

Interactive video:  
teaching/learning at a distance

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#### Abstract

At a previous AARE conference we reported our preliminary findings on the use of videoconferencing in a distance education course offered by Murdoch University. Since then we have used videoconferencing in a second unit and explored in more depth issues raised by the first program. Literature on the topic and our own experiences suggest traditional teaching methods are often not suited to videoconferencing and new teaching strategies have to be adopted. In this paper we report

on some of the strategies we have trialed for use specifically in videoconferencing. These strategies and practical guidelines for videoconferencing are integral parts of a handbook, presently in press, which will be available to Murdoch staff and others who want to use this innovative technology most effectively. This paper will appeal to those who are keen to adopt videoconferencing but are concerned by the lack of pedagogical research into teaching strategies suited to the medium.

#### Introduction: the history of the project

In 1992 some of my co-workers and I were faced with a technology which

held out much promise but about which little was known, in terms of its application to a teaching/learning context. I refer, of course, to videoconferencing. At that time we were concerned that any application of videoconferencing should be client rather than technology driven.

Results from a large-scale survey which we conducted (see Aveling, Smith and Wilson, 1992) indicated that distance education students would welcome any innovations that would help to bridge the distance between learners and the institution in which they were enrolled.

In 1993 we compared (with the assistance of a CAUT grant) the relative effectiveness of including a one-off video in which tutors introduced both themselves and the content of a particular unit of study to external students, with integrating a series of videoconferenced tutorials into a different, but comparable unit of study. This study gauged student attitudes and learning outcomes and concluded that both technologies were useful in enhancing students' sense of belonging to the university, and also contributed to students' sense of mastery of the required study materials.

Videoconferencing appeared, on the surface, the more promising of the two innovations because of its potential for interaction. This medium, however, is limited because its operation depends on students being able to access videoconferencing equipment compatible with the equipment at Murdoch University, at a site which is within reasonable commuting distance. The expense of videoconferencing also mitigates against its use on a regular basis. Nevertheless, those students who participated in the videoconferencing component overwhelmingly reported that the intervention had been a success, both in terms of learning outcomes as well as in fostering a sense of 'belonging to the university':

Overall, this was really great ... helped in motivating my study attitude for all my external work, not only this course.

Being part of a tutorial group gave me the motivation to keep up with my reading ... many thanks for help it gave me.

Excellent concept ... very useful for external students.

Best external course I have completed ...

Found this the most supportive external course to date.

Truly enjoyed videoconferences and feel I have benefited enormously.

Enjoyed hearing other views ... very useful to question yourself and your understanding.

At the outset we intuitively felt that the medium required different approaches than those normally used in tutorial situations. Over eight, one hour sessions, therefore, we experimented with different structures and styles. Given our earlier findings, which suggested that many external students missed being able to 'compare notes' with their peers, we felt that interaction was the key to maximise effective learning within the context of videoconferencing.

Videoconferencing, more than any other technology, has the advantages of approximating most closely the immediacy of face-to-face teaching. However, the medium is not transparent, as is frequently claimed, that is, it approximates but does not duplicate face-to-face teaching.

In order to facilitate interaction among students, interaction between students and their tutor, as well as facilitating active engagement with the print-based learning materials, we used various combinations of the following strategies:

- 'Firing line' question techniques
- Discussion statements
- Video of lecture
- Role play and debate

Details of these strategies are reported in depth elsewhere (Aveling, Frylinck and Walsh, 1993) - suffice it to say for the moment that all approaches utilised aspects of small group work in various forms.

When we surveyed students' responses at the end of the teaching semester, debates and role playing proved to be the most popular options. Our adaptation of 'firing line questioning' was the least popular. However, it would be misleading to point to any one strategy as the sure-fire way to success, as all of them made a contribution and as one of the students commented:

It was really great to experience so many teaching strategies - I plan

to adapt most of them for my own teaching.

### Relevant issues in videoconferenced tutorials

Given the overall success of the above strategies - which are ultimately limited only by one's imagination and the substantive content of the material being taught - what I want to do here is outline some of the issues which arose for us. These are issues which are likely to be important in any teaching/learning situation which incorporates videoconferencing, irrespective of the particular strategies used. We identified a number of issues which can broadly be categorised under the following headings:

The technology

Organisation and preparation

Teaching strategies and preferred modes of learning

Assessment

Gender issues

Cost

Accessibility of sites/attendance

Professional development for tutors

The list is not exhaustive and should include our concerns whether students' positive endorsements of videoconferencing was an endorsement of videoconferencing per se, or whether they were responding so positively because of the increased attention they had received from their home university. That, however, is the subject of our next paper in which we raise the question whether or not it is worth the time, effort and expense to pursue this medium for tutorial based teaching or whether other strategies might be equally profitably employed. What I want to do for the moment is expand a little on the issues we raised earlier - I will touch on all of them incidentally and raise some others as we go along - for those of you who are interested in "hosting successful videoconferences".

