

Japan-Australia Videoconference between the National Institute of Multimedia Education and Curtin University of Technology, Perth, Western Australia, November 11, 1997

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Introduction

This videoconference was designed to share experiences of videoconferencing in Japan and Australia. Connection was by Integrated Services Digital network (ISDN) at 128 kbs using a link between the Space Collaboration System (SCS) studio at the National Institute of Multimedia Education (NIME) and a PictureTel site at Curtin University of Technology in Perth, Western Australia. The session was designed to address the following topics:

1. How might multimedia technology, and particularly videoconferencing, be used for international distance education?
2. What changes are necessary in the faculty, students, curriculum and university administration to encourage such an innovation?

The moderator of the seventy-five minute session was Professor Kobayashi of the National Institute of Multimedia Education (NIME). The discussants were Professor Teruyuki Kume (Kanda University of International Studies) and Associate Professor Colin Latchem (Curtin University of Technology). About 60 delegates attended the session. The two discussants introduced themselves and using photographs, described their respective institutions and operational contexts. After their presentations, they opened up the discussion to involve the audience.

The session proved very popular with the participants. More wished to attend than could be accommodated in the SCS studio and the evaluation showed a high level of positive responses. It was noted by the participants that more videoconferencing technology needed to be introduced into Japanese institutions and that Japanese applications needed to be improved. It was also noted that simultaneous translation would have helped in a session which was conducted entirely in English.

The Japanese experience of collaborative teaching and learning between Japan and Australia using ISDN videoconferencing

Professor Kume introduced the Kanda University of International Studies (KUIS), also known as

Kanda Gaigo Daigaku. KUIS is a private university in the Makuhari new megapolis. It is dedicated to the pursuit of excellence in international studies, particularly in the areas of foreign languages, intercultural communications, Japanese culture, linguistics and international studies. The primary goal of KUIS is to produce internationally oriented citizens who can contribute to international understanding and world peace. KUIS offers undergraduate and postgraduate programs, conducts research, and operates exchange and study programs for faculty and students. KUIS has recently begun to use satellite videoconferencing to supplement its overseas study programs.

Professor Kume stressed that he was not an expert in distance education but had been involved in two experimental videoconferencing series, one involving Japanese students and Japanese Overseas Cooperation Volunteers in Thailand and the other involving Japanese students at KUIS and Australian students at MacQuarie University (MU) in Sydney, Australia. These cross-cultural cooperative learning programs were part of a NIME research project, 'Promotion of international educational communication using media technologies'.

In the case of the Japan-Australia project, a special course was devised as part of the existing syllabi at the respective universities, 'Introduction to Australian Studies' at KUIS and 'Advanced Japanese' at MU. The five-week videoconferenced sessions enabled students to get to know each other, present and discuss political, social or cultural issues and play linguistic games concerning idiomatic expressions, etc.

The aim of these experimental classes was to compare videoconferenced and conventional teaching and learning and to gauge the effects and potential of such an application. As reported in Kobayashi (1996), videoconferenced collaborative learning was found to motivate students and faculty, encourage more active learning and be more student-oriented. The technology presented some problems of interoperability and compatibility but it was concluded that curriculum and faculty development and cultural and linguistic differences were the main barriers to such applications.

The Australian experience of videoconferencing

Professor Latchem reported that there are now at least 260 compressed digital 128 kbs sites in Australia and that all universities and colleges have acquired videoconferencing systems since the earliest 384kbs trials in 1991-1992. Videoconferencing has been found to be an appropriate medium for a form of teaching at a distance which might be best described as the 'remote classroom model'. Successful remote classroom applications include lectures and 'guest' lectures, seminars and tutorials, practical demonstrations, roleplays, case studies and debates. The technology is also used successfully for national and international conference presentations,

meetings, sharing research findings and interviewing prospective employees at out-of-state and overseas locations. It is not generally suitable for distance and open education because students opting for this mode of study do so because they require flexibility in the what, where, when and how of their learning and this technology is essentially suited to synchronous learning.

