

Fantasy and Structure in Computer Mediated Courses

Lynn E. Davie and Robin Inskip

Abstract

This paper explores design issues to be considered when developing courses offered through computer mediated communication (CMC). Three design elements of a computer mediated communications course are described and discussed: an extended fantasy role play, a prestructured data base, and the "visits" by outsiders. The article argues that the outcomes of CMC education depend on creative designs to support active learning and participation by students rather than on a particular (CMC) system.

Résumé

Les facteurs mis en cause dans la conception de cours offerts par communication médiatisée par ordinateur font l'objet de cette étude, qui examine trois éléments de conception possibles : un jeu de rôle imaginaire d'envergure, une base de données préstructurée et l'apport ou la collaboration d'invités. Nous défendons une hypothèse voulant que les résultats de l'apprentissage médiatisé par ordinateur soient tributaires d'approches créatives plutôt que d'un système donné, pour ce qui est de favoriser un apprentissage et une participation actives chez les étudiants.

Introduction

It is our belief that situational factors limit or enhance certain instructional techniques and, hence, learning. For instance, it may be difficult to stimulate good discussion among members of an audience who are sitting in seats bolted to the floor. It can be done, of course, but a rigid physical setting makes the task more difficult. General educational design problems are made even more difficult in a context in which: written text is the primary or sole medium of communication; individuals cannot see each

other and therefore miss visual clues that inform them of the impact of their contributions; or when individuals are not present at the same time. Such are the limitations of CMC distance education courses. These disadvantages are balanced, of course, by the advantages of convenience in terms of both time and location for students who wish or need to study outside the regular hours and classrooms of an institution.

It is a truism that good instructional design is more important than the specific technology used to deliver a distance education course. Although this point of view is now generally accepted, the design of many distance education courses continues to be constrained by the perceived limits of the technology. In this paper we address this issue and report on a number of interesting solutions to typical problems encountered when designing graduate level courses to be offered through CMC to geographically dispersed students. Although we limit our focus to just one use of CMC, we do not mean to suggest that there are not other uses for CMC in education. Our design problems and the limitations within which we have created our solutions are not atypical, but the contribution we wish to make is to show how some important process goals found in graduate education can be realized in the CMC educational environment.

This article is the sixth in a series of papers concerned with the instructional design of courses offered by through Computer Mediated Communication (Davie & Palmer, 1985; Davie, 1987; Davie, 1988; Davie, 1989; and Davie & Wells, 1991). Although most of those who write about the use of computer mediated communication for educational purposes have focused on the potential of CMC or the administrative aspects and value of providing courses or training through CMC, there is a small but growing number of authors who have devoted their attention to educational design issues (e.g., Feenberg, 1987; Harasim, 1987, 1989; Hiltz & Turoff, 1978; Hiltz, Turoff, & Johnson, 1981; Hiltz, 1985, 1986, 1990; Kiesler, Siegel, & McGurie, 1984; Mason & Kaye, 1989; Phillips, Santoro, & Kuehn, 1988; and Quinn, 1983). Much of the design literature reports small case studies or individual examples of course offerings through CMC. While there are obvious limitations to the applicability of individual design efforts, such writing does provide the stimulus for exploration in an increasingly important medium.

Our focus is on various techniques for nonlinear designs for CMC courses. We base our nonlinear educational designs on the ability of CMC to allow concurrent parallel activities. Each branch of the system can contain separate discussions or other educational activities, much like parallel paper sessions at a large conference. In the case of CMC, a participant can read or write notes in as many separate branches as desired. With the

separation of content into branches, discussions are better focused. Branching also allows for greater individual choice in that students can choose the discussion in which they wish to participate.

We examine three different techniques that have proven successful for enhancing the learning of students involved in a CMC course:

- the use of role plays or fantasies
- cognitive structuring of the content of a discussion
- the use of expert visitors.

In considering each design element, we will look at the following factors:

- the original educational objectives
- the system limitations or features available that create the design problem
- the design solution
- our results
- an analysis of our experience.

We hope this enables the reader to see our work in a particular context. We hope as well that the analyses will help the designer of educational CMC programs to think through design issues in their own work.

The course discussed in this paper is a master's level course and is one of a series of graduate level courses offered through the Department of Adult Education at The Ontario Institute for Studies in Education. The course focuses on the evaluation of adult education programs. Enrolments typically range from 10–15 students who are located throughout Canada. The course is offered once a year in CMC format. This paper reports our experiences with the course over several offerings.