### Technical considerations

Murdoch, like many Australian educational institutions uses Compressed Digital Format for videoconferencing. This means that there are a few

seconds of delay and this has a number of implications for users as the quality is not of the same standard of that of television. Firstly, there will be a blurring of any rapid movements so any teacher who uses grand theatrical gestures will need to curtail these.

To continue the television analogy, watching a videoconferencing monitor is rather like watching a badly dubbed film since speech and lip movements do not look synchronised. For this reason some pioneers

of the technology feel videoconferences don't really replace face-to-face encounters (Dallat et al, 1992). The implication for users is that they must use wait-time for questions or particularly hesitant students will invariably be cut off just as they're drawing breath to speak.

Murdoch's system is what is known as 'voice activated'. This means the monitor will display the site where the loudest speaker is situated. The reasoning behind this kind of system is that it most nearly imitates a real-life situation and adds to the 'invisibility' of the technology. Obviously, however, problems can arise when there are one or two people dominating the videoconference. In our own research we found that it was frequently males who dominated the discussion if we let them - despite the fact that most of the participants were women. Researchers at the University of Ulster too felt the system does not lend itself to equal participation (Dallat et al, 1992). The implications for teachers are that specific structures have to be put in place to ensure that all students have equal participation time. An examples of such a structure is a round robin where individuals contribute in turn. Alternately questions can be addressed to specific people.

Breakdowns do occur and sometimes contact cannot be made with the other sites. The reason may be problems with telephone wires or faulty connections at other sites. It is best to have a contingency plan for such eventualities. You could consider sending out exercises for each individual videoconference with other material so that students at distant sites can be involved in subject and/or topic specific discussions rather than spending their time in 'gossiping' (although this could be fruitful in itself). Another option is to send out a general 'emergency kit' at the outset. Whatever option you choose, students should be informed of contingency plans and students at sites other than the home site must have other work to keep them on task until contact is restored.

### Expectations

Many tutors like to discuss participants' expectations at the outset of a course and this is certainly a strategy we would recommend for videoconferencing. At the very least you need to alert students to what they cannot expect visual and audio quality of the standard of television. Of course, the expectations of those who are at the tutor's home site might be quite different to those of students at remote sites. For example, we were able to accommodate some of the expectations participating internal students had of videoconferences. The internal students who volunteered to be part of the Murdoch study wanted to learn about the technology as they felt it would stand them in good stead in their future teaching. We were happy to oblige and subsequently these students had a great deal of fun manipulate the controls and becoming technically proficient with the medium.

We should also alert you to the expectations students have of tutorials per se. These will be coloured by their experiences of previous tutorials and lectures. If they are not used to contributing to

discussions it needs to be made clear to them what level of participation will be expected. In our experience there are few things worse than a group of students who were totally unprepared and the success of the session depended on active involvement of all participants.

It will come as no surprise to those who have taught students at a distance that they are keen for feedback from their tutors. Again this was one of the greatest needs identified in the Murdoch survey. Such students are keen to ask questions so tutorials should be structured to allow such opportunities. Remember many of these students haven't been in a tutorial before, let alone a videoconference. In fact, irrespective of the experience we accumulated with respect to videoconferencing we needed to remind ourselves in each of the projects that for our students it was inevitably 'the first time' and things we took for granted were likely to be completely new to our students.

In sum, not only do the students need to express their expectations, but the tutor also needs to make clear what s/he expects of them. As Pat Bertola and Eamon Murphy stress, one of the major reasons groups fail to work is that students do not know what is expected of them. (Bertola and Murphy, 1994).

The good news regarding expectations that externals bring to videoconferences is that they are often so grateful for these opportunities that they are very forgiving and accepting. Certainly this was the experience of researchers at the University of Ulster whose students measured videoconferencing against conventional distance learning rather than using teaching in the internal mode as the standard. With such a baseline the students had few complaints about videoconferencing (Dallat et al., 1992) Latchem, Grant and Walsh (in Herrington, ed. 1994) also report that distance education students are more 'appreciative' and 'tolerant'.

Tutors can also benefit from clarifying their expectations. You need to be aware that you can't simply act as you do when physically face-to-face with students. As Jan Herrington and Geoff Rehn point out, learning to teach and present well with this technology takes time and effort (in Herrington, ed. , 1993).

#### Roles and responsibilities

As is the case with expectations, we recommend that roles and responsibilities are clarified at the outset. Probably one of the most

important points that may need stressing is that tutors ought not to think in terms of simply transferring information to students. If that is your expectation, in terms of the costs involved it is probably worth considering making a video recording to send to students.

Remote students may expect to be 'lectured to' since they have no experience of tutorials and hence they need to be alerted to the tutor's role of facilitator rather than as someone who is the dispenser of all wisdom. It should be made clear to students that they must come to sessions prepared as failure to do so could effect the success of videoconferences. This point may best be made in a mail-out before a videoconference.

