

EXPLORING CULTURAL HORIZONS: CONNECTING AUSTRALIAN STUDENTS WITH ASIAN STUDENTS VIA VIDEO-CONFERENCING

Chris Reading, Myung-Sook Auh, John Pegg & Peter Cybula
University of New England, Australia

ABSTRACT

The need for Australian school students to develop a strong understanding of Asian culture has been recognised in the cross-curriculum priority, *Asia and Australia's Engagement with Asia*, of the Australian Curriculum. School students in rural and remote Australia have limited opportunities to engage with Asians and learn about their culture. The *Australia-Korea ConneXion* (AKC) Program digitally connects Australian and Korean schools to develop cultural exchange. In particular, lessons incorporating videoconferencing enable interactions that enhance the cultural values and attitudes of the students involved. While recognising the potential of videoconferencing to enrich their students' experiences of other cultures, teachers in rural and remote schools may not feel confident in the practicalities of incorporating videoconferencing into lessons to connect their students with students in other countries. This paper aims to inform teachers on the analysis of AKC Program lessons utilising videoconferencing. Although there is a cultural focus, each pair of teachers has flexibility in the choice of lesson content. Guidance is provided for teachers who might want to begin videoconferencing with classes in another country, including steps from making first contact with the teacher to planning the learning, setting up the technology and finally facilitating the lessons. As part of research evaluating this program, a rubric was developed to code the quality of a videoconferencing lesson. Analysis of data from lessons between four pairs of schools provides insight into the videoconferencing lessons and a range of pedagogical and technological advice to assist teachers to improve the quality of their future use of videoconferencing to connect students and allow them to explore new cultural horizons.

INTRODUCTION

As Australia strengthens ties with our Asian neighbours, developing better Asia-relevant capabilities becomes critical. The Australian Government (2012, p. 2) has now scoped the *Asian Century*, including the need for Australia "to broaden and deepen our understanding of Asian cultures and languages, to become more Asia literate". After announcing the white paper, the Australian Prime Minister announced that "every Australian child in every Australia school should engage with Asia using such technology as videoconferencing" (ABC, 2012). Relevant curriculum changes needed in Australian schools to address this need have been recognised in the cross-curriculum priority, *Asia and Australia's Engagement with Asia*, in *The Australian Curriculum* (ACARA, 2012). Each subject syllabus has particular references to Asia, for example, learning about Asian trade, beliefs and celebrations in the history curriculum. So now more than ever school students need to develop a strong understanding of Asian culture as both a social and an economic priority.

As school students in rural and remote Australia have limited face-to-face opportunities to engage with Asian people and learn about their culture, it is imperative that alternatives are provided to enable students to engage meaningfully with Asian cultures. One possibility is to incorporate videoconferencing into lessons to allow synchronous connection with people living in Asian countries. This paper aims to inform teachers, who may want their classes to engage in such an experience, on how to provide good quality experiences for their students. This advice is informed by

research involving analysis of lessons utilising videoconferencing as part of the *Australia-Korea ConneXion Program*.

ENRICHING STUDENT LEARNING EXPERIENCES WITH VIDEOCONFERENCING

Improvements in web-based technology have facilitated the creation of many exciting virtual tours or excursions for students. For example, visiting the *Smithsonian National Museum of Natural History* (<http://www.mnh.si.edu/panoramas/>) allows movement around the museum exhibits as if in the museum in person. Like many virtual tours, this allows some flexibility in viewing the museum, but there is no interaction involved. However, the museum experience can be expanded by engaging with a simulation, such as the *Coral Reef Interactive* (http://www.mnh.si.edu/exhibits/ocean_hall/reef_interactive/reef_interactive.html) web-based tool that allows students to take on a particular role in weighing up the interdependence between human impact and coral reef biological needs. However, such experiences lack the opportunity for students to interact in real time with real people. This is the value of videoconferencing in the classroom: being able to engage in interpersonal interactions that would otherwise be impossible due to cost, time or safety issues.

