

Challenges of Video-Conferencing Teaching and Effective Teaching Methods

Paula FITZGIBBON

Higher educational institutions are increasingly called upon to make cost-cutting decisions in the types of courses offered, the maximum number of students allowed per section and course delivery modes. Lever (1992) says that this "doing more with less" is one of the core challenges facing community colleges and universities. All of us involved in teaching have seen the maximum number of students per class increased. We have been forced to change our teaching approaches and to modify the length and type of course assignments in order to not only accommodate the growing numbers of students in our classes but to save our sanity. Students and instructors involved in courses that are taught in remote areas, which are hosted by universities located several hundred miles away, have also felt this tightening of the resource belt. For example, administrators, who had supported pedagogically and economically that an instructor's physical presence in a classroom contributed to the success of the students and the program, are now informing their academic staff members that teaching by video conferencing is a viable alternative. Some are even proposing that technology based classrooms can produce higher results than the conventional classroom. Such views are supported by The Academic Technology Center at Cornell University, which suggests "distance teaching and learning can be equal to or better than in-person teaching in a traditional classroom" (2001, p. 1).

I do not have the expertise nor the experience to argue whether teaching to groups at remote locations can be equal or better than on-site teaching. However, I do believe that whatever mode of teaching we do use, as Taylor (1988) reminds us, "there is no substitute for the interaction between a good lecturer and the audience" (p. 167). In this paper, I discuss effective instructional methods while employing video-conferencing as a course delivery mode. My first data source is from a review and analysis that I conducted on a rural-based teacher education program, which was based in a rural community, from its inception in 1990 until 2001. Responsibility for the overall planning and supervision of the program rested with the host university's education faculty, which was located several hundreds of miles away from the rural campus. Course delivery was by local lecturers and by instructors from the host university who flew to the area for some classes and conducted others by video conferencing. The second data source is from a search of the literature on video-conferencing as a course delivery mode.

Video Conferencing as a Course Deliver Mode

Teaching by video-conferencing "is a unique method of providing real time face-to-face interaction that enables immediate peer and teacher interaction and feedback" (Andrews & Klease, 1998, ¶ 4). There are several types of video conferencing teaching methods. One type is a site-to-site situation where instructors teach students who are sitting in desks immediately in front of them while simultaneously teaching others who are sitting at desks or tables located in another geographical region. A second type of video-conferencing is where instructors are alone in studios and teach to students who are grouped elsewhere. The third type is a multi site-to-site situation and instructors teach from a main site to a number of other sites (Burns, Lander, Ryan, and Wragg, 2000). The number of students in technology-based teaching courses may range from a handful to a lecture hall full of people.

Students' and Instructors' Comments and Suggestions for Improvement

The students in the rural-based teacher education program that I conducted the review and analysis on did not respond well to video-conferencing as a course delivery mode. My evaluation indicates that even though the host university attempted to improve this type of delivery mode, it was used less and less. By the 1998-99 academic year, only one instructor out of the eleven who were involved in the program and who had provided data for the evaluation, reported using it.

The students in the rural-based teacher education program felt that the on-site presence of an "expert" was necessary for an optimum learning environment. Andrews and Klease (1998) indicate that many students have a traditional view of what a university education means and have specific expectations regarding their role and that of the instructor's. In such classrooms, instructors are present, but in video-conference ones, students view them on screens. Andrews and Klease point out, "For most of us, watching television is a passive activity and we are not expected to respond to it" (¶ 23). Brown (2001) indicates that nearly all the students in her study on distance learning also "wanted more input from professors" (¶ 31). However, it is interesting that Schiller and Mitchell (1992) find that remote students are usually more understanding and tolerant of video-conferencing limitations (p. 7).

