the course. A careful examination of the validity of your evaluation tools to measure what they purport to be measuring is a good starting point and may result in entirely new methods being chosen for the online class. For example, the standard essay, mid-term, and final examination, perhaps useful in lecture-style classes, may not be an appropriate set of evaluation methods for a class in which discussion forms the entire basis for the course.

It is only fair and reasonable to inform students of the forms and level of evaluation that you will use. For example, if you will evaluate students on their levels of participation, they need to have a clear articulation as to what this *actually means* (e.g., quantity, quality, etc.). Clarifying and Integrating well-thought out evaluation methods with your instructional objectives and methods, can go a long way to ensuring a valuable learning experience for your students.

Designing Instructional Spaces

By now it should be clear that we are arguing for a learner-centred rather than teacher-centred approach to teaching and learning in the online environment. We have claimed that the strength of computer conferencing lay in its ability to foster meaningful discussion among participants who may be separated by time and/or distance. These discussions take place, however, within electronic “spaces” that may vary from a general open forum among many members to a simple dyad. Harasim (1995) claims: “Computer conferences are ‘spaces’ that require shaping, structuring, and topical sequencing to form an environment.” (p. 16).

Regardless of the specific configuration (i.e., large group, small group, etc.), designing online learning spaces requires one to think carefully

about what will actually take place within these spaces. For instance, it is important to consider how you can best design the space so as to accomplish the goals and objectives set you have set for the instruction. For example, if competency in the critical analysis of another's written work is a goal you have for the course, you had better set up a conference space that allows students to practice that skill. Another example might be that you want to keep discussion focussed on particular topic areas and move students through a variety of content rather quickly, in which case you would likely open conference spaces for a specified time only; you would close conferences after their allotted time was up. In other words, the way you design your instructional space will reflect the objectives you have for your course. Ideally, during your instructional design process, you will have already identified the activities you believe will assist students in accomplishing the goals for the course and the specific learning objectives identified.

Before you get started with designing specific online learning spaces, you need to answer the following questions:

In this course....

What is the strength of CC for the particular learning purposes?

What are the best teaching applications for CC?

How will CC be used in this course?

- Is the CC component mandatory or optional?
- Is CC the primary teaching method or an adjunct (the main body of instruction is delivered by other media)?
- Will CC primarily be used to facilitate discussion or will it be used more for collaborative learning?
- Will CC be used to complete and transmit assignments?

Remember, how you intend to use the technology to accomplish your objectives is of primary importance in setting up instructional space.

Examples of Pedagogical Spaces

Paulsen (1995) reviews a number of possible approaches to using CC for pedagogical purposes. Paulsen has done a good job of collecting, from the literature, a wide variety of online pedagogical techniques into three main categories, namely one-alone techniques (the online resource paradigm), the one-to-one techniques (the e-mail paradigm), and the many-to-many techniques (the conferencing paradigm). His third category, "many-to-many techniques" will be our main focus

here because it is the most common application of educational CC and it presumes all participants have the opportunity to take part in discussion-based interaction. (For detailed information regarding the other two categories, see the copy of Paulsen's paper included in the Appendix). Following is a brief description of some techniques that could be part of your online course.

Debates

Debates can be used in your CC course as a way of clarifying an issue from at least two opposing perspectives. The idea is that two, four (or more) debaters argue, within the confines of a particular time period and in a structured, somewhat formal format (Seaman and Fellenz, 1989; Knox, 1987). The debate is more than a discussion in the sense that the issue is clearly identified, sides are taken and each side presents its case to the other for scrutiny and critique. You may not wish to declare a "winner" of the debate but rather to use the debate as a kick off into a deeper discussion of the issue/s raised. See Clark (1992a, 58) in the Paulsen article for useful guidelines for an electronic debate with regard to participation, preparation, coordination, and evaluation.

Simulations or Games

Simulations or games are generally conceived as something developed for stand-alone CD-ROM applications. While this is most often the case, there is no reason to restrict ourselves to that medium only. Knox 1987 explains, for example, that simulation can be explained as "imitation of interpersonal or other dynamics, often using materials and roles, to help participants feel as well as understand the dynamics of a complex situation." (p. 89) Given the emphasis on interpersonal communications in CC, it seems a reasonable candidate for an educational simulation or gaming application. (See Hiltz and Turoff's discussion of simulation and CMC, as well as some examples of gaming applied to a variety of educational settings in the Paulsen paper)

It is our feeling that this technique holds much promise for interesting, exciting, and "real-world" applications of CC technology but that it is underused. We would encourage you to think of ways you can take advantage of the characteristics of the CC to use simulation and gaming in your teaching.