Powerful learning experiences for students are created when videoconferencing equipment is used to connect students to others, whether they are experts or other students, whom the students cannot easily visit in person. One example of students connecting with experts is when students participate, via videoconferencing, in live events featuring *National Aeronautics and Space Administration* experts often in their actual workplace through The Digital Learning Network (http://www.nasa.gov/offices/education/programs/descriptions/Digital_Learning_Network.html). One example of students connecting to other students is when *The Country Education Program* (<http://cep.org.au/2012/09/07/linking-student-leadership-teams-through-video-conferencing/>) provided an opportunity for students from two rural schools to share their experiences as student school leaders and to explore how to support each other as leaders.

Like all strategies and resources for teaching, the use of videoconferencing to enrich learning needs to be appropriate to student learning needs and carefully planned. In particular, a valid reason for the use of technology, such as collaboration, is necessary for meaningful learning to take place (Lawson, Comber, Gage, & Cullen-Hanshaw, 2010).

One of the benefits of connecting students in different countries is the opportunity for the students to experience other cultures. In one lesson where Australian students were connected, via videoconferencing, to students in Japan (The Armidale Independent, 23 July 2012) the Japanese students presented information about Japanese idols and demonstrated popular Japanese idol dance movements to the Australian students. When one Australian student asked to be taught the dance movements, there were exclamations from both students in both countries and then all students made space and danced together. While enthusiasm goes part way to demonstrating benefits of lessons that incorporate videoconferencing experiences, research is needed to evaluate the true value of such experiences.

RESEARCH INFORMING QUALITY VIDEOCONFERENCING EXPERIENCES THAT CONNECT STUDENTS

As early as 2001 a quantitative synthesis of studies showed that the use of videoconferencing and telecommunications with school students were effective in improving learning experiences (Cavanaugh, 2011). However, there is a lack of research-based investigations into the use of, and the effectiveness of videoconferencing technology in primary and secondary schools (Martin, 2005; DiPietro, Ferding, Black & Preston, 2008; Anastasiades, 2010; Lawson & Comber, 2010), with references to a “noticed gap between the knowledge and skills provided by the educational system” (Anastasiades et al., 2010, p. 321), describing videoconferencing as “underdeveloped” (Lawson, Comber, Gage, & Cullen-Hanshaw, 2010, p. 295) and a “relatively underused technology” (Lawson & Comber, 2010, p. 315).

Despite this, particular cases of videoconferencing in international contexts have had positive outcomes for students, enhancing and motivating learning and encouraging the development of cultural awareness. Four such cases are now described. A videoconference experience between students in the United States of America and in Taipei (Taiwan) found that “the cultural exchange had been more engaging and the information retention more complete than the traditional classroom experience” (Gerstein, 2000, p. 185). Evaluation of the sharing of multimedia presentations via videoconference between students in Scotland and the United States of America found that students were able to recognise the importance of ethnic differences in multicultural education, and that they “were more likely to describe people from Chinese and Asian British ethnic groups with words that describe culture, traditions and language specific to the ethnicity of the person rather than words that described general personality traits” (Thurston, 2004, p. 173). Videoconferencing experiences between school students in the United Kingdom and in Singapore, India, South Africa and Pakistan found that the sharing of ideas and experiences was a particularly exciting aspect, and observed that, “it is in working on similar tasks, seeing how they each approach the task, and the cultural information they bring to the task that brings students together” (Gage, 2005, pp. 6-7). Real benefits in both increased motivation and the development of intercultural understanding were evident when primary school students in England, France, and Spain used videoconferencing in the language learning process (Macrory, Chretien, & Ortega-Martin, 2012). This echoed the findings in earlier studies, but expanded on them by suggesting that a key aspect of motivation was the importance that students attached to intercultural understanding and the making of friendships.

For learning situations that involve videoconferencing between students in different countries and aim to improve cultural awareness, it is imperative that students develop suitable communication skills. Peng, Lu and Wang (2009) refined a previously developed framework for assessing intercultural communicative competence when high school students were learning language in a computer-mediated environment. Importantly, this study indicated that the greater the degree of intercultural awareness demonstrated by students, the more appropriate were their attitudes, skills and knowledge in intercultural contexts. This experience was mainly built around asynchronous communication but also included synchronous experiences through videoconferencing.