The objective of this course is for students to understand the issues involved in program evaluation. It seeks to help students to evaluate and to apply the writings of a number of evaluation theorists to the assessment of adult education programs. Students are expected to read and critique the work of various theorists and to develop evaluation designs.

Students meet once at the beginning of the course and then communicate through a computer conferencing system (PARTICIPATE) for the remainder of the term. All course communication occurs through the system. Computer communication is asynchronous in that the students may sign on to the mainframe computer at their own convenience, read previous communications, and reply when they wish. In the face-to-face version of the course, the predominant techniques are lectures, class discussions, and small group exercises. It was our intention to keep the main values of discussion and analysis in the CMC version of the course, while adapting the activities to characteristics of the electronic medium.

Design Problem 1:

Fantasy role play as the concluding element of the course.

We begin our design descriptions by focusing on one that is very popular with our distance students. The Tall Pines fantasy role play was designed to bring a high energy, integrative close to the CMC course. The intent of the role play is for students to adopt the persona of an author whose work has been studied and to take that author's theoretical positions in a number of conversations that take place in a fantasy setting.

Objectives

In addition to the course objectives, we designed the fantasy to meet the following specific educational objectives:

- to provide an educational opportunity for the students to represent their chosen author's key issues, methods, and perspectives on evaluation
- to provide an occasion for the students to "take on" the persona of the chosen evaluator and frequently to breathe comic life into the character
- to develop a high energy conclusion to the course with carefully organized scenarios and irreverent humour as key design elements.

System Limitations

Asynchronicity

Timing was an important element to consider. The students needed to participate over a series of days to accommodate their different time schedules and to gain access to computers. The virtual time of the fantasy did not reflect real time. For example, one day in the fantasy generally reflected two days in real time.

The glitches are going to get you

In the first year of the course, the OISE mainframe experienced technical difficulties during most of the fantasy. Getting on the system was problematic; in breaking through students often dealt with double images and echoing. The most acute problem emerged, of course, during the main, near synchronous event. Those stalwart souls who did participate in the Sunday event confronted massive communications problems. These difficulties were caused by OISE's mainframe and, because they occurred on a Sunday, no technical assistance was available.

Design Elements

Accommodating asynchronous communication

Although the fantasy was a weekend retreat, the real time for this design element was a calendar week, starting on a Wednesday and finishing the following Tuesday. We endeavoured to design one event that was close to being synchronous in time. We encouraged all students to participate in the Sunday afternoon event. However, the realities of students' prior commitments or limited access to computers during the specified time period meant only a few students participated in this event each time the course was offered.

Preparatory work for the role play

The development of the scenario is covered below. The internal scheduling and design of the role play events required careful attention to logical analysis coupled with creative playfulness. The notes, in a shooting script, not only informed the students about the agenda, scheduling, events, and expectations in the role play but also indicated the humorous ambience.

Designing the scenario for the fantasy role play

The metaphor for the fantasy was a weekend at Tall Pines, the fabulous country estate of Jean Evaluand, an aficionado of evaluators. A background metaphor was that the weekend's meetings were being filmed by the television show, "Lifestyles of the Rich and Famous." "Lifestyles" gave us a shooting script for each virtual event. We entered each new script into the role play to note a change of location in the baronial mansion and of time in the virtual weekend. The shooting script gave the actors an indication of the action taking place around them and helped them fit into the flow. We have presented a shooting schedule as Table 1 and a shooting script as Table 2.

Other elements of the scenario were the irreverent humour and the decision to push the fantasy to its limits. In itself, "Lifestyles of the Rich and Famous" is absurd. In addition, we borrowed liberally from descriptions in the magazine *Town & Country* for the shooting script notations on the importance of recording the Lalique crystal, gold tableware, and Waterford crystal glasses. The incredulously opulent surroundings in Evaluand's country estate were presented tongue-in-cheek.

The main events in the weekend's shooting script/scenario were the meals because they provided an opportunity to bring the guest evaluators together. The menus for the meals and accompanying wines were created by a professional caterer and a wine connoisseur colleague whose instructions were to indulge their fantasies for the perfect repast. The announcement of the meals, their settings (for example, Saturday dinner), and menus were revealed through the shooting scripts.