Students need time as well as guidance and support before being plunged into a learning environment that they have little or no experience with. Brown (2001) recommends that students, especially those who are new to

technology based teaching, should receive a fair amount of institutional support as well as encouragement. It is natural that learners will have anxieties about a teaching medium that they have never experienced before. Prior to courses, students should be given an opportunity to examine their approach to listening and instructors need to be aware of listening skills and be ready to discuss them with learners. Underwood (1989) points out, "Whilst it is not known precisely what occurs inside a listener's head during the process of listening it *is* possible to provide opportunities for students to consider the problems they encounter and to support them in their attempts so that they are likely to become better at listening" (p. 21). She suggests that teachers should expose students to a range of listening experiences, make listening purposeful for the students, helps students understand what listening entails and how they might approach it, and build up students' confidence in their own listening abilities. Underwood adds, "Success breeds success, and students who feel they are succeeding will be encouraged to go on trying" (p. 22).

Instructors should make an effort to create or build a classroom community at the beginning of a course. Brown (2001) defines "community building" as "creating a sense of belonging, of continuity, of being connected to others and to ideas and values" (§ 9). She feels that "early discussion of community and its potential benefits may create a perceived need that students will then want to fill" (§ 73). Burns, Lander, Ryan, and Wragg (2000) recommend sending a welcome letter to the students. They suggest that the letter should introduce the video conferencing medium; and explain what will happen, what subjects will be covered, and type and number of assignments to be completed. In the letter, Burns et al. also suggest asking students to think of a topic to be discussed during the first class (see section 5.1). They recommend including an interactive segment early in each lecture, and state that it is best to prepare for additional activities in case the first interaction does not achieve its aims or if there are unexpected technical problems (see section 5.2). Instructors can also create a desire to participate by taking time at the beginning of the course to thoroughly discuss classroom community and the ways it can be achieved. As Brown (2001) states, "Early discussion of community and its potential benefits may create a perceived need that students will then want to fill" (§ 73).

The written comments from the students in the rural-based teacher education program indicate that many of them felt lonely and alienated when they were taking courses that were taught using a video-conferencing delivery mode. The Academic Technology Centre at Cornell University (2001) warns that instructors are often challenged to keep students interested and involved because of the physical distance that separates them. Lever (1992) states that video-conferenced courses "do not provide the opportunities for interaction characteristic of the live classroom" (§ 10). Instructors can help ensure that all students participate more in classes by learning their names and calling upon them. In addition, a variety of questions that require students "to actively process information and compose an answer" should be used (Cruikshank, Bainer, & Metcald, 1995, p. 344). Good and Brophy (1987) discuss the importance of such questions and find that the more students interact with instructors and their peers about a topic, the greater the learning. Burns, Lander, Ryan, and Wragg (2000) suggest that students be informed of the lecture's structure prior to taking such courses. They strongly recommend giving regular feedback to students, which helps to reduce feelings of isolation; and to promoting the exchange of e-mail addresses amongst class members to encourage communication beyond the walls of the classroom (see section 5.1). Burns et al. also stress that instructors need to emphasize that everyone is expected to interact. Lane (n.d.) believes that instructors can increase student interaction by making such discourse account for up to 40 percent of the course grade. She explains, "With the requirement for meaningful interaction, students seldom fail to participate" (§ 13). I have some problems with putting so much weight on participatory requirements as it opens up the question of what defines "meaningful interaction." In my own teaching, I find students who tend to be more withdrawn than their peers are often the ones who demonstrate excellent listening skills. For example, they indicate that they are listening intently to the comments of others by nodding their heads, leaning forward in their chairs, and keeping their eyes on the speaker while s/he is talking; and therefore, in their own way, such students contribute to classroom discussions.