Australia was an early and systemic adopter of videoconferencing and there has been extensive research into the technology and its application (see for example, Mitchell et al., 1992; Latchem, 1994). The principle findings are summarised below.

Videoconferencing rooms

Australian experience has shown that in designing settings for videoconferencing, the rooms should be as similar as possible to the kinds of classroom the lecturers are used to. Their size and shape should be consistent with the functions and class sizes. Where large and small group sessions are envisaged, differently-sized adjacent venues with ease of access for moving the equipment are needed. Furniture and equipment needs to be easily moveable to accommodate the varying presentational requirements. The technology should be as simple and 'transparent' as possible to reassure and accommodate inexperienced users. Users should be offered the same privacy as they enjoy in normal classrooms. Technicians in attendance, casual visitors and other distractions should be avoided so that faculty and students feel free to speak openly. The rooms and furnishings should also be designed to avoid distracting the users and viewers.

Lighting should be even and between 750 and 1250 lux. A successful colour balance can be achieved by using 50:50 white and pink fluorescent tubes. 'Studio lighting' should be avoided as it adds glare, heat and visual clutter to the environment and distracts faculty and students.

Sound presents more problems than vision in videoconferencing. A good acoustic environment, sound insulation and/or isolation and silent air cooling systems are essential. Multiple microphones are typically needed.

The strengths and weaknesses of videoconferencing

Hansford and Baker (1990), Harris and Hague (1991), Latchem and Rapley (1991), Mitchell et al. (1992), Schiller and Mitchell (1992), Arger and Wakamatsu (1992), Waldrip et al. (1993) and others show that videoconferencing is valued because it allows institutions to do things differently and better, is easier to prepare for than for some other technologies, and has relatively low development costs. It allows institutions to offer small numbers of students at remote sites a wider range of courses and to tailor these to the needs of the students. Videoconferencing can be

used both for formal and non-formal education and training. It brings important visual dimensions to teaching, meetings, interviews, etc. It can be used to bring together the best courses, lecturers and researchers and thus demonstrate best practice. It facilitates real time interaction between faculty and students and students and their peers. It also enables faculty at remote sites to develop and maintain their skills by teaching courses to the main campuses. It supports access and equity and saves faculty from unnecessarily expending time, money and energy on travel. Faculty at remote sites can participate in meetings and professional development programs they would otherwise be excluded from. Teaching, administration and interviews can be conducted more economically, and new inter-campus, inter-institutional and international initiatives are possible.

Videoconferenced teaching and learning works best with small groups. It is important for faculty to know the names of students at other site(s), and plan for interaction because students are typically reluctant to interact spontaneously. Teaching by videoconference has been shown to be effective when teachers adopt an informal conversational style, encourage voluntary contributions by all participants, and integrate other media (for example, print, videos, faxed materials and graphics/computer graphics) into their presentations. To sustain interest, sessions need to be relatively short and contain a variety of presentational techniques. Good interactive teaching and learning and student involvement in a variety of learning tasks can overcome the 'tyranny of distance' and feelings of isolation.

Some faculty have concerns about the capital and recurrent costs, the problems of scheduling sessions to suit timetables and students, the preparation time required, the concentration and effort required to teach via the medium (particularly where there are classes at both sites) and the restricted mobility caused by the need to 'remain on camera' and/or communicate with two sets of students.

Some users are initially disappointed at the poor resolution, restricted motion and delayed lip synchronisation resulting from the compression and slow transmission speed. However, student surveys show that distant students tend to be more positive towards the technology than students who are always at the same site as the lecturer. Students who have previously been restricted to audioconferencing and correspondence-based teaching are more appreciative of the lecturer's efforts and more tolerant of the technology than those students who have always been able to access campus-based teaching. Where the teaching and learning is good, technical problems will be overlooked or forgiven by the students. Where they are poor, the students will complain strongly about the technical limitations and operational errors.