Thus, evidence is mounting to support the use of videoconferencing to connect school students internationally to assist them to improve their cultural awareness. What is lacking in current research, though, is informed advice about best practice to assist teachers to implement such experiences for their students. A framework proposed by Anastasiades et al. (2010) for the use of videoconferencing in primary and post-primary environments between local and remote schools does provide a way forward. Research analysing 78 videoconferences involving 900 students and 45 teachers across 16 elementary schools connecting between Athens and Crete showed that interactive videoconferencing under pedagogical conditions plays a significant role in supporting collaborative synchronous learning activities and that the application, design and use of the technology enhances the educational value of the activities. This pedagogical utilization of videoconferencing made students feel representative of their school/homeland, doing their best to achieve set goals, being more willing to discuss and being more cooperative with “remote” others, which strengthened social relations. The pedagogical design proposed by Anastasiades et al. (2010) comprised five stages: Instructional Design, Technological Design, Financial Planning, Administrative Structure, and Evaluation Methodology.

THE AUSTRALIA-KOREA CONNEXION PROGRAM

The *Australia-Korea ConneXion* (AKC) Program (www.une.edu.au/austkoreaconnexion/) digitally connects school students at Australian and Korean schools to facilitate cultural exchange. In particular, lessons incorporating videoconferencing enable interactions to enhance the cultural values and attitudes of those involved. Each Australian school is connected with a Korean school and the students engage synchronously through a series of lessons planned by their teachers. Although, there is a cultural focus, the teachers have flexibility in the choice of curriculum content for the lessons.

In 2012 16 Australian schools (seven secondary and nine primary) were paired with Korean schools (www.une.edu.au/austkoreaconnexion/schools/) for cultural exchange. It is anticipated that this number will double within twelve months. There are plans to extend opportunities to other Asian countries

including Japan, China and Indonesia. The AKC Program supports teachers by providing contact with a relevant school, planning the curriculum focus of the lesson sequence, connecting the schools technically, facilitating the lessons and improving the quality of the videoconferencing experience.

While recognising the potential of videoconferencing to enrich their students' experiences of other cultures, teachers in rural and remote schools may not feel confident in the practicalities of incorporating videoconferencing into lessons to connect their students with students in other countries. The following sections provide advice on how to get started and information about how to improve the quality of videoconferencing experiences based on research based on videoconferencing lessons in the AKC schools.

GETTING STARTED: ADVICE TO TEACHERS

For those teachers who would like to begin the process of connecting their students with students in another country, four basic steps are recommended. The first step is to make contact with teacher(s) at a school in another country. The choice of school and teachers may involve direct contact or contact through a program, such as the AKC program, and the choice should be made to suit the needs of the students, including curriculum preferences and year level.

The second step is to make careful checks of all technical equipment to be used for the videoconferences. Teachers need to be aware of the brand and capabilities of their school's videoconferencing equipment as this is essential to establishing a connection. They also need to ensure that their bandwidth, cameras and microphones are adequate for their needs. Anastasiades et al. (2010) have provided a schematic plan of a videoconferencing room set-up, complete with equipment and student seating plan for successful, effective and interactive videoconferencing, which could be used to assist teachers to plan the space to be used for the videoconferencing lessons.

The third step is for the teachers from the two schools to meet to introduce themselves and decide on lesson times and lesson topics. The outline of classes for the whole year should be decided at the outset, rather than relying on finding time to make decisions as the weeks progress. These meetings should be made by videoconference to allow teachers to practice their technical skills. Deciding lesson times is often difficult because each school may be in a different time zone and this may be complicated by school timetables and daylight saving. Deciding lesson topics should be a negotiation process and the lessons should include opportunities for cultural exchange. This provides an opportunity for Australian teachers to choose topics that can enhance their students' learning and meet the expectations as outlined by the Australian National Curriculum cross-curricula priority *Asia and Australia's Engagement with Asia* (ACARA, 2012).

Consideration should also be given to the four steps of videoconference interaction, within the Anastasiades et al. (2010) Instructional Design stage, recommended as a way of leading to a full interactive presentation: (i) introductory activity: introduce school and hometown, concluding with agreement on a collaborative topic; (ii) common thematic presentation: focus students to discuss and elaborate their interpretation individually and as a group; (iii) collaborative work at a distance being presented via videoconferencing: students present an outline of their work, basic themes and proposed illustrated or written script; and (iv) final full interactive presentation: both schools present and discuss their work.