Several of the students in the teacher education program indicated that a number of their peers took advantage of the fact that instructors were unable to observe them all the time and in all places in the classroom. They reported that they felt alienated from some of their peers as well as embarrassed because some of them said rude comments or made disrespectful gestures about the instructors, who were unaware of what was going on "behind the scenes" in the classroom. One way to avoid such a situation, is to request that students who are sitting out of the camera's range, where the potential or opportunity for them act in such a manner increases, to move to a seat where they can be seen and heard clearly. In addition, students should be warned that even if they whisper or speak in a low voice, what they say may be overheard by the instructor, which could lead to an embarrassing situation for everyone concerned. Burns, Lander, Ryan, and Wragg (2000) recommend establishing a protocol for interaction during the first lesson. They state, "It is important that all participants understand and follow the etiquette of 'taking it in turns'" (see section 2). They also point out that students need to be aware that some sound systems will cut a speaker's transmission off when someone talks over them. Of course, the on/off switch could be used during lectures to eliminate or reduce feedback problems, but in my opinion, the use of them would seriously erode interaction and increase the chances that students will make negative comments. It has been my experience through two decades of teaching experience that students' respect for their instructor usually increases, which helps to minimize classroom management problems, when they believe that the instructor has taken a genuine personal

interest in them. To promote this belief, Burns et al. suggest increasing eye contact and body language with students (see section 2.4). It is also advisable that instructors visit their students at least once during the course. During such visits, the students will have an opportunity to get to know the instructor on a more personal level; and the instructor will be to view individuals during class time as well as breaks and thus become more aware of their personalities, needs, and strengths. Cruikshank, Bainer, and Metcalf (1995) state that while personal characteristics, such as being friendly, humorous, enthusiastic, and being verbally fluent as well as knowing your subject, are helpful to being a good presenter, they are not sufficient unless the instructor also possesses knowledge of their students (p. 167). Nakamura (2000) states, "You must believe that most problems can be resolved by working on and improving human relationships, because once you meet the students' needs, students will usually meet yours" (p. 65).

The students in the teacher education program complained about a loss of spontaneous interaction with the lecturers. Treagust, Waldrip, and Horley's (n.d.) research, which used a combination of qualitative and quantitative methods to evaluate the effectiveness of video-conferencing in presenting two different courses, suggests that the size of a group should be limited to 12 participants in order to increase and encourage rapport between the instructor and the students (§ 25). The students in the program also felt that video conferencing made the class time seem longer. Holcombe and Stein (1990) state that people are quicker to tire during video conferencing than during face-to-face teaching. They suggest that continuous class time, without a break or altering activities, should be limited to a maximum of thirty minutes (p. 187). The Academic Technology Center at Cornell University recommends that the total amount time spent lecturing should be less than 50 percent and that 30 percent is even better. They also suggest that frequent breaks should be planned for (2001, § 6). Schiller and Mitchell (1992) believe that a variety of presentation techniques are essential during any video-conferencing class (p. 10). These techniques may include such activities as question periods, discussions, role-playing, reading from texts, oral reports, debates, brainstorming, as well as student team cooperative learning. Nelson and Wallick (1990) point out instructors can get immediate feedback on whether students are feeling involved by watching their faces while lecturing and by asking themselves questions, such as: "When do they look puzzled? When are they smiling or laughing? Do any heads nod in agreement or shake in disagreement?" (p. 128)

Andrews and Klease (1998) find that students often feel inhibited in courses that use video-conferencing as a delivery mode. They explain that students perceive they are being focused on from a number of directions, such as from the camera, from their on-site peers and possibly from peers at other sites, as well as the instructor. Treagust, Waldrip, and Horley (n.d.) suggest that an informal conference room tends to produce more positive student responses in this regard than a lecture hall (§ 3). Burns, Lander, Ryan, and Wragg (2000) concur and add that it is best not to make the session too formal (see section 2.4).