Table 1
Life Styles of the Rich and Famous
Shooting Schedule—Tall Pines Weekend

Friday Night Cocktails in the Library

THURSDAY MARCH 29 and FRIDAY MARCH 30

We expect the guests to arrive and to participate at different times. (For example, the guests may go on a tour of the house, health spa, and garden.)

Saturday Luncheon on the Terrace

SATURDAY MARCH 31 and SUNDAY MORNING APRIL 1

Again we expect different times for arrival and participation. Guests may be late arriving from their golf/tennis games or perhaps they have gone fishing.

Note: We anticipate that most guests will request breakfast to be served in their suites.

Saturday Dinner in the Dining Hall

SUNDAY APRIL 1, 2:00–10:00 PM EASTERN STANDARD TIME;
COGNAC AND CONVERSATION CAN CONTINUE UNTIL WHO
KNOWS WHEN?

This black tie dinner is the key event of the weekend. We expect that most guests would like to be online together.

Sunday Brunch in the Dining Hall

MONDAY APRIL 2 and TUESDAY APRIL 3

This informal brunch will be the wind-up of the weekend. Guests will arrive at different times. Consulting commitments may make it necessary for some guests to leave early.

Table 2

41 (of 105) JEAN EVALUAND

Dec. 2, 1990 at 13:01 (1690 characters)

SHOOTING SCRIPT—SATURDAY DINNER IN THE DINING ROOM

(Sunday December 2, 2:00–9:00 pm Eastern STANDARD Time: Cognac and coffee until who knows when?)

Opening Shot: Jean and a few guests on the Terrace, looking at the sunset on the sea. Follow them through the French doors into the dining room.

Interior Shots: Slowly pan Evaluand's magnificent dining room, decorated in the Empire-style with spectacular Zubar wallpapers, and an antique Napoleonic chandelier. The dark rosewood table has gold candelabras, vases of sweet peas, Limoges china place settings rimmed in gold, Baccarat crystal stemware, and Christofle gold flatware. Remember to load AXXXKI film in the cameras so we can shoot in this soft light.

This is a formal sit down dinner. Black tie is the dress. Many stylish women have been adopting men's formal clothing (for example Bo Derek at the Oscars), so we might expect some of our chic evaluators to set the trend here.

Evaluand's super efficient and decorous staff will serve. White gloves are added to the Ralph Lauren outfits. Follow the staff serving the dinner to ensure that all guests are in a close-up shot—with an eight course meal we should be able to cover everyone.

Evaluand usually saves some questions for the Saturday dinner. One of Jean's favourites is: "In your more reflective moments, what do you think you're accomplishing or contributing as an evaluator?" By this point most guests feel comfortable and ask most of the questions or engage in spirited and meaningful conversations with their colleagues.

Scheduling of the fantasy role play

We scheduled the fantasy at the end of the course so that students were familiar both with PARTICIPATE and with the authors who were the characters in the role play. The participants were familiar with all the characters from their readings and other course work as well as controversial issues in program evaluation.

Anonymity prevailed. With the exception of one instructor, who was a published evaluator and played himself during the weekend, all other participants took on the name and persona of the evaluators invited. In the first course offering the other instructor was the host, Jean Evaluand, who kept the conversation moving and sometimes offered provocative comments. The fantasy was a chance to try out new behaviours and to breathe life and humour into the students' characterizations. They could set up hypothetical and frequently amusing conversations among the evaluators.

Results

The students considered Tall Pines a great success. In the first Tall Pines fantasy role play, the participants wrote 297 notes, in spite of severe OISE hardware problems. As well, the students were participating in the fantasy for fun, not credit, because all students had completed their required course work. They let loose amusing, and often absurd, interpretations of their own characters. Frequent ironic interpretations of other evaluators' characters and methods/issues were the norm. Puns prevailed and frequent outrageous situations and relations emerged in the role play. Table 3 presents a simulated press release sent to the students about a week before the simulation began.

In subsequent courses, Tall Pines remained a success. Participation in Tall Pines was voluntary; therefore, the total number of notes depended on the number of students who chose to participate. The nature of the notes appeared to depend on whether students chose to participate in the role play as a part of the course requirements, or whether they had finished course requirements and simply participated for the experience. Notes from students who were receiving credit for their participation were less playful and more carefully constructed to show fidelity to the character. When students were not participating for credit, the notes, while remaining faithful to the style of the portrayed author being portrayed, were more playful.