### Special demands of videoconferencing

It is as well that both 'parties' - that is, students and tutors - are aware of some of the demands imposed by videoconferences before they commit to them. For tutors preparation loads will inevitably be

greater. Evaluations of videoconferencing programs highlight the large amount of time spent by tutors in preparation for videoconferences (cf Schiller and Mitchell, 1993). Existing materials may have to be adapted or others located. If you have material prepared on overheads, for example, you will need to transfer your transparencies for use with a document camera.

Not only is preparation time likely to be greater, but you will also have to start preparing for your videoconference far sooner than you would have to start preparing for an internal tutorial or lecture. Materials for the videoconference have to be sent off in good time. In fact, leave sufficient time so that more can be sent out if the first go astray. It is as well to decide on a specific day of the week on which to send out materials for regular videoconferences. Alert the students to this schedule so they can contact you if they do not receive their materials. You would also need to remind students before the program starts that they need to commit themselves to the videoconferencing schedule.

### Assessment

If students who are enrolled in different modes of study are participating in videoconferences, assessment requirements are likely to vary. In our case, for example, internal students were used to a tutorial attendance component in their assessment, and remote external students, of course, had never been graded on attendance. When students are expected to attend, irrespective of mode of enrolment, this raises the question of whether videoconferencing should be part of the assessment structure or not. This situation begs the question 'Is it fair not to award any marks for attendance?' An added complication is

that not all distance students have the opportunity to attend videoconferences since the venues are restricted to sites with facilities. So if those who can attend videoconferences were to be awarded marks for attendance one might ask if it is fair to mark some externals differently when not everyone has the choice of participating. In our experience many externals were simply glad to have the opportunity to share ideas with their peers and did not feel disadvantaged because their attendance and contributions were not assessed. We are far from feeling that we have resolved the question of differential assessment but whichever way you go, a decision on this would obviously have to be reached at the outset.

#### Arranging the videoconference room

Experienced teachers will be aware that the way in which a group 'gels' or functions is affected by the venue of their meetings. (Bertola and Murphy, 1994). Our own experience is that physical arrangements certainly do have a significant effect on group dynamics. Simply asking the students at one site to rearrange their chairs so they were facing each other rather than in a straight line facing their tutor changed the dynamics of one tutorial. There was no longer a feeling of the students being passive and the teacher imparting all the knowledge. Obviously the arrangement must be flexible to accommodate different strategies such as small group work. Since the physical arrangement affects group dynamics it is worthwhile spending a little time moving furniture. A semi-circular arrangement is more conducive to group interaction than a more formal setting of straight rows.

#### Group dynamics

Experienced teachers will be aware that in any teaching/learning situation successful group interaction doesn't just 'happen' and it

needs to be nurtured. We feel this is particularly true in the case of videoconferencing and have several reasons for making this claim. Firstly there is the fact that body language is not so easy to 'read'. You are not able to make actual eye contact with people at other sites - what you see is an image of a person, rather than the detail. Secondly, the voice-activated system may encourage domination by individuals. Then of course there is the seconds-long delay in sound and the consequent need for 'wait-time' which tend to dampen spontaneity in group interaction.

Techniques for encouraging successful group work which may seem desirable but not essential for 'regular' tutorial groups are essential for videoconferences.

Below are a number of suggestions:

- It is worthwhile devoting time in the first videoconference in a



series of videoconferences to making a start on establishing successful relationships within the group. Use an icebreaker to help participants get to know each other a little better. Talk about expectations, what constitutes acceptable behaviour and so on. Don't be concerned if the first videoconference is not rich in terms of content as the process of establishing group relationships will pay off later.

- Small group interaction needs nurturing. At the start you may need to set some structure in place, for instance by instructing students to appoint someone to do the recording, another to be the spokesperson and so on.
- If participants are drawn from both external and internal modes of study, avoid emphasising the internal/external divide. When having a debate, for example, don't divide the students into the internals versus the externals as this only serves to make the obvious even more glaring. Thus for small group work you might group some students from the home campus with students off-campus rather than creating straight on-campus and off-campus groups. To get around this problem in the first Murdoch program we named our groups after animals; students had a great deal of fun being "antelopes", "bears" and "elephones", where the "elephones" were a group of students that included telephone participants.

To sum up

Videoconferencing has the potential to make an exciting contribution to teaching/learning at a distance. However, not all remote students will be able to benefit from this technology which should, rather, be viewed as but one of many strategies by which the distance between remote students and their home institution may be bridged.

In practical terms, recent literature on videoconferencing highlights the lack of practical guidelines on teaching strategies suitable for videoconferencing. Our experience has been that it is difficult to 'fudge' a learning experience in a videoconference, something one might get away with in an internal on-campus situation. As one tutor put it, you need to be much more 'deliberate' in your teaching in a videoconference. Hence preparation is absolutely essential and the tutor needs to be on top of his/her topic. The technology shows up any weaknesses in presentation - for instance hesitations are exaggerated by the delay. However, in our opinion the 'different' teaching methods that are required are nothing more than good teaching practices. All teachers owe it to their students to be prepared and know their stuff.

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