Perspectives on Videoconferencing

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Abstract

This paper synthesises the experiences of 17 academics who have used the videoconferencing facilities at La Trobe University, Bendigo at any time in the last six years. It summarises the results of a survey which concentrated on the purpose for which the videoconferencing was used, and respondents' views on its positive and negative impacts. The questionnaire survey was augmented by discussions, and the result is a rich picture of practitioners' subjective impressions. Future trends in the use of this technology are discussed briefly.

Keywords

videoconferencing, extended campus, La Trobe University, Bendigo, Sunraysia College of TAFE

1. Introduction and Background to this Study

Videoconferencing has been used by La Trobe University, Bendigo (through its various incarnations) for teaching at extended campuses since 1989. Prior to its introduction other media were investigated, and various pilot studies and evaluations performed (Byrne, Dunn and Howland, 1991; 1989 notes). A Vistel system was introduced, initially linking Bendigo with Mildura students at the Sunraysia College of TAFE, and later including other extended campuses.

In 1993 a major evaluation (Dunn and Howland) was conducted:

- to evaluate the performance of students at extended campuses, and to compare their performance to the performance of students on the home campus;
- to evaluate the perceptions of students of their courses at the extended campuses and to compare their perceptions to the perceptions of students on the home campus;
- to assess the impact of varying modes of delivery of teaching at the various campuses; and
- to compare student perceptions of their courses with their student performance.

Smith, Fyffe and Lyons (1993) have also described their experiences to that point. These papers emphasised the pedagogical effects of videoconferencing. Prain and Booth (1993) examined presenters' views of a range of experimental interactive television programs on professional development, including one from this campus.

The present study attempts to present the accumulated Bendigo videoconferencing experience from the academic's point of view: to give a rich picture of the uses to which it is put, and the subjective impressions of the staff concerned. The chief impetus for this study was the 1995 change of the

technology from Vistel to Vtel, and its installation university-wide. It was anticipated that the change would have had an effect on the academics involved, and it seemed timely to synthesise these practitioners' experiences for the benefit of the larger university community who now had access to this technology. It is hoped that this synthesis is also of interest to the ASCILITE community.

2. Methodology

A two-page questionnaire was sent to 28 people identified by Media Services staff and others as users of the videoconferencing facility. A follow-up was sent four weeks later to those who had not responded. Responses were analysed manually: given the volume of the material, this was manageable and seemed effective. Various queries resulting from the questionnaires were resolved, and selected respondents then participated in a videoconference on the topic which further augmented the data.

3. How has Videoconferencing been Used?

3.1 Users

School or section	Responded		Did not respond	
	F	M	F	M
Administration	-	-	-	2
Arts	1	1	1	1
Business	3	4	-	-
Education	1	2	1	2
Health Sciences	4	-	-	1
Science and Engineering	-	-	-	2
Other (U3A)	1	-	-	-
Mildura	1	-	1	-

Table 1. Responses to questionnaire

Table 1 shows that eighteen responses (11F, 7M) were received from 28 questionnaires (14F, 14M). The absence of administration or science responses was disappointing, but the major educational users of the system are represented.

3.2 Format and purpose of videoconference

Various different uses of the technology were reported. They are classified here as regular lectures, revision, supervision, small group sessions and demonstration and investigation.

3.2.1 Regular lectures

Lectures were categorised as 'regular' where it seemed that the Bendigo lecturer was the main source of teaching. Scenarios and subjective impressions varied; the most detailed descriptions were positive, and are repeated here:

- *This second year subject had all lectures presented from Bendigo with tutorials conducted at Mildura. Final student results were comparable to Bendigo and student assessment of the subject was highly favourable. It was a 'fun' experience which we conducted within a studio context. The elmo was easy to use and made overheads, etc. an integral part of the process. It was truly interactive because of the small group at Mildura. Chris Meurer [Media Services] assisted with some 'Dicky Knee' (a la: Hey Hey It's Saturday) excerpts which added some comedy to the presentations. Tapes were also sent for replay purposes. At the*

end of the semester the class organised their own presentation back to me and organised a dinner for us in Mildura.

- *The videoconferencing is combined with block teaching in Mildura and tutorial sessions by a local tutor after the videoconference session. This has been more successful than videoconferencing alone. Students generally have expressed difficulty with very long sessions. The tutorial support has been important because some of our students travel a considerable distance and need to spend large blocks at classes to make the best use of time, but find it very tiring if all those blocks are in front of a videoconference screen.*

The general impression is that a 'successful' session is an interactive one. Factors mentioned as encouraging this are a single destination; a small group (sixteen was the maximum size for a really positive response in this survey); an introductory visit long enough for both ends to know each other (and for the lecturer to be able to call the students by name in later videoconferences). The ability for the lecturer to be able to control the distant camera, and the presence of a tutor at the other end, were also mentioned as positive.