The fourth, and final, step is to ensure that ongoing evaluation of the videoconferencing lessons is undertaken to contribute to improving the quality of the experience for both teachers and students. Such evaluation is built into the AKC program through university-based research, and teachers who commit to being part the AKC program receive support at each of the four steps outlined above.

RESEARCH METHOD

Research-based evaluation of the Australia Korea ConneXion Program was necessary to inform improvement of the program, in particular to determine what is needed to improve the quality of future videoconferencing lessons. This research involved data collection from five different sources: student pre-experience questionnaires, student post-experience questionnaires, videoconferencing

lessons quality coding, teacher interviews and parent/caregiver interviews. This paper only reports analysis of the data from the coding of the quality of the videoconferencing lessons.

Based on lessons implemented in the program at an earlier stage and on teacher feedback from those experiences, a rubric was developed to code the quality of each videoconferencing lesson. Fifteen criteria were used, arranged into three categories *students* (six criteria, see Table 1), *teachers* (four criteria, see Table 2) and *technology* (five criteria, see Table 3). These categories were chosen because both the student and the teacher perspectives were considered important, and the quality story is not complete without consideration of the technology that supports the lessons. Each criterion had descriptors at three levels of quality: *below expectation*, *nearing expectation* and *reached expectation*. The code allocated for each criterion ranged from 1 (*below expectation*), through 3 (*nearing expectation*) to 5 (*reached expectation*). Scores of 2 and 4 were allocated when the criterion was marginal between 1 and 3 or 3 and 5 respectively. Thus, the higher the score the better the quality on a particular criterion. A score of 0 was allocated if it was not possible to code the criterion, e.g., for the criterion 3.5 (troubleshooting) there would be a code of 0 if no technological problems occurred and thus troubleshooting could not be evidenced. One researcher coded the lessons and also provided qualitative comments to help explain each coding level chosen during the coding process.

RESEARCH RESULTS

The five sources of data were collected from lessons between five pairs of schools. The quality of videoconferencing lessons was coded for four pairs of schools (two primary and two secondary) as one school in one pair of schools did not give permission for the lessons to be recorded for later coding. The four Australian schools, three government and one catholic, were located in regional Australia and the Korean schools, three government and one independent, were located in metropolitan areas. Eleven videoconferencing lessons were coded, three from school pair 1 (primary), four from pair 2 (primary), three from pair 3 (secondary) and one from pair 4 (secondary). These videoconferences took place in September and October 2012.

Table 1: Student category: videoconferencing lesson quality coding criteria

Criteria	Below expectation	Nearing expectation	Reached expectation
1.1 participate in lessons	inattentive and/or off task	attentive and on task	engaged with learning
1.2 utilise electronic resource(s)	do not prepare or use	prepare and use, but not well	prepare and use well
1.3 confidence in speaking to peers	do not speak confidently	speak confidently when presenting or in question/ answer time	speak confidently when presenting and in question/ answer time
1.4 communicate with connected peers	do not communicate	communicate but not aware of needs of connected peers	communicate and aware of needs of connected peers
1.5 interact with connected peers	do not interact	interact but only when promoted and/or at irrelevant times	interact spontaneously at relevant times
1.6 show respect for peers from a different culture	do not show respect for peers	show respect for peers when prompted	show respect for peers and be mindful of their needs

Table 2: Teacher category: videoconferencing lesson quality coding criteria

Criteria	Below expectation	Nearing expectation	Reached expectation
2.1 facilitate communication	do not assist with communication, such as for a misunderstanding	assist with communication, correct a misunderstanding	implement strategies to reduce misunderstandings
2.2 facilitate interaction	do not assist with student interaction	assist with student interaction	implement strategies to encourage student interaction
2.3 manage student behaviour	allow inappropriate behaviour from students	strategies to ensure all students behave appropriately	strategies to assist students to contribute actively
2.4 manage lesson components	allow insufficient time for all components	allow sufficient time for all components	allow appropriate time for all components to promote deep learning