Burns, Lander, Ryan, and Wragg (2000) point out that video conferencing can be a very intense experience for the students and the instructors. They state, "If students do not feel involved they can easily be turned off and become detached from the learning process" (see section 4.2). Burns et al. find that camera pre-sets, which can be set to zoom in on groups of people or individuals, help to encourage student interaction. Such pre-sets enable the camera to be set in a number of positions before the class begins so that the camera will automatically move back to one of the positions at the touch of a button. They also find that camera pre-sets help to convey the presence of an individual in the class and add variety to classes because students are not always watching a fixed set (see section 2.4). Video-conferenced classes can also seem to "drag" because watching images on a screen tends to cause visual fatigue, which results in observers feeling tired and even irritable. One way instructors can help to reduce such eye strain is to avoid wearing any clothing that is orange or red in colour or that has a "busy" or bold pattern, such as stripes, bold floral, or checks (personal communication, Anna Williams, April 26, 2003). Another way of decreasing eye fatigue is to ensure that the font size on typed overhead transparencies is large enough so that everyone can read the material with ease. Nelson and Wallick (1990) stress that the use of visual aids can destroy a presentation if they are improperly used. They suggest having everything in place prior to the class; speaking to the students rather than to the visual aids; talking louder when using them because some machines are noisy; and being careful that the students' views, particularly those sitting at the sides of the room, are not blocked by the instructors' body or other objects in the room (pp. 110-112).

Many students enrolled in the rural teaching education program felt that video conferencing increased their sense of professional isolation. They believed that the instructors' major sense of responsibility was to the host university rather than to the rural-based one. Interestingly enough, I could not find anything in the literature that addresses this problem, but suggest that it would make a worthy comparison research study. Instructors could help ease this sense of professional isolation by finding ways to ensure that their students, who are taking classes at a location other than the host university, feel that their contributions and efforts are valued and that their achievements are worthwhile.

The instructors in the rural-based teacher education program reported little enthusiasm for video conferencing but their written comments indicated that they would like to continue to be involved with it if improvements and changes were made. Even though the host university attempted to improve video conferencing

by ensuring that course materials were delivered before classes, this type of delivery method was used less and less and in the 1998 - 1999 academic year, only one instructor out of the eleven who had provided data for the evaluation, reported using it. However, Baker and Hansford (1989) believe that is not the technology that determines its effectiveness, but rather aspects of instructional presentation and communications (p. 36). In reading through eleven year's of instructors' comments, I did not find any indication that the instructors felt a personal sense of responsibility or obligation to learn more about technology-based teaching; nor did I come across any comment suggesting a need to examine personal teaching approaches.

Conclusion

Educational institutions planning on using video-conferencing need to be aware that teaching such courses takes a great deal more time to organize and structure than those taught by more traditional teaching methods, and this is true even if an instructor has taught the course before (Schiller & Mitchell, 1992). As Andrews and Klease (1998) point out, "The role of staff development activities and time for skills acquisition are critical to the success of developing these models" (¶ 7). Instructors need to familiarize themselves with the equipment, become aware of the different learning conditions that the students are under, redesign visual aids that will work with the system, and make changes to the organization and management of the course (Burns, Lander, Ryan, & Wragg, 2000, see section 1).

It is essential that students receive training prior to taking a course delivered by video-conferencing, so they can appreciate what the medium can achieve, what its limitations are, and what will be expected of them. In addition, if students believe that their instructor has optimized course content and delivery, they will be happier and more receptive during class time, which usually has the domino effect in that the instructor is also more satisfied with the learners and with teaching the course. Building a community of learners when teaching a class by video-conferencing is possible. However, as Brown (2001) points out, such a community does not emphasize just a sense of togetherness between the instructor and the students, it helps to keep students in a class and in a program, promotes engagement in a course, facilitates collaborative learning, and encourages communication after a course or program has been completed for personal and for professional purposes.