3.2.2 Revision

Much of our teaching at distant campuses uses local TAFE teachers to deliver material set by the Bendigo lecturer. Assignments and exams are identical to those given simultaneously to Bendigo students, and assessment is moderated. In these cases, videoconferencing may be used for introductory and revision sessions. One report was reasonably positive:

- *Seems to reassure students at the 'other end' that I am real and that their lecturer is on the 'same wavelength' as me.*

Another two were less so:

- *First time I used it I thought I could simply repeat the revision lecture I had given to the Bendigo students. After telling some (unfunny I admit) jokes and obtaining no response from the students I became very self-conscious to the point where my mind blanked out for a while. Seeing yourself perform on TV as you do it is different to a normal lecture.*

- *[Videoconferencing for] discussion of student results and moderation was more effective [than for the revision session].*

3.2.3 Supervision

It seems that this medium could reasonably be used for research supervision. The only experience reported (of PhD supervision) pre-dated the current system's facility to annotate a document from either end, and ended after about ten fortnightly sessions. The supervisor reported it as 'unusual, not direct personal contact'.

3.2.4 Small group videoconference sessions

Various other uses of the technology were mentioned. One was *assessment* of student presentations:

- *With the student presentations which went for a whole day, we staggered the times so that no students were there for more than three hours, whilst still ensuring that all presentations had a local audience. The presentation day was generally successful except that we had technical problems during the last presentation which meant that the last presenter had to finish her presentation by phone; and it was on a Saturday for the convenience of students, many of whom work full-time during the week. Students were not allowed to operate the system and a technician had to be present for the time, incurring costs.*

Another was *interviewing*, where the interview panel consisted of 3-5 members in Bendigo and two at the remote campus:

- *Applicants all stated that it was disconcerting. One student wrote expressing her dissatisfaction.*

The use of this technology for *meetings* was under-explored in this survey, where the emphasis was on teaching and learning uses. Reactions are, however, mixed. One academic responsible for organising student teacher practicums was enthusiastic:

- *I have been pleasantly surprised by the new developments this year. The opportunity to look at and 'write on' the same text from both ends has come close to eliminating the need for me to make trips to Mildura to discuss subject revisions.*

Another (involved in enterprise bargaining) found the medium tiring:

- *If the purpose of the video conference session was not strongly compelling I would find it difficult to sustain interest.*

And another whose meeting type was unspecified commented that it 'increased meeting efficiency'. It was interesting that no-one involved in meetings reported the phenomenon commented on by a Bundoora colleague after an exploratory videoconference meeting this semester, that the focus on the videoconferencing inhibited local discussion.

3.2.5 Demonstration and investigation

This was sometimes reported as a purpose, e.g.:

- *This demonstration of the facilities to a group of 20 educators from around the state who were interested in both the medium and the message (i.e., the conduct of practicums).*

Only one Bendigo person outside university staff was surveyed, and she reported a similar use, where the investigation of the medium seems nearly as important as the educational value of the videoconference. The last of her six classes was videotaped:

- *The video is for ACFGE Board, to be evidence of accountability, with a copy for our files, one for U3A Sunraysia, and one for U3A Network, Victoria—also evidence of U3A's involvement in new technology.*

3.3 Practical considerations

Lectures varied from one hour (once or twice a week) to 'about two hours per lecture, once every three or four weeks'. One respondent who had tried both 50-minute and 90-minute lectures reported that the 'shorter time [was] preferable with a tutorial on-site to follow'. The duration of sessions other than lectures were reported as anywhere from 30 minutes to six hours.

The number of students at the receiving end of the videoconference varied from four to forty. In most cases the students were at Mildura. In some cases a class in Bendigo was conducted concurrently with the videoconference: extra care had to be taken here that students did not feel disadvantaged with respect to the other group.

Some videoconferences were multipoint (i.e., to several campuses at once); this became a problem this year, when the link to Wangaratta ceased, and some other measure had to be devised for them.

A range of subjects were reported taught with a videoconferencing component. Most of these were at the first-year undergraduate level (e.g. General Accounting 1), but Health Sciences in particular seems to have used the facility for more advanced classes (e.g. Advanced Professional Issues). No observations were made regarding the level taught.