Role Plays

Similar to gaming and simulation in the sense that the above often require players to take on "persona" to participate effectively in the games, role plays focus attention on the situation and the actors playing the various roles. The situations are often dramatic or at least illustrative of the various perspectives at play in complex, social

scenarios. Structured role play are ususally based on a case study, where many details about the situation are explicated; spontaneous role plays, on the other hand, are often based on "impromptu" experiences used to illustrate a point of process."

Role playing can have a significant effect on students' perceptions of alternate roles, their ability to empathize, their willingness to analyze an issue from an alternative perspective, and can help them organize the pertinent concepts, ideas, issues, etc. as they prepare for the role play. For a description of some applications of role plays in a CC environment, see Paulsen's paper.

Hiltz and Turoff (1989) claim that the role playing could probably be done more realistically through the computer than in some of the face-to-face acting games used, especially if the student were not able to tell which of the other players were students, faculty, or real-life jobholders playing at their convenience from their own terminals. Also, students who would normally be quite reticent to participate in a role play, where you had to get up in front of your classmates and act it out, may enthusiastically participate in a role play conducted online.

Again, the debriefing opportunities offer many advantages for further exploration of the issue, topic, content, etc. under discussion.

Case Studies

Case studies are increasingly being used to assist students in practicing problem-solving and decision-making procedures in a "real-world" context. Often presented as stories, filled with fictitious characters acting out a script of tenable events, students are usually required to bring some analysis to bear on determining what went wrong (or, less often, right). An important point is that the case is a description of a real and relevant situation that is complex enough to warrant analysis (Seaman and Fellenz 1989, 111). Typically, the case is presented, along with the parameters for analysis (e.g., analyse what management decisions led to the demise of company X), and an opportunity for discussion if afforded. The case study is a useful technique to apply to a group learning situation; a team can be assigned to solve a case and report to the rest of the class for evaluation.

The case study approach is one which emphasizes an investigative attitude and holds much promise for developing skills of analysis and problem-solving. The instructor's role is important and should be that of an advisor, guide, and case administrator. Again, this in an online technique in need of further investigation.

Discussion Groups

By far the most utilized online pedagogical technique, the discussion usually entails exchanging ideas of shared interest between participants in a group setting. Online discussions may take place within the large group forum (i.e., the entire class participates), discussions may take place in the smaller sub-groups to the exclusion of other conference participants; groups may be implemented as buzz groups, expanding groups, and colloquies. (Paulsen, 1996) Almost any variety of face-to-face group work can be constructed in the online environment—it just may take a little more up-front planning.

Any configuration of discussion groups can be created by establishing separate conference “spaces” in which the group is to conduct business. In the FirstClass conferencing software, it is possible to assign permissions to group members so participants can establish these groups themselves. Regardless of the group configuration used, make certain the purposes, expectations, and requirements for group work are made explicit. Your role may quickly shift to one of facilitator, coordinator, and administrator once the groups get active and are working well as independent groups.

In terms of your facilitation of online groups, many of the things you would do in a face-to-face context work equally well online. For instance, you will need to “help people get started, give them feedback, summarize, weave the contributions of different folks together, get it un-stuck when necessary, deal with individuals who are disruptive or get off the track, bring in new material to freshen it up periodically, and get feedback from the group on how things are going and what might happen next.... (Further, the facilitator needs to) communicate with the group as a whole, sub-groups, and individuals to encourage participation.”(Carlson 1989, 6.11) For a detailed look at how one can structure group activities online, see Paulsen’s article.

Transcript-Based Assignments

Any and all communications mediated by the computer conferencing software can be “captured” and converted into a ready-to-use transcript. This record of the course interactions can be used for several pedagogical purposes. For example, Davie and Wells (1991) suggested the following three types of transcript-based assignments to promote student reflection:

“[First,] students might be required to retrieve all the comments they authored during the course. The assignment could then ask the students to reflect on their contributions and provide a statement of the overall framework or perspective embodied in them.

A second possibility is to ask students to pull together all the comments related to a particular topic and to write an essay discussing which comments they agree with and why or to critique the comments from the perspective of a particular theory.

A third possibility is concerned with improving the student's analytic and writing skills. Too often, students write to please the teacher. This contribution is graded and then ignored by both parties. Instead of this dead end process, students can be asked to retrieve an earlier note or assignment and rewrite the work either to make it more effective, or to reflect the current state of learning. This kind of recursive learning can help the student to build skills in a way that is simply not feasible in the face-to-face classroom." (p.21)

A unique strength of the medium is that course transcripts can also be used for next cohort learning. We believe that this strategy gives rise to a sense that the participants are "creating" their own base of knowledge and that at least certain parts are valuable enough to be used as "content" with subsequent learners.