Table 3
Press Release

LIFESTYLES OF THE RICH AND FAMOUS

777 Sunset Boulevard
Los Angeles, CA
123456
(213) 777-3434

FANTASTIC WEEKEND FOR EVALUATORS

LIFESTYLES OF THE RICH AND FAMOUS has been invited to cover the special weekend for famous evaluators at Tall Pines the fabulous country estate of Jean Evaluand, March 25–March 31, 1992.

Evaluand is famous for special weekends, bringing together experts to have a relaxing weekend and an opportunity to chat informally with the crème de la crème. An invitation to a weekend is a nomination to the “best in the business” status.

This evaluators’ weekend is extra special because Jean is a true aficionado of evaluators, having built up an impressive fortune in an international consortium to recycle the paper reports of program evaluators.

“I feel that evaluation is the cornerstone of an efficient, yet kinder and gentler delivery of public and private program,” said Jean Evaluand in a recent interview. “I look forward to this weekend because it’s been about four years since all of us met. I see the weekend as a chance to let our hair down and chew the fat. Of course, it’s also a lot of fun,” Evaluand added.

Tall Pines is the perfect place for a get away weekend. Located on a bluff by the sea, the 200 acre estate features a private beach, golf course, tennis courts, riding stables, a health spa with indoor and outdoor swimming pools, whirlpools, Nautilus equipment, and personal trainers for individual programs. The charming 40 room manor house has a staff of 20 to pamper the guests. Of course, gourmet meals are prepared lavishly by the fabulous Swiss chef, Decadent. *

All renowned evaluators have been invited. The guest list includes Ralph Tyler, Daniel Stufflebeam, Egon Guba, Yvonna Lincoln, Carol Weiss, Lynn Davie, Elliot Eisner, Robert Stake, and Michael Patton. The list is still being drawn up so we may have other evaluators as well.

We expect some fireworks as the evaluation giants verbally cross swords on their philosophic models and, of course, on their consulting turfs.

Look for this LIFE STYLES OF THE RICH AND FAMOUS program on this fantastic weekend of fun, sun, and brainpower of the élites in the summer program schedule. Review videotapes for TV critics will be available June 1, 1992.

Discussion

The ability to conduct an extended role play inside a course is unusual. Because of time limitations, most instructors of face-to-face courses must limit role plays to short episodes. The extended time in the CMC course allowed for sequences to be more fully "played out." The role play can be constructed in a number of ways. It can be made a credit experience in which the level of discussion tends to be deeper and more directly related to the writing of the author. Alternatively, the role play can be a non-credit exercise to provide a high energy close to the course.

The simulated interaction between characters assisted the students in all courses to come to terms with the similarities and differences among the various authors' positions. Through the dialogue in the role play, theoretical positions were tested and reflection on these differences was made possible.

Although the construction of the scenarios for the role play took time and effort, they can be reused from one course offering to the next with little additional adaptation. In our case, the role play required no additional adaptation and worked well in each case.

Design Problem 2: Cognitive Structuring of the Content of a Discussion

The second design issue focuses on ongoing course discussions. Students are very active, generating approximately 100 notes each week. It is important, therefore, to find a way to organize and link together the large number of notes.

Objectives

This graduate level course on program evaluation had the following objectives. Students were:

- to develop enough familiarity with the writing of particular authors to be able to recognize the major evaluation issues they presented
- to identify the similarity and differences between the evaluation issues as set out by the various authors
- to evaluate the importance of the various evaluation issues raised by the various authors
- to develop a personal stance toward the various evaluation issues.

In order to accomplish these major overall objectives, we felt that the course should contain the opportunity for students to read material written by a representative sample of theoreticians of program evaluation and to be able to discuss the authors with other students and the faculty in terms of the major issues.

The design problem was to structure the discussion concerning the writing of the various authors selected for study. Discussions were to focus on both the philosophy and the practice of educational program evaluation.

System Limitations

Volume of notes

The first challenge is to deal with the sheer volume of notes. Typically, in a course with 15 students 10–15 notes a day are produced. In the three offerings of this course, the number of notes totaled 1,983 (15 participants); 1,738 (16 participants); and 815 notes (11 participants). If the course were offered in a single conference, a particular discussion might involve hundreds of notes. Clearly, such a design would contribute to a feeling of information overload. In addition, the asynchronous nature of the medium means that the notes do not follow a simple thread. One participant might enter a note on a particular topic, and a second participant might enter a note immediately following on a different topic. These notes can be followed by yet a third participant with a contribution to the original topic. These scattered notes are hard to follow and cause the reader distress in following the thread of a conversation.