Videoconferencing has been used successfully for a wide variety of applications including wine appreciation courses, car mechanics, training remote and rural nurses, conducting master classes in music, teaching deaf and dumb sign language and delivering English language programs to overseas sites. It has proved to be an invaluable management tool for multi-campus institutions and an effective medium for introducing inter-state or international experts into classes or conferences.

Videoconferencing has all of the advantages (e.g., immediacy) and all of the weaknesses (e.g., poor pedagogy) of the traditional classroom. Good videoconferencing will not just happen. Intensive, ongoing, project-based staff development is needed. Student preparation programs are also helpful in enabling students to adapt to new settings and new ways of teaching and learning.

Curtin University of Technology's use of videoconferencing for developing cross-cultural negotiation skills

The internationalisation and cross-cultural potential of this technology is illustrated by its application in the third-year Commerce program offered by Curtin's Business School. Curtin students and students at Singapore Polytechnic were involved in a Cross-Cultural Negotiation Training Program in which they role-played Australian and Singaporean companies negotiating joint ventures in the Peoples' Republic of China. The students were required to finalise an agreement on the management structure, location and incorporation of the joint venture company, the profits distribution, and the ongoing management systems. This agreement had to be in writing and signed by both parties.

The students spent some time studying each other's cultures and business practices before the meetings got under way. PictureTel/ISDN 128 kbs videoconferencing systems were used for three two-hour face-to-face meetings. Documents were displayed on the screen and faxed during the meetings and, as in the real world, there were exchanges of mail and email and unilateral meetings before and after the joint meetings.

Both sites were equipped with dual monitors so that the students could observe their own and the other group's body language. Other students observed the process from the sidelines, out of sight of the cameras. The sessions were also videorecorded so that the students could subsequently analyse the exchanges and their performance.

Cultural differences were observed from the start of the very first meeting. For example, the Australian students had totally underestimated their mainly Chinese opposite numbers' capacity to plan strategically for the meeting and negotiate from positions of strength. On the other hand, the Chinese students also underestimated the Australian students' capacity to respond to the

challenge, thinking that because they joked and smiled a lot, they were not taking the negotiations seriously.

The negotiations proved challenging and stressful for both sets of students but the learning outcomes were worthwhile. The students gained invaluable experience in planning and conducting and closing congenial negotiations in a cross-cultural environment and learned about the importance of dress codes, body language and appropriate oral and written communications in dealing with other cultures, organising agendas, meetings and debriefings, dealing with new and unforeseen issues, and achieving 'win-win situations'.

Central Queensland University: Interactive Systemwide Learning

Videocnferencing is very useful for multi-campus institutions. An exmple of this is the Central Queensland University (CQU) Interactive Systemwide Learning videoconferencing network which links the University's main campus in Rockhampton with five outlying campuses at Emerald, Gladstone, Rockhampton, Bundaberg and Mackay. This system, which grew out of CQU's flexible learning philosophy, is used for teaching, meetings, postgraduate support and staff development. All faculties offer courses through this medium and students at 'remote classrooms' are able to study Engineering, Nursing, Creative Arts, Communications, Media, Film Studies, Chemistry, Geography, Business and Information Systems through this network. Considerable research has been conducted into videoconferencing and the associated teaching methods at CQU. Efforts are being made to effect changes in pedagogy through faculty development, instructional design and redesigning the courses to make them more participative and interactive . The University encourages this work by providing special innovation grants.

The Tanami Videoconferencing Network

This network provides an example of how technology can empower the disadvantaged and the marginalised. The owners of this network are traditional Aboriginal communities who live in the Tanami Desert. These communities banded together to purchase the technology with funding from mining royalties and government grants. They use the system for a variety of applications including traditional community business. They contract with non-Aboriginal providers for services they cannot provide for themselves, for example in health and education. These Aboriginal groups are well aware of the international potential of the technology and have used videoconferencing to make presentations about their culture into such venues as London's Royal Festival Hall, to auction their distinctive dot paintings at Sothebys, and to discuss land rights, cultural and other issues with indigenous peoples in Canada and the USA.