Other techniques such as brainstormings, delphi techniques, nominal group techniques, forums, and project groups are described in Paulsen's paper and you are encouraged to review them.

Other Important Conference Spaces

We need to mention the importance of setting up three additional spaces that, perhaps, have less to do with pedagogy but will go a long way to helping you run a good conference. These include administrative, technical, and social spaces and are described below.

Administrative

First, you need to set up a space for students to get all the information they need to succeed in the course. Here is where you would place instructions for accessing the various conference space, including the rationale for these spaces; this would also be where students could find out what the evaluation expectations were for the course, including descriptions of the assignments, due dates, examples, etc. Finally, students would find all information regarding general course administration in this location. This space can be used as a "bulleting board" to post changes or information pertinent to the course operation.

Technical

Second, you need to set up a separate space for dealing with technical problems (which will inevitably come). In addition to any "hotline" you might have set up (i.e., access to a technical help person), you can include a "frequently asked questions" area, an archive, if you will, of technical questions of a general nature that have already been answered; this will greatly ease the number of

identical questions being posted your way when people are having trouble with a basic problem. Many times, a few students are very sophisticated in their computer and communications knowledge and you should encourage these students to help others rather than entirely taking on this burden yourself; this also helps in building group cohesiveness (Hiltz, 1994).

Social

The third space you will need to set up is a “cafe,” “lounge,” that acts as a social space wherein students can discuss other things that have nothing to do with the course. It is basically a space that is theirs, a space for them to share ideas, swap stories, tell jokes, etc., just like they would if they had the opportunity to meet face-to-face at a coffee shop. This space is not trivial in the sense that it is necessary for people to get to know each other in ways that are not so academic in nature. In addition, such spaces may assist group forming and maintenance needs. Besides, if you set it up right, it might act as a place in which they can talk about what a great instructor you are!

Getting Started

At the beginning of any course, it always seems there is so much content to cover and so little time (but if you have done a good job of instructional design, this will be reduced). As an instructor, you will be anxious to get on with the course, as will your students. It is critical, however, that you understand the importance of group dynamics for the computer conference. (McDonald, 1996). As moderator, you can aid group development by allowing adequate time and opportunity for group building and group maintenance activities. Building a cohesive and functional group will pay dividends in making the computer conference an effective learning environment.

That said, you will need to consciously avoid the temptation to “plunge right in” and, instead, plan to incorporate some “low-key” introductory exercises during the first week of your conference. These exercises should be non-threatening and will help students become familiar with the technology as well as help them become part of a learning community. Keep the exercises simple so that students learn about the technology in a relaxed atmosphere. Following are some ideas for introductory exercises that will provide some hands-on activity with the conferencing system and also help your students become a group. But don’t limit yourself to these. With a little bit of ingenuity, you will probably figure out ways to adapt a wide variety of “ice-breaker” activities to the computer conference environment.

Welcome Students to the Conference

Send a welcoming message to your students.

Address an individualized welcome note to each participant and have this waiting for them when they first sign on. In your welcome note, ask the participant to send you a message back describing their experience in getting on-line. This exercise gives participants some simple practice in using the system and it also lets you know which students are on-line and the nature of any technical problems encountered. Be sure and contact any “no-shows” to ensure they are not having technical difficulties. (See Appendix ??? for an example of a welcoming letter.

Create a “Self-Introductions” conference.

Create a document within this conference giving your students step-by-step instructions for introducing themselves to the conference, asking them to include some personal information about themselves. You might ask them to state their learning goals for the class. Alternatively, you might ask students to interview another person in the class (you pair students) and “introduce” that person to the conference.

In your welcoming letter, instruct your students to open the “Self-Introductions” conference and open the document for further instructions. Obviously, you will need to introduce yourself to the conference, as well. Include some personal information about yourself so that students get to know you as a person, and not just as “the instructor.” Use your introduction as a model for your students’ introductions.

Orient your Students to the Course

Get to the important stuff fast....

Soon into the conference, have students access a folder, or conference space, in which you have placed all the course requirements, expectations, timetables, assignment descriptions, etc. (e.g., perhaps in the “course administration” folder). This will help alleviate any anxiety about what will be expected and students can access this “crucial” information at their leisure. Within this space, it is also important to include a document outlining online behaviour or “netiquette” expectations; it is useful to have a short discussion about these necessary “rules” of online behaviour before getting too far along in the conference.

You will need to give your students an introduction to the course, specifically focussing on the structure and scope of the content, as well as the overall goals you have for the course. Here, also, is a good opportunity to talk about information management suggestions you might have; for example, you might tell students to check the

conference daily and to post at least two notes per week but not more than eight (excluding "cafe" notes).