Small window problem

Second, computers provide access to the available information one screen at a time. Thus, only a small portion of information is available at any one time. This is like viewing the world through a small window. If you look outside through a small window you see only a limited portion of what there is to be seen. To see another portion, you need to change your point of view. Shifting one's point of view is difficult in the real world, but even more so in the virtual world of the computer conference. One must remember what there is to see and learn a variety of navigation commands to move the viewpoint from one place to another. The power of a developing line of argument is lost when the notes relating to that argument are intermingled with those of another. It is important to be able to read the notes on a particular topic serially, in order to follow the argument.

Asynchronicity

Finally, timing is a problem. This medium is asynchronous in that participants may log on at their own rate. However, it is not atemporal. While an individual may be absent from a discussion for a period of time, the discussion continues. When she or he returns, there is the problem of whether to enter a note concerning a topic that the others discussed some

time ago. Since students have different access to computers, they tend to have different participation patterns. Some have computers at home and they participate at their convenience, often late at night or on weekends. Others use computers at their offices and their participation patterns favour days during the work week. These differing participation patterns make discussions more difficult to follow and often give conflicting cues to appropriate participation.

Design Elements

There are some technical solutions to these problems. The one most often used on some systems is the mechanism of "threading," whereby a person relates a current contribution to a previous note. The reader can then follow the discussion thread through several notes.

The system used here, PARTICIPATE, does not allow for "threading." However, it is possible to provide assistance in understanding the underlying structure of the material. This is done through a creative use of branches (or related conferences on some systems). In PARTICIPATE, a feature of the system is the availability of branches to the main topic. The branching feature is used to create a data base, with a separate branch for the notes related to each course topic.

In a data base course design, the instructor enters a series of branches corresponding to the content and activity of the course. This beginning design helps to structure the discussion and gives a clear overview of the course. Additional branches can be added at any time. For example, Table 4 presents the beginning structure of the course on program evaluation. The branches containing discussions related to the various course readings are marked with an asterisk (*). The branches containing special activities are marked with a plus sign (+). At the beginning of the course, the discussion branches contain the instructor's notes on various authors, and the activity branches contain a short description of the planned activities.

Results

The use of a data base as the basic design for the course worked well. Not only did the various branches help organize the discussion, but the structure helped to increase the total number of notes. In previous courses taught by the same instructor the total number of notes for fourteen participants over a thirteen week period averaged 500. In the first three offerings of this course, the total numbers of notes were 1,893, 1,738, and 815 or an average of 126, 108, and 74 notes per participant in the public conferences. Table 5 presents the total number of notes for the branches devoted to particular authors.

Table 4
Data Base for Program Evaluation Course

Branch	Description
(+)Coffee Shop	This branch is for social chitchat.
(+)Library	This branch is for questions to the OISE reference librarians.
(+)Advisor	This branch contains help for system problems and suggestions for organizing course content for students.
(*)Models	This branch contains the subbranches pertaining to the authors studied in the courses. The branches were organized into four groups and each group had a branch for each author. Thus, one of the authors studied was Robert Stake and there was a branch called Stake.
(+)Case Study	This branch contained the notes related to a case study that the students completed in the course.
(+)Special Events	This branch contained a number of special events. There were two expert visitors and a role play.
(+)Mini Projects	This branch contained a number of small papers written by the students during the course.
(+)Class	This branch contained activities that go on in a face-to-face class, announcements, general discussion of ideas that did not seem to fit in any of the other branches, and a place to ask questions.
(+)Summary	The instructor used this branch to summarize the comments in the Class branch each week and linked discussion in the various branches with the Class branch where appropriate.

Table 5
Total Notes for Each Branch Devoted to a Particular Author

Author	Course 1	Course 2	Course 3
Tyler	52	21	8
Stake	102	65	5
Stufflebeam	45	20	7
Eisner	50	31	3
Guba and Lincoln	57	27	16
Patton	40	138	72
# of Participants	15	16	11

The quantity of the notes and the quality of dialogue are essential characteristics of success. The quantity, while straightforward, is not easy to assess. It would seem easy to compare the number of notes per person with previous courses and argue that differences were a consequence of the data base technique. Even this simple comparison is difficult. In most offerings of the course, the average number of notes per participant exceed one hundred. However, occasionally there is a lower average number of notes such as the 74 notes per participant recorded in the third offering. The reasons for these occasional low averages are not yet understood.