4. Perceptions of the Videoconferencing Experience

4.1 Negative aspects of videoconferencing

4.1.1 Interactivity

Most of the negative aspects involved interactivity when dealing with a class:

- *When I am teaching these same students face-to-face I can hardly get a word in!. They debrief on many issues. Using videoconferencing, they feedback very little.*
- *Difficult to gain feedback from students. They tend to just sit with expressionless, vacant faces.*
- *Difficult to obtain responses from students; difficult to assess understanding of students; inability to see non-verbal cues / signals.*
- *Loss of 'personal'—especially if group is too large—no major difference to a large lecture I suppose, but there is no eye contact possible.*

Some perceived reasons for this poorer interactivity were:

- *More difficult if the group haven't met before.*
- *Discussion can be reduced by 'fear of technology'; getting technology to work.*
- *Time lags for responses. Spontaneity gets lost.*

One lecturer also noted that it is:

- *Difficult to be interactive with more than one destination at a time.*

And another involved in negotiations criticised the visual quality:

- *Hard to synchronize dialogue since visual cues and other cues are hard to pick up.*

4.1.2 Student perceptions

Student unfamiliarity with the technology, and nervousness, (and avoidance of the camera when questions loomed) were mentioned. Other comments were:

- *Student dissatisfaction can be high if they feel videoconferencing is cheating them of real face to face teaching.*
- *I felt that the 'talking head' format was very dull.*

4.1.3 Equipment and technical

The sound quality at extended campuses was an issue pre-1995, but is now improved. Reliability seems to have improved, too. Current technical issues mentioned were:

- *Room size and placement of furniture.*
- *Overheads (even large, bold type) are difficult to read.*
- *Wide shots useless; faceless crowds.*
- *Speed of delivery inhibits presentation and is distracting.*
- *Delivery speeds now hampered by the equipment of the people you are delivering to.*

Indeed, the normal delivery speed means that movement acquires a *Thunderbirds* overtone, which can undo the most committed participant.

4.1.4 Lecturer technique

Two people mentioned difficulty with 'overhead' projection:

- *Some criticism of segment where tutor asked a question of the remote centre but neglected to change screen to them.*
- *Use of equipment is different to using an overhead projector, even if the slides are the same. It takes some practise to switch back and forth from OH to myself. I know I still haven't got it right.*

4.2. Positive aspects of videoconferencing

The obvious saving in travelling time was the most acclaimed by almost all respondents:

- *Reduced travel and therefore costs.*
- *It beats travelling to Mildura.*

Some side benefits to this were noted:

- *Distance [and] isolation reduced [as a] factor in range of course delivery*
- *Improves student access to courses*
- *It allows more frequent contact as required*
- *Keeps subject matter flowing between blocks of teaching. Keeps lines of communication open between staff in Bendigo and Mildura.*

Other comments related to videoconferencing in teaching were:

- *Strengthens local study groups.*
- *One key one is that tapes (if taped and they should be) are available for further study and for those who missed lectures or wanted revision on specific parts.*

- *Good for lecturer self-analysis also.*

Small group videoconferencing drew mostly positive comments:

- *As a facility for one-to-one, or one-to-small group discussion, it appears to be improving, and will potentially save me a lot of travel time and expense.*

- *Excellent for three or four people with the same number at the other site.*

5. Factors Influencing Perceptions

5.1 Prior experiences

Perceptions seem to depend on one's prior experience. Several comments implied that staff (and students) involved in extended campus teaching had prior experience of something less satisfactory than videoconferencing. Teleconferencing (i.e., audio only) was the most often cited:

- *Can use total communication system including non-verbal signals*

- *Enables students to hear and see delivery of lecture material—they say it's better than distance ed—but only if combined with visits in person*

- *Fewer audioconferences: students opted for full day face-to-face session.*

Smith, Fyffe and Lyons (1993) note that 'other [students] stated that the process of interaction became much more focused [than audioconference sessions] on the occasions when video conferencing links were set up.'

Another example cited was experimental use of interactive TV around 1992. Prain and Booth (1993, p. 9) refer to 'a workable degree of interactivity'; this study's respondent noted:

- *Viability limited: as reach viability with a high number of sites (cost of satellite), then interactivity for each site is reduced.*

5.2. Impact of 1995 change in technology

Seven of the respondents had used the old system only, two the new (1995) system only, and nine both systems.