Conclusion

This guide has presented some important topics, ideas, and suggestions for your consideration as you begin to design your on-line course. It cannot, however, guarantee a successful course. The quality of the course and its content is still, as always, up to you, the instructor.

Appendix A

Here is an example of a welcoming letter to be posted from you to each student personally.

Dear “student X”:

Welcome to *Using CMC in Your Teaching and Learning 899.3!*

I am a faculty member here at the University of Saskatchewan in the department of XYZ. I have lived in Saskatoon for X years now with my wife and 14 children. When I am not busy with this course, I like to go for long hikes along the river.

I am looking forward to working with you and your classmates over the next few months, and hope to expand my knowledge of how computer-mediated communication can be used for teaching and learning. My experience has been that learning online can be a greatly rewarding experience. There may be times when you will be frustrated with the workload (make no mistake—this course is intense!) but the vast majority of students love learning this way.

Finally, if you are having *any* problems, please let me know as soon as possible. If you delay, you risk getting falling behind. Use private email, the telephone, or, if possible, drop by my office to discuss any questions or concerns.

Your name

A Note About Online Etiquette

An example outlining expectations for online behaviours.

Just as in face-to-face communication, certainly in the classroom, there are “ground rules” that everyone must adhere to if this online experience is to be rewarding and safe. They are as follows: No cursing or swearing, and no telling off color jokes (humour is Ok, just make sure it is appropriate).

No personal put-downs in response to statements with which you disagree. Remember, it is quite OK to vehemently disagree with an idea; it is not OK to attack, on a personal level, the individual putting forward that idea. If there is a possibility your message might be mis-interpreted, use “emoticons” to clarify your intent.

Do not post message longer than three screens long. If you have to go on, send a second message; alternatively, review your message to see if it could not be edited to be more succinct.

Follow the guidelines for the minimum and maximum number of messages you can send per week; sending more than “your fair share” is similar to constantly “taking the floor” in a face-to-face setting.

Finally, it should be noted that there is no dress code, so you may “attend” class in your jammies and slippers, if you so choose. ;-)

How to Conduct an Instructional Analysis

Involves outlining activities and exercises for course (see page 15 of Mercer)

Instructor as Moderator

“A class conference is an exchange of ideas and information. As with any group discussion, the moderator or leader needs to engage in several kinds of behavior that will facilitate the group’s participation and productive collaboration” (Hilz, 1994, p. 101)

Mason (1991) suggests that “the role of online tutor [instructor] ... combines elements of teacher, chairman, host, facilitator, and community organizer.”

Mercer (1994) defines three tasks for the moderator:

- a) Task-oriented activities
- b) Group-building and maintenance activities
- c) “Coaching”

Task-oriented activities

1. Introduce the discussion topic. Relate the discussion topic to readings and other course materials.
2. Clearly stating the issue or question of discussion. The instructor should also keep the discussion in focus.
3. Use probing techniques to get students to expand or build upon comments, whether they be their own or others’ comments.
4. If necessary, resolve contradictions or fill-in gaps in student contributions.
5. Provide summaries of the discussion. You might provide the summary yourself or, in some instances, you might ask students to submit a summary. The summary should highlight the themes that emerge, link them to the course readings.
6. Conclude the discussion by stressing the crucial points of the discussion.

Group-building and maintenance activities

1. Be responsive!

2. Set a climate that is supportive and conducive to discussion. A welcoming message and group-building exercises as explained in the section on group formation can go along way in setting a supportive climate.
3. Clearly explain conference standards and protocols for conferencing.
4. Provide group leadership. At the beginning, group leadership and maintenance will likely be your sole responsibility. As the group develops, some of the group maintenance activities may be taken over by your students.
5. Encourage student participation!

Be an Online "Coach"

1. Move from "centre stage" to the "sidelines" (or, from the sage on the stage to the guide on the side!)
2. Direct some of the better questions or comments back to the larger group
3. Monitor group activity and intervene when things are getting bogged down
4. Encourage students to help each other, to explore ways in which they themselves can answer each others' questions
5. Remember that you still have a responsibility to clear up misconceptions, wrong information, and to add items that will enhance, enlighten, or illuminate the topic under discussion; you don't get to just sit back and observe!

Online Participation

Getting the best participation

To motivate students, be able to answer: "What's in it for them?"
Following are some course components that will encourage participation in the CC course:

Require regular participation with weekly assignments or quizzes

Make material relevant

Present conflicting opinions

class discussions

group projects

collaborative learning

practical exercises

immediate feedback

articles and course information database

independence in time and location

What happens if I encounter low rates of participation?

What about "low" levels of thinking? How do I encourage higher levels of thinking

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