Table 3: Technology category: videoconferencing lesson quality coding criteria

Criteria	Below expectation	Nearing expectation	Reached expectation
3.1 audio	some audio too soft or breaking up	most audio loud enough	all audio clear and correct level
3.2 video	video pixelated and/or blurred	video mostly clear	video sharp and synched with audio
3.3 teacher technical role	take no responsibility for VC functionality	take some responsibility for VC functionality	take full responsibility for VC functionality
3.4 student technical role	unaware of VC functionality	aware of VC functionality	take active role in VC functionality
3.5 troubleshooting	issue(s) not resolved	issues dealt with sufficiently to continue lesson	issues resolved promptly

Note: *VC functionality* = controlling camera (e.g., direction, zoom in/out) and controlling audio (e.g., muting, volume) and electronic resources = ppt presentations or other electronic presentations

Analysis of the coding provided an insight into the videoconferencing lessons and highlighted a range of pedagogical and technological advice to assist teachers in the future to improve the quality of their use of videoconferencing to connect students. The results are reported using the three coding categories: students, teachers and technology.

The results are presented in Table 4, Table 5 and Table 6. A coding below 3 on any one criterion was considered unsuitable and each such occurrence is indicated by darker shading in the tables. A coding of 0 indicated that the criterion could not be coded and so 0 was ignored when shading the codes below 3.

To ensure coder reliability, two extra researchers were brought in to code one of the lessons. Full agreement on coding level was reached amongst the three researchers for nine of the 15 criteria. For the other six criteria, disagreements were resolved and the resulting discussion assisted the researcher to clarify and refine the coding levels.

Students

The coding level for each of the six criteria in the *Students* category is presented in Table 4. The criterion showing the best quality across the eleven videoconferencing lessons was 1.3 (confidence in

speaking to peers) with more than half of the lessons coded as *reached expectation*. The criterion showing the poorest quality was 1.5 (interact with connected peers) with four lessons that did not achieve *nearing expectation* or *reached expectation*. There was one noticeably poor quality lesson for pair 2 that ran out of time, had no interaction and had inconsistent sound quality including inappropriate muting. The 0 coding occurred for 1.2 (utilise electronic resources) because no PowerPoint, or other resource, was used during the lessons.

Table 4: Student category: coding level for each criterion

critterion	1.1	1.2	1.3	1.4	1.5	1.6
pair 1	5	5	5	5	4	5
(primary)	4	4	5	5	3	5
	3	3	4	4	3	4
pair 2	3	3	3	2	2	3
(primary)	3	4	5	3	3	3
	4	5	5	5	3	4
	3	0	3	2	1	3
pair 3	2	3	3	3	2	3
(secondary)	3	3	5	3	2	2
	4	5	5	5	4	4
pair 4	3	3	3	3	3	3
(secondary)						

Teachers

The coding level for each of the four criteria in the *Teachers* category is presented in Table 5. The criterion showing the best quality was 2.1 (facilitate communication), with three of the lessons coded as *reached expectation*. The criterion showing the poorest quality was 2.4 (manage lesson components) with three lessons that did not achieve *nearing expectation* or *reached expectation*. There was one particularly good lesson from pair 3 coded as *reached expectation* on all four criteria. This lesson was well planned with teachers keeping students on task and only intervening when there were misunderstandings. There were two particularly poor quality lessons. One lesson was from pair 1, with only one criterion as *nearing expectation* or *reached expectation*, where the teachers did not assist students to communicate, asked more questions than the students, did not encourage students to ask questions, and focused interaction around themselves. The other lesson was from pair 2, also with only one criterion as *nearing expectation* or *reached expectation*, where the lesson ran out of time and had no interaction. The explanation appears to have been poor planning for that particular lesson as other pair 1 lessons were of a better quality. The 0 coding occurred for 2.3 (manage student behaviour) because all students behaved well and there were no obvious strategies being used by the teacher to achieve this, and for 2.4 (manage lesson components) because part of the recording was missing and thus management of all components could not be determined.

