

# Using Electronic Bulletin Boards with College Biology Classes

Michael A.J. Collins

*Guest Author*

In recent years many universities and colleges have seen student enrollments continue to increase at the same time as operating revenues are decreasing. For many instructors this equation translates into ever increasing class size and having to do more with less. In my own case, class size in my second-year course, Biology 2040—"Modern Biology and Human Society I," has steadily increased, from 42 when I first taught it to 175 this last semester. Large class size changes the whole teaching and learning environment, including the way one teaches and evaluates, but the effect on the students is perhaps even more dramatic. Many students tend to be intimidated by large class size with the result that fewer students ask questions in class, even fewer volunteer information in class, and any class discussion is effectively stifled. Technological advances have enabled a number of campuses, including my own, to install multimedia equipment in larger teaching rooms, and so larger classes can now benefit from the provision of multimedia projection devices for use with equipment such as television cameras, microcomputers, videocassette players, and videodisc players. In this sense at least, the quality of the "instructional" environment may have actually improved in many large class situations. What has not generally improved, however, is the frequency of student-professor interaction, and of student-student interaction in large classes.

Being an enthusiastic supporter of the use of computers in the teaching and learning process, I was intrigued,

therefore, to read two articles that described the use of computer conferencing in college courses: one with an off-campus history course and the other with an on-campus philosophy course. Coombs (1992) used electronic mail and computer conferencing systems in an American history telecourse.

According to Coombs,

"Prior to the methodological change, the course had utilized traditional mail service and telephone . . . E-mail served to successfully replace the role of the telephone, and computer conferencing provided group interactions similar to those in a classroom." (p. 28).

In the second case, Cavalier (1992) used an electronic bulletin board in an on-campus philosophy course.

"Each student was required to make two or more postings a week, which were to follow the general content of the class meetings. I chose to remain off-line to allow students to feel more comfortable experiencing themselves as peers" (p. 34).

Cavalier goes on to say that,

"What developed was truly enlightening . . . students were able to reflect and compose at their own pace and convenience, resulting in round-the-clock dialogues of surprising depth and insight" (p. 34-35).

Even though neither of these approaches was designed for use with large classes or biology classes, nevertheless I immediately recognized an opportunity for me to employ a similar system to foster interactivity in my classes. The following November, therefore, I approached our Department of Computing and Communication with the idea of having a class-specific electronic bulletin board created for my own class. My original idea was to have all the students use

an E-mail account to post notices to all the other members of the class. Discussions with the manager of Computing and Communications, however, led to the notion of using the mainframe software package 'DEC-Notes' as the software platform rather than E-mail. This software would allow class members to post notes to the whole class, to reply to notes, or just to read notes and replies.

The start date of the project was to be the beginning of the Winter semester in January 1994, but circumstances well beyond my control prevented such a start, and it wasn't until the fifth week of the semester before the software was officially available to students, and not until the seventh week that students actually began to use it. With the very late start date I decided not to make use of the system compulsory for all students and to set down guidelines, but rather to make its use optional and see what sort of use was made of the system in the absence of guidelines for its use.

## **Using the 'DEC-Notes' Software**

Upon accessing the mainframe, the user types in the command "NOTES" to use the DEC-Notes software. The first time a user accesses the system the command "ADD ENTRY BIOL2040" is used to have the bulletin board added to the student's personalized menu. From then on the user types "OPEN BIOL2040" to gain access to the class bulletin board. Upon entry to the menu the student is notified of new notes that have been added since his/her last entry. The "DIR" command can be used to give a listing of all the notes and replies posted. The directory lists each topic by number, author's E-mail address,

**Michael A.J. Collins** is Associate Professor of Biology at Memorial University, St. John's, Newfoundland, Canada A1B 3X9.

date, title of the note, and the number of replies to each note. Entering the number of a note (e.g. 3) or a particular reply (e.g. 3.2) will bring up the text of that note or reply. Students can post their own notes by using the "WRITE" command and then typing in the text. Students can respond to notes they are reading with a "REPLY" command. A title can be added to a note or response. In addition to the bulletin board, each student could also access me directly (and confidentially) through the internal E-mail system.