The course was not conducted as an experiment, however, and therefore the courses were not offered under identical conditions. In addition to the data base designs, the visitors, and the role play, a small part of the student's course grade was based on the number of notes each student entered. We are of the opinion that the partial grade for participation does not affect overall participation. Nevertheless, we think it is important to find ways to encourage those individuals who are reluctant to leave any notes. Consequently, we can only say that the various strategies in combination have led to an increase in the rate of participation from one course offering to the next. This increase in notes indicates that the discussions were more complete and that students introduced more ideas.

Quality, of course, is always difficult to assess. One important aspect of quality is the focus of the discussion. One way of identifying the focus is to do a simple content analysis of the notes in each branch. If the data base design does, in fact, serve to sharpen the focus of the discussion, a count of the number of the notes directly related to the topic assigned to that branch would provide an estimate of the number of "on target" contributions.

Two author branches from each course were examined to determine the number of on target notes: Michael Patton and for Egon Guba and Yvonna Lincoln (joint authors). There were two reasons for choosing these branches. One, there were enough notes in these branches to allow a com-

parison across course offerings. Two, these authors have a different approach to program evaluation, and thus the branches were dealing with different material.

Each note was examined. A note was counted as a reference to a particular author if it contained a specific reference to that author or that author's writings. Table 6 contains the total number of notes in each conference, the number of author references, and the percentage of notes that refer to each author.

Table 6
Content Analysis of Author Branches

Course	Notes	References	% of References
Patton			
Course 1	40	15	37.5
Course 2	13	60	43.5
Course 3	72	38	52.8
Guba and Lincoln			
Course 1	57	19	33.3
Course 2	27	13	48.1
Course 3	16	8	50.0

The correlation between the number of Patton notes and the references to Patton within the notes was .978, whereas the correlation between the number of Guba and Lincoln notes and the number of references to Guba and Lincoln within the notes was .974, indicating the pattern of referencing was stable. It is interesting to note the relationships of citations by course. For example, in Course 1 the percentage of citations to Patton was 37.5%, whereas the percentage of citations to Guba and Lincoln was 33.3%. Thus, we see that although there are important differences in the "on topic" citations across the three courses for each author, there are small differences in the citations in each course between the two different authors. The behaviour of citing the author is a function of the students in a course. It may be higher or lower in percentage terms, but it does not vary by authors within a course.

It is possible to explore this idea further. One behaviour in CMC that appears to be related to how comfortable people feel in a CMC course is the number of notes that refer to earlier contributions. It would be useful in the future to conduct a study that measured a student's sense of comfort in using CMC and then compare the results to the number of specific references made to a student's contributions. In this study, each note in two

author branches was examined to see if it referred to a student's previous note. In addition, the first 100 notes of the general conference "Class" were coded in the same way to determine if the pattern in an unfocused branch was different from that found in a branch focusing on a particular author. The branches for Patton and for Guba and Lincoln were used for this purpose. The results are presented in Table 7.

Table 7
Specific References to Prior Notes

Course	"Class"	%	"Patton"	%	"Guba"	%
Course 1	75	75	31	77.5	49	85.9
Course 2	56	56	94	68.1	13	48.1
Course 3	58	58	51	70.8	8	50.0

The correlations among these three patterns of references were .98 for the comparison between "Class" and "Patton," .99 for the comparison between "Class" and "Guba," and .97 for the comparison between "Patton" and "Guba." Again, it appears as if the behaviour of directly referencing previous participants is a function of individual behaviour as the correlations are similarly showing a close relationship of citation in each course offering.

Discussion

These results indicate that the data base design helps focus the discussion. We think there are four elements to this success. First, the data base needs to be carefully designed and related specifically to content in a form that can be recognized easily by students and in a way that makes sense to them. Second, since the structure presented to the student at the beginning of the course is complex, time needs to be devoted to helping students understand the structure. Third, skill training needs to be conducted to help students learn how to move around within the system and from branch to branch. Finally, discussions seem to flow more readily if people talk directly to each other by citing specific prior notes rather than making comments to all participants in general.