Table 5: Teacher category: coding level for each criterion

critterion	2.1	2.2	2.3	2.4
pair 1 (primary)	5	3	5	4
	2	1	0	3
	3	3	4	2
pair 2 (primary)	3	3	2	3
	4	3	3	3
	4	3	3	0
	2	1	3	1
pair 3 (secondary)	4	3	4	2
	5	3	4	4
	5	5	5	5
pair 4 (secondary)	3	4	4	3

Technology

The coding level for each of the five criteria in the *Technology* category is presented in Table 6. The two criteria showing the best quality were 3.1 (audio) and 3.2 (video) with all lessons being *nearing expectation* or *reached expectation*. The criterion showing the poorest quality were 3.3 (teacher technical role), with three lessons that did not *nearing expectation* or *reached expectation*. There was no lesson of particularly poor quality on the technology criteria. One 0 coding occurred for 3.4 (student technical role) because the recording provided limited video coverage and thus it was not possible to determine whether the students were involved in a technical role. Five 0 codings occurred for 3.5 (troubleshooting) because there were no technical problems that needed to be resolved.

Table 6: Technology category: coding level for each criterion

critterion	3.1	3.2	3.3	3.4	3.5
pair 1 (primary)	5	5	5	5	3
	5	5	1	5	0
	3	4	2	3	2
pair 2 (primary)	3	3	1	3	5
	4	4	4	3	5
	3	3	5	4	0
	3	3	4	3	0
pair 3 (secondary)	3	4	5	3	3
	3	4	5	0	3
	5	4	5	1	0
pair 4 (secondary)	3	4	3	3	0

Discussion

What, then, was learnt about the quality of videoconferencing lessons and how can this help those teachers who want to improve the quality of future videoconferencing lessons? From the reported results it is clear that there can be variation in quality from one lesson to the next within the same pair

of connected schools. The following considers how these results can inform the improvement of the quality of future videoconferencing lessons.

The students were obviously confident in speaking during the videoconferencing lessons but they did not always interact well with students from the other country. There was ample evidence that students were well prepared for the lessons in terms of what they would say, show and do. What students did find difficult was interacting, especially in the more formal segments of the lessons. Informal interactions, such as during the time “waiting” for lessons to start or during “free” time at the end of lessons, saw some interesting and spontaneous interactions between students when they chose the focus. There are many aspects to improving interaction during the more formal parts of the lessons and the Peng et al. (2009) study suggested that as cultural awareness increases these interactions should improve.

The teachers facilitated communication well and were reasonably competent at managing student behaviour but did not always manage the lesson components effectively. Those lessons with the poorest quality occurred when there were also issues with the facilitation of communication and/or management of the components of the lesson. Both these issues need to be addressed to improve the quality of future lessons. First, teachers need to make sure that the lessons are carefully planned so that there is sufficient time not just for presentations and/or activities but also for student-led interaction. Second, teachers need to ensure that they have a range of strategies available to facilitate communication in lessons involving synchronous electronic communication (videoconferencing) with students in a school in another country. While some strategies used in face-face classroom situations may work, there are others that are more important to the electronic situation. See, for example, *Knowledge Network Explorer* (<http://www.kn.att.com/vidconf/communication.html>) for advice about videoconferencing skills, such as maintaining eye contact and showing interest in all participants. In particular, care should be taken in increasing student skills for communicating with people whose first language is not the same as that of the student. See, for example, *only-effective-communication-skills.com* (<http://www.only-effective-communication-skills.com/cross-cultural-communication-skills.html>) for advice on cross-cultural communication skills such as reflective listening and emotional constraint.

The technology was well managed with good quality audio and video for many lessons and there was evidence of both teachers and students taking on technical roles. While there was evidence of students taking on technical responsibilities during the videoconferences, there was still the possibility for more such responsibility to be given to them. Ideally, students should have all the basic skills necessary to initiate, run and terminate any videoconferencing session using the technology provided in their classroom setting. However, teachers also need to have these skills, and more, so that they can oversee the students and also step in when there is an extra-ordinary malfunction in the technical operation. Troubleshooting during such malfunctions can be time consuming and frustrating, and teachers need to ensure that they have a clear line of communication to on-call technical support before, during and after any lesson involving the use of videoconferencing equipment.