A major finding from my research is the need for instructors to understand and acknowledge that using video conferencing as a delivery mode will have an impact on teaching styles and methods. Even though the term "interactive video-conferencing" is often used when discussing this type of technology-based teaching, successful interaction does not take place unless instructors plan and understand how the medium will alter their teaching approaches. However, my findings also indicate that whether the course delivery mode is a traditional one or a technology-based mode, effective teachers establish and maintain a highly interactive classroom community. They are enthusiastic, use humor effectively, and have high expectations for themselves and for their students. Such teachers encourage and support their learners. They come prepared to classes, have checked that equipment is working prior to it, and ensure that students have the necessary materials when the class begins. Therefore, any discussion on "how to be successful" when using a video-conferencing course delivery mode should be based on sound teaching practices-- successful teachers are knowledgeable about their subject, about their learners, and about pedagogy.

References

- Academic Technology Center, Cornell University. (2001). *Video conferencing instruction: Instructional considerations*. Retrieved April 21, 2003, from: <http://www.cit.cornell.edu/atc/materials/vtc.instruc.shtml>
- Andrews, T. & Klease, G. (1998). Challenges of multisite video conferencing: The development of an alternative teaching/learning model. *Australian Journal of Educational Technology*, 14 (2), 88-97. Retrieved April 22, 2003, from: <http://www.ascilite.org.au/ajet/ajet14/andrews.html>
- Baker, R. & Hansford, B. (1989). *An evaluation of a two week teaching trial using interactive video technology: Perceptions of students and staff*. University of New England: Armidale, New South Wales, Australia.
- Brown, R. E. (2001, September). The process of community-building in distance learning classes. *JALN*, 5 (2). Retrieved November 11, 2002, from: <http://aln.org/alnweb/journal/Vol5issue2/Brown.htm>
- Burns, J., Lander, R., Ryan, S., & Wragg, R. (n.d.). Practical guidelines for teaching with video conferencing. Retrieved April 18, 2003, from: <http://www.jtap.ac.uk/reports/hm/jtap-037.html>
- Coldwell, J., S. Parmler, & Spratt, C. (2000). Using technologies in teaching: An initiative in academic staff development. *Educational Technology & Society*, 3 (3). Retrieved April 23, 2003, from: http://ifets.ieee.org/periodical/vol_32000/f03.html

- Cruickshank, D. R., Bainer, D., & Metcalf, K. (1995). *The act of teaching*. New York: McGraw-Hill.
- FitzGibbon, P. R. (2002). *Review and analysis of the East Kootenay teacher education program 1990 - 2001*. University of Victoria: Victoria, BC, Canada.
- Good, T. & Brophy, J. (1987). *Looking in classrooms* (4th ed.). New York: Harper and Row.
- Holcombe, M. W. & Stein, J. K. (1990). *Presentations for decision makers*. New York: Van Nostrand Reinhold.
- Lane, C. (n.d.). *Video, audio & computer conferencing*. Retrieved April 22, 2003, from: <http://www.tecweb.org/eddevel/edtech/deconf.html>
- Lever, J. C. (1992, February). Meeting increasing demand using distance education. *Leadership Abstracts*, 5 (2). Retrieved April 22, 2003, from: <http://www.league.org/publications/abstracts/leadership/labs0292.html>
- Nakamura, R. M. (2000). *Healthy classroom management: Motivation, communication, and discipline*. Wadsworth: Belmont, CA.
- Nelson, R. B. & Wallick, J. (1990). *Making effective presentations*. Glenview, Illinois: Scott, Foresman and Company.
- Schiller, J. & Mitchell, J. (1992, November). Interacting at a distance: Staff perceptions of teaching and learning via video-conferencing. Paper presented at Australian Association for Research in Education/New Zealand Association for Research in Education Joint Conference, Deakin University, Geelong, Victoria.
- Taylor, C. (1988). *The art and science of lecture demonstration*. Bristol, England: Adam Hilger.
- Treagust, D. F., Waldrip, B. G., & Horley, J. R. (n.d.). *Effectiveness of ISDN video-conferencing: A case study of two campuses and two different courses*. Retrieved April 6, 2003, from: <http://www.usq.edu.au/material/unit/resource/treagust/treagust.htm>
- Underwood, M. (1989). *Teaching listening*. New York: Longman.