Comments of those who had used both systems were that the new one is easier to use and has more facilities and better sound quality, although the picture quality is poorer at the normal transmission rate (128 kbps). Positive reports said:

- *New system is much easier to use, and can concentrate more on interaction with students.*

- *The new system is easier to use and has better camera angles, etc.*

- *Less sense of 'playing with technology'—more of being involved in a real meeting, with the technology (ironically) becoming less distracting. (Presumably, though, this is part of one's gradual acculturation into a technologically-oriented environment)*

Negative features reported of the new system were:

- *Poorer bandwidth means more restricted activities (less active).*

- *The fact remains the equipment is not geared for large groups.*
- *1995 used videos as one destination now off line (Wangaratta)*
- *New system offers more features but time intensive prior to delivery to make use of features.*

5.3 Support necessary

Prior to 1995, the presence of a technician at the 'other end' was necessary for camera operation, chiefly for zooming in on speakers' faces. The new system allows this from the destination. However, technical problems can still mean a station going off the air, and a technician's support may be necessary for inexperienced users.

The system is easy to use. There was one reference to 'initial technical assistance which was soon not necessary'. Training and practice were mentioned as useful.

- *Otherwise, the system is user-friendly, even for a 66 year old!"*

However, as usability of systems has improved, and as staff have acquired confidence and experience, they have grown more critical of the format and content and their own performances Prain and Booth (1993, p. 8) noted this:'As the experienced presenters became more confident of their handling of the technological aspects of the teaching, a few shifted their focus to refinement of presentation skills'.

- *There is certainly no point in using non-interactive transmissions when simple video (well-produced video) is available. If you're really serious about efficiency, then why not properly produced telecasts of ordinary lectures? Why the reluctance to assign technical support to all of this? I'll tell you why—gee whiz equipment always looks more impressive than a competent technician, and it always looks more impressive to say that you've spent $2.5m on equipment rather than $40,000 on a salary.*
- *Where's the encouragement to use and become proficient in videoconferencing?*
- *Incentives for program delivery very time-hungry to make it an effective teaching medium.*

This last comment reflects a theme also noted by Prain and Booth (1993), of the need for greater formality in the preparation of presentations using this medium than for live classes.

6. Use of Videoconferencing

It is difficult to extrapolate from our experience because there has been a marked change in the pattern of use in 1995. The videoconferencing facility was used at Bendigo for 230 hours in 1994. There had been a pattern of increasing use, so 1995 costing was predicated on the expectation that 300 hours would be used. To date (mid-August 1995) only 45 hours have been used.

There are three possible factors here:

- The only one that would seem to account for the sudden change is the change in costing for the use of the facility. From 1989 to 1994, schools within the faculty shared the (fairly high) overheads of the system. The greater the use, the less the effective cost per hour. From 1995, schools have been charged on an hourly rate. This is reasonably low ($68 per hour for university business), but is still a cost, and it is now attributable to the person or program using it.

1995 use has been less as cost is a factor for department. Tend to use fax followed by phone calls.

- Another could be that the fascination with the technology has waned, and there is a tendency to use it only when it is the best educational option. For instance, for a lecture or other didactic session, videos pre-prepared and mailed are increasingly seen as offering a clearer, more versatile (i.e., reusable, duplicable, less restrictive as to venue) solution than a videoconferencing session.

- It is conceivable that the very extension of the system may have worked against its use. There was little consultation with current users before the investment was made in the expanded system. This may have led to an exaggeration (or, perhaps, due recognition) of the problems of the medium in general. Another possible view is that the technology was seen as acceptable as a means of taking *our* expertise to more remote places, but now that Bendigo students could be the recipients it is less in demand because its flaws are more evident or because it has become threatening rather than facilitating!

  Why did you not ask a question like 'If the university attempted the full scale delivery of courses from Bundoora to Bendigo / Mildura, would you regard the students as disadvantaged?' The answer is yes.

Its under-utilisation in some areas was also noted:

- (Re: capacity to reduce academic isolation) *Not enough utilisation of this form of information transfer; enables people to meet regularly and live in either Bendigo or Mildura; need to share guest speakers.*

7. Conclusion

Smith, Fyffe and Lyons (1993) concluded their paper with the note: 'the model ... still implies that one should continue to replicate the ordinary classroom with all its limitations in order to deliver "effective learning"...'. I would say that this comment still stands, although practitioners are two years further down the track of exploring the technological possibilities.

There seems general recognition that videoconferencing allows access to otherwise disadvantaged people, and is currently the best medium for interaction where face to face contact is not feasible.

8. References

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