IMPROVING THE QUALITY OF VIDEOCONFERENCING LESSONS: ADVICE TO TEACHERS

As well as the general suggestions for improvement described above, the qualitative comments provided by the researcher to explain decisions about coding level, led to the following recommendations for students and teachers to help them improve the quality of future videoconferencing lessons.

First, students need to:

- be more understanding of their peers needs, especially in the connected country;
- interact more during videoconferencing, including making use of body language;
- ask relevant and meaningful questions that are directly related to the topic being discussed;
- take care when structuring questions to minimise misunderstandings;
- edit presentations carefully to minimise redundancy in the information they share;

- allow questions to be asked to gauge understanding of what has been presented;
- ensure that they are not noisy or disruptive as this detracts from the experience for all concerned.

It is the responsibility of teachers to pass these recommendations on to their students.

Next, teachers need to:

- plan and facilitate videoconferencing lessons that allow sufficient time for student interaction;
- set realistic expectations of what can be completed within one videoconferencing lesson;
- encourage students to interact with peers and allow sufficient class time for this to occur;
- encourage students not to rely on prepared notes when speaking;
- ensure that students have enough time to ask and answer questions;
- encourage students to develop confidence in following up questions that trigger special interest;
- avoid dominating communication themselves;
- provide assistance with English pronunciation and elocution;
- encourage student behaviour that allows for a more meaningful learning experience.

Finally, from a technological perspective, the quality of videoconferencing lessons should improve if:

- better sound quality is achieved by using microphones correctly, including muting them at relevant times, and ensuring that background noise is kept to a minimum;
- better picture quality is achieved by avoiding rapid movements too close to the camera;
- students ensure that when presenting they are in webcam view and they are a suitable distance from the microphone, whether it is handheld or fixed;
- teachers are prepared to improvise if the attempted resolution of a technical issue fails;
- both students and teachers are capable of taking technical control of the videoconference equipment.

CONCLUSION

There are four main limitations to this study, which make it necessary for the above results and recommendations be considered in the context of videoconferencing lessons between Australian and Korean school students undertaken as part of the *Australia-Korea ConneXion Program*. The first limitation is that only a small number of lessons were coded because such coding is time consuming and resources were limited. The second limitation is that only one researcher coded the lessons which was partially resolved by having three researchers code one lesson to ensure coder reliability. The third limitation is that there is a dependency issue in the way that the coding levels for the two criteria 3.3 (teacher technical role) and 3.4 (student technical role) have been described. If either the teacher or student is demonstrating *more* responsibility for the technical functionality then the other has *less* opportunity to demonstrate such responsibility. The fourth, and final, limitation is that each criterion was scored across both schools and for some videoconferencing lessons there were criteria for which one school was performing at a different level from the other. For the videoconference to be scored at a particular coding level on a criterion both schools needed to be contributing at that level.

The benefits to students of videoconferencing with students from other countries have been well reported elsewhere in terms of increasing cultural awareness. Students in rural and remote areas have fewer opportunities to interact face-to-face with people from other cultures due to the students' isolated geographic locations, and videoconferencing helps to provide opportunities for such interactions. The research reported in this paper provides students with specific advice about how to improve the quality of future videoconferencing experiences.

One benefit to teachers of incorporating videoconferencing into their students' learning activities is that it allows the teachers to satisfy *The Australian Curriculum* (ACARA, 2012) requirements by connecting students with students in Asia. This paper provides information, as informed by practice in the *Australia-Korea ConneXion Program*, to assist rural and remote teachers in getting started to set up videoconferencing connections for their students. This paper also provides specific advice, as informed by the reported research, about how to improve the quality of future videoconferencing experiences for their students. It is possible to organise such videoconferencing connections

independently but involvement in a project usually provides teachers with planning and implementation support, and with professional development.

The research presented herein is only part of the AKC program evaluation. It is anticipated that interesting insights will unfold with the analysis of the student questionnaires, teacher interviews and parent/caregiver interviews and that these will be shared in future publications. Also, similar research will be conducted in the future to continue to evaluate the program. The criteria developed may also be useful to other researchers who are researching the quality of cross-cultural videoconferencing lessons connecting school students.