## Results

During the remaining seven weeks of the semester the system registered 119 postings (bulletin board and E-mail combined). A questionnaire administered to students at the end of the term indicated that 40% of the students in the class had used the system to read notes and responses, with nearly half of these also posting notes or replies. Among the comments made by students on the end-of-term questionnaire were the following:

"Questions can be asked without shyness; topics not directly related to the course can be discussed with other students and the professor."

"It allowed us to express our ideas and views that I myself would never have done in class itself because it was so large."

"The system made it easier to ask questions than it is to inquire in a large classroom."

"It saves the student the ability to 'speak up' about the topics and, address topics that were not covered but which may be important to the individual."

"It allowed one to partake in the course at their leisure (i.e. if they found something interesting or had a question), they could ask it immediately."

With the late start of the project I had decided not to set guidelines for the bulletin board's use, but rather to wait and see how it was used. The types of notices and responses posted by the students fell into one of a number of categories, namely:

- administrative information
- system-related inquiries
- requests for clarification of classroom material
- discussions of issues
- information on non-course material.

There were a number of inquiries of an administrative nature such as the dates of upcoming tests, the locations of course-related materials (i.e. readings, texts, computer programs, videos,

etc.), the opening times of the (Biology) departmental help center, and the like. There were also a few postings relating to the actual operation of the bulletin board. Quite often the answers to these software-related inquiries were answered by other members of the class without my having to respond.

Many of the inquiries were for clarification of material covered in class. In each case, since the response was posted on the bulletin board it was not just available to the student who asked the question but to everyone else in the class as well. Several course topics, most notably "Reproductive Engineering," elicited discussion relating to the ethical use of such procedures, and often included some rather "heated" discussions on occasions. Such wide-ranging discussions in which students could "voice" their opinions were just not possible in the classroom setting. A number of students used the bulletin board to ask for or give information on topics not covered in class. Such questions included, "Which foods are good sources of Vitamin E?", and "Why do certain types of earrings produce allergic reactions?" Again I found that such questions were often answered by other students in the class. A number of students also posted items of information found in periodicals, television programs, and even on the INTERNET. Again, this sharing of information does not usually happen in large class settings.

As for my own use of the system, I found that my postings fell into one of the following categories, namely:

- administrative announcements
- answering student inquiries
- posting items of interest
- miscellaneous items.

Very soon after the start of the project I realized that I could use the system to "broadcast" administrative announcements such as test times and dates, departmental help center hours, test marking schemes and the like, so saving valuable class time that would otherwise have been consumed by such announcements. I also posted items that supplemented course material, such as abstracts of articles in recently published periodicals. As might have been expected, much of my use of the system was to answer student inquiries. The miscellaneous items included such things as how to go about taking out a subscription to *ABT!*

## Conclusions

Although the experiment was conducted over a shorter period of time

than had originally been planned, the results were most illuminating and informative. My original reasons for using the electronic bulletin board had been to foster student-student interaction and student-professor interaction. The student comments on the questionnaires together with my own observations suggest that these objectives were successfully met. Of course student-professor interactions through computer conferencing will never be a total replacement for face-to-face interactions, but computer conferencing does provide another channel for such communications. The student responses seem to suggest that even students who would normally be reluctant to ask questions in class or comment on issues will do so through computer conferencing. The other interesting aspect of the use of computer conferencing is its availability around-the-clock so that students can ask questions, make comments, etc. at any time that suits them rather than having to wait for class or an opportunity to talk to the professor.

Even though I would most certainly use computer conferencing with future classes, I would have to carefully consider whether or not I would make its use compulsory for all the students, given the amount of use of the system in the relatively short period of time my class used the software. In all probability I will have to hire a student assistant to manage the bulletin board for me, so relieving me of purely administrative duties such as ensuring all students have computer accounts, offering training sessions to students, answering system-related inquiries, troubleshooting, and checking the operation on a regular basis. Whether a class is large or small, computer conferencing can add an extra dimension to the learning process.

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## References

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