The data base provides a structure for the course not unlike a syllabus or lesson plan. It is, however, merely a shell. The instructor and the students provide the content. The students provide additional information, report their reactions to the author, raise questions of fact or interpretation, and generally engage in an active dialogue with each other and the material. The instructors provide additional information, point to links with

other material, raise questions, provide role models, and, most importantly, summarize the discussion and "weave" the content together.

The interaction with one's peers is similar to a good discussion group. When it is operating successfully, students pay attention to each other's comments and then provide their own contributions that extend and elaborate the topic under discussion. This cooperative behaviour extends the usual model whereby the instructor provides most of the input that leads to participant reflection on the meaning of the content of the course.

Design Problem 3: Use of External Visitors in the Course

In each course offering, practising program evaluators "visited" the class. Each visit was scheduled for a particular week in the course. The instructor introduced the visitors. Each visitor made an introductory statement and then responded to student questions and comments. During the week that the visitors participated, they agreed to sign on at least once a day.

Objectives

The objectives in using visitors to the course were:

- to introduce the students to practising program evaluators
- to bring practical and pragmatic program evaluation issues into the class discussions
- to give the students the opportunity to question the practitioners about their view of the various issues raised by course authors.

System Limitations

Skill in using the system

It was necessary for each visitor to be able to access and use the PARTICIPATE system. Whereas the students had training in the face-to-face workshop, the visitors had to be trained to use the system. With a little individual instruction, all three visitors were able to use the system without difficulty.

Design Elements

Scheduling of visits

The visits were carefully scheduled. It was important to allow enough time to elapse before the visits occurred to give students an opportunity to become comfortable with the system. Because the visits coincided with other course activities, it was also important for students to have had experience dealing with concurrent multiple activities.

Integration of the visits with other course activities

A difficulty with any course design involving visits by outside experts is the integration of the visit with other course activities and content. In a face-to-face classroom, careful briefing of the visitor by the course instructor enhances the integration. In the CMC classroom, visitors must not only receive careful briefing, they must also be given the opportunity to read the previous course notes. This allows the visitor to place her or his comments within the context of the discussions.

Discussion

The use of visitors to the course provided an integration of practise and theory. Students were able to learn how the various authors' approaches could be used in the evaluation of adult educational programs. The visitors could conveniently visit the class and take the time to respond to the questions raised by individual students. In addition, giving visitors an opportunity to read previous course discussions permitted integration of course content, student notes, and visitor input. Each visitor reported enjoying the visit and indicated a willingness to participate again.

Summary

This paper has discussed three design elements used in a graduate course in educational program evaluation. The intent was to show that while the medium of CMC education provides certain design limits, it is possible to structure the virtual space to encourage high order cognitive skills in a group of graduate students.

The paper reported on the design and operation of a role play. This exercise was designed to stimulate further in-depth analysis of the positions of various writers in this field and to provide a high energy conclusion to the course. The results indicate that students enjoyed the role play and that they felt it provided an appropriate, high energy close to the course.

Second, we examined and discussed ways of organizing the discussion of a number of authors selected for study in this course. The design helped students to focus their discussions, to relate their discussions to each other's thoughts, and to extend the written word into practical evaluation designs. The results support our contention that good practices of group discussion can be obtained through the use of a prestructured data base.

Finally, the use of outside visitors was discussed. The design used enabled visitors to take part in the course during regular working hours and to integrate their contributions with ongoing course activities. This way of incorporating visitors into the course schedule permitted sufficient time for visitors to provide feedback to individual students.

The intent of this paper was to demonstrate that the outcome of CMC education does not depend so much on the particular CMC system being used as it does on educational designs. We intended our designs to promote and support active participation and learning by the students. The design elements discussed here provide examples of what can be done. The acceptance of CMC as a powerful distance education medium depends on creative designs.

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Lynn Davie is an associate professor at The Ontario Institute for Studies in Education. He has been designing and studying distance education courses using Computer Mediated Communication since 1985. His other research interests include participation studies in adult education, microcomputer uses in qualitative research, and program evaluation.

Robin Inskip is an assistant professor at the School of Library and Information Studies, University of Alberta, and a doctoral candidate at The Ontario Institute for Studies in Education. Professor Inskip's research interests include designing and evaluating professional programs and collaborative change between organizations, and marketing library services.