Despite the study limitations it is hoped that teachers will be encouraged by the results and recommendations reported to either begin videoconferencing lessons to connect their students with students in countries, especially Asia, or endeavour to improve the quality of their videoconferencing lessons if they are already offering such opportunities for their students. Videoconferencing provides an ideal way for rural and regional teachers to bring other cultures into their classroom. This is becoming a necessity with Australia now positioned in its *Asian Century*. With so much advice and assistance available, those teachers who want their students to explore cultural horizons by connecting synchronously with students in other countries should now have fewer barriers to making this a reality.

REFERENCES

- Anastasiades, P. S., Filippousis, G., Karvunis, L., Siakas, S., Tomazinakis, A., Giza, P., & Mastoraki, H. (2010). Interactive Videoconferencing for collaborative learning at a distance in the school of 21st century: A case study in elementary schools in Greece. *Computers & Education, 54*, 321–339.
- Australian Broadcasting Commission (29 March, 2012). TV report on the Prime Minister's participation in a videoconferencing class at Gyeseong School (South Korea). 7pm TV News: <http://www.abc.net.au/news/2012-03-26/obama-challenges-north-korea-to-pursue-peace/3914046> (see 1:10 - 1:50 minutes).
- Australian Curriculum, Assessment and Reporting Authority (2012). *The Australian Curriculum*. ACARA. Retrieved 1 November 2012 from <http://www.australiancurriculum.edu.au/>
- Australian Government (2012). *Australia in the Asian Century White Paper*. Commonwealth of Australia. Retrieved 1 November 2012 from <http://asiancentury.dpmc.gov.au/white-paper>
- Cavanaugh, C. (2001). The effectiveness of interactive distance education technologies in K-12 learning: A meta-analysis. *International Journal of Educational Telecommunications, 7*(1), 73–88.
- DiPietro, M., Ferdig, R., Black, E., & Preston, M. (2008). Best Practice in teaching K-12 online: Lessons learned from Michigan Virtual School teachers. *Journal of Interactive Online Learning, 7*(1), 10–35.
- Gage, J. (2005). The Motivate Project: Using videoconferencing as an educational medium. Paper presented at *Redesigning Pedagogy: Research, Policy, Practice, Conference, National Institute of Education, Singapore*. Retrieved 14 May 2009 from <http://conference.nie.edu.sg/paper/Converted%20Pdf/ab00359.pdf>.
- Gerstein, R. B. (2000). Videoconferencing in the classroom: Special projects towards cultural Understanding. In D. L. Johnson, C. D. Maddux & L. Liu (Eds.), *Integration of technology in the classroom: Case studies* (pp. 177 – 186). Binghamton, NY: The Haworth Press.
- Lawson, T., & Comber, C. (2010). Videoconferencing in English schools: One technology, many pedagogies? *Technology, Pedagogy and Education, 19*(3), 315–326.
- Lawson, T., Comber, C., Gage, J., & Cullen-Hanshaw, A. (2010). Images of the Future - Videoconferencing: A literature review. *Technology, Pedagogy and Education, 19*(3), 295–314.
- Macrory, G., Chretien, L., & Ortega-Martin, J. L. (2012). Technologically enhanced language learning in primary schools in England, France and Spain: Developing linguistic competence in a technologically enhanced classroom environment. *International Journal of Primary, Elementary and Early Years Education, 40*(4), 433–444.
- Martin, M. (2005). Seeing is believing: The role of videoconferencing in distance learning. *British Journal of Educational Technology, 36*(3), 397–405.
- Peng, H., Lu, W. H., & Wang, C.I. (2009). A framework for assessing high school students' intercultural communicative competence in a computer-mediated language learning project. *Journal of Interactive Learning Research, 20*(1), 95–116.
- The Armidale Independent (23 July 2012). Video link to make a big impact. <http://www.armidaleindependent.com.au/wordpress/index.php/2012/08/video-link-set-to-make-a-big-impact/>
- Thurston, A. (2004). Promoting multicultural education in the primary classroom: Broadband videoconferencing facilities and digital video. *Computers & Education, 43*, 165–177.