University of Western Australia applications of desktop videoconferencing

Australian universities are also experimenting with Internet-based desktop videoconferencing. To provide an example of inter-university teaching and learning via videoconferencing, this technology is being used by the University of Western Australia and University of Queensland for Cognitive Science classes. In what may be a first for Australian universities, the students at the two sites not only learn through the Internet but can remotely control computer displays from thousands of kilometres away, communicating with their lecturer on one screen while watching the computer or audiovisual display on the other screen. This system was developed by the UWA faculty at a cost of about A\$20,000 per site.

State videoconferencing networks

In addition to the 38 university systems, there are also various ISDN or satellite based State videoconferencing systems in Australia. Some of these operate as two-way audio, two-way video while some are one-way video, two-way audio. The Northern Territory has the satellite based Tanami Network described above. Queensland has the satellite based full bandwidth CITEC network based upon the State's Vocational Education and Training Colleges and integrated with 128kbs videoconferencing. Victoria uses a combination of satellite and 128kbs videoconferencing systems and the New South Wales OTEN and Western Australia's Westlink networks are similarly hybrid systems.

Western Australia's one way video, two-way audio Westlink links with 189 schools (another 200 hundred will join during 1998), 50 WA Telecentres/Westlink sites (which will increase to 100 in two years' time as a consequence of \$1.8M funding from the Rural Telecommunications Infrastructure Fund for Community Groups which is funding telephony and Internet infrastructure in rural and remote WA), Aboriginal communities in the Great Western Desert and Kimberley, minesites, all prisons and courtrooms, the 52 hospitals/medical centres, and the 'PictureTel sites' (the four universities in Perth and all VET colleges in Perth, Geraldton, Bunbury, Albany, Narrogin, Katanning, Kalgoorlie, Broome, Karratha, Hedland and Kununurra linked by multipoint). In late 1999, some remote and needy sites will be equipped for Very Small Aperture Transmission (VSAT) two-way audio and video. Westlink is migrating from itinerant use of a spare 12 watt transponder on the Aussat satellite to a dedicated 24hrs a day, 7 days a week 4 Mbits bandwidth channel on the new Optus B satellite. This will allow users to have daylong access to a channel if so required.

Westlink programs are live and interactive. They can originate from three studios in the state capital, Perth, or can be uplinked from any 128kbs PictureTel site in the State. Most of

the educational and training programs are provided in the 9 a.m. – 6 p.m. timeslot. The 1000 hours of Westlink programming per year comprise 400 hours of Department of Training programs, 260 hours of university/VET/school distance education programs, 90 hours of Federal and State Government announcements of new initiatives, census work, etc., and other applications including trade union meetings. Westlink is essentially a 'talking head network'. Demonstrations tend to be pre-recorded. The most lively interactive sessions are the trade union meetings, sessions involving local politicians, and language programs for schools (Japanese, Italian, Indonesian). University/VET programs tend to be less interactive because the presenters know that the majority of their students only want record the programs and do not wish to upset the presenters' flow, preferring 60 minutes of content delivery and leaving interaction with their tutors to subsequent audiotutorials, telephone calls, correspondence and exchanges of email. There is heavy evening use of Westlink by medical staff, chiropractors, physiotherapists, etc., and there is great interest in the use of Westlink for telehealth and telemedicine.

Conclusion

Videoconferencing has the potential to extend and enhance teaching and learning and facilitate administration and collaborative research between campuses, across countries and across national frontiers. It is used best where there is an institutional or faculty vision and plan to be more open, flexible or international. It requires staff development and 'user friendly' technology and support services. The costs are reducing, particularly as the technology migrates to the desktop. The real challenge is to enable faculty to recognise the paradigm shift caused by globalisation and technology and respond innovatively to the need to internationalise the curriculum and develop student-centred and culturally appropriate applications.

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