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Asia ConneXions Utilizing HD Videoconferencing

Final Evaluation Report

**Broadband Enabled Education and Skills Services Program
Australian Government**

University of New England

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Table of Contents

Figures and Tables	2
Supporting Organisations	5
1. Introduction	5
2. Key Achievements	7
3. Project Manager’s Report	8
4. Case Studies	9
4.1 Case Study One: Providing a real purpose for learning Japanese language ...	9
4.2 Case Study Two: Inquiry-based learning for multicultural students	10
4.3 Case Study Three: STEM and Korean culture	11
4.4 Case Study Four: Meeting Indian Kindergarten Children in New Delhi for Cultural Exchanges	12
5. Technology	13
5.1 Integration of HD videoconferencing into the school curriculum and pedagogical practices	13
5.2 Hardware solutions, networks, and a new platform	14
5.3 Trialling Multipoint Videoconferencing for the Sydney Olympic Park’s 2014 Youth Eco Summit	16
5.4 Comparing HD versus SD videoconferencing qualities through the Asia Cup 2014 Virtual Fest	17
6. Pedagogy	18
6.1 New pedagogical practices	18
6.2 Pedagogical skills required	21
6.3 Basic Technical Skills required	22
7. Outcomes	23
7.1 Method for collecting evidence for the Outcome Indicators	23
7.2 Australian Outcomes and Outcome Indicators	25
Educational Outcomes	25
Productivity Outcomes	29
Regional Outcomes	31
Indigenous Outcomes	31
Financial Outcomes	32
7.3 Asian Outcomes and Outcome Indicators	38
7.3.1 Korean Outcomes	47
7.3.2 Japan Outcomes	52
7.3.3 Chinese Outcomes	57
7.3.4 Indonesian Outcomes	62
7.4 The 2014 Educational Outcomes	67
7.4.1 Key Summary	67
7.4.2 Objectives and Outcomes	68
Objective 1. Establish HD videoconferencing for 30 school pairs	68
Objective 2. Positive changes for Australian students’ learning about Asia	70
Objective 3. Positive changes for Australian teachers’ pedagogical skills and knowledge	74
Objective 4. Positive changes for Asian students’ learning about Australia	76
Objective 5. Positive changes for Asian teachers’ pedagogical skills and knowledge	81
8. Service Model Costs	83

9. Key Learnings and Future Directions	85
9.1 Key Learnings	85
9.2 Sustainability and Future Directions	86
APPENDICES	88
Appendix A. Schools' Short Names	88
Appendix B. Schools List for the Asia ConneXions Deployment Trial with their technical details for HD videoconferencing	90
Appendix C. The 46 VIC public schools that are waiting to get connected with their preferred Asian country	93
Appendix D. Acronyms and Definitions	95

Figures and Tables

Figures

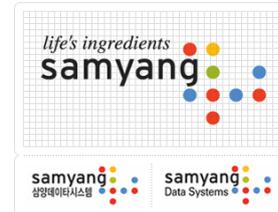
Figure 4.1 Oakleigh South Primary School students conversing with Higurashi Elementary School students in Japanese through real-time videoconferencing.	9
Figure 4.2 Athol Road Primary School's students teaching about Australian culture to Korean students through videoconferencing.	10
Figure 4.3 St Joseph's Primary School, Maclean, students, together with its Korean partner school, Busan Daechung Primary School in Korea, are learning about marine science through the Great Barrier Reef virtual excursion.	11
Figure 4.4 St Mary's Catholic Primary School's kindergarten children in Armidale, NSW are performing an Australian song-and-dance piece for Indian kindergarten children in St Mary's School in New Delhi, India through HD videoconferencing.	12
Figure 5.3 Trialling an 8-multipoint HD videoconferencing for the Sydney Olympic Park's 2014 Youth Eco Summit event with Australian and Korean schools.	16
Figure 5.4.1 High Definition (HD) videoconferencing in the Asia Cup 2014 Virtual Fest.	19
Figure 5.4.2 Standard Definition (SD) videoconferencing in the Asia Cup 2014 Virtual Fest.	19
Figure 7.4.1 Australian students' confidence levels in knowing about their connected Asian culture.	71
Figure 7.4.2 Behavioural indicators of the impact of videoconferencing with Asian peers on Australian students	72
Figure 7.4.3 Teacher observations of student learning outcomes of videoconferencing with Asian students	73
Figure 7.4.4 Teacher pedagogical outcomes of the use of videoconferencing for teaching the Asian culture and the Asian language	75
Figure 7.4.5 Asian students' confidence levels in knowing about Australian Culture	77
Figure 7.4.6 Behavioural indicators of the impact of videoconferencing with Australian students on Asian students	78
Figure 7.4.7 Asian students' affective responses to videoconferencing with Australian students	79
Figure 7.4.8 Asian teacher observations of student learning outcomes of videoconferencing with Australian students	80

Figure 7.4.9 Asian Teacher pedagogical outcomes of the use of videoconferencing for developing Asian students' English skills and teaching about Australian culture	82
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Tables

Table 7.2.1 Reduced travel time for Australian students for meeting their connected Asian peers in person	33
Table 7.2.2 Reduced travel cost for Australian students for meeting their connected Asian peers in person (unit: AUD \$)	34
Table 7.2.3 Reduced travel time for Australian teachers for meeting Asian teachers and students in person	34
Table 7.2.4 Reduced travel cost for Australian teachers for meeting Asian teachers and students in person (unit: AUD \$)	35
Table 7.3.1.1 Reduced travel time for Asian students to meet their Australian peers in person	44
Table 7.3.1.2 Reduced travel cost for Asian students to meet their Australian peers in person (unit: AUD \$)	44
Table 7.3.1.3 Reduced travel time for Asian teachers to bring Australian students and teachers to the Asian classrooms	45
Table 7.3.1.4 Reduced travel cost for Asian teachers to bring Australian students and teachers to the Asian classrooms (unit: AUD \$)	45
Table 7.4.1 Numbers of students and teachers from whom the 2014 data were collected	70
Table 7.4.2 Australian students' confidence levels in knowing about their connected Asian culture	71
Table 7.4.3 Behavioural indicators of the impact of videoconferencing with Asian peers: Frequencies and percentages	72
Table 7.4.4 Affective responses to videoconferencing with Asian peers: Frequencies and percentages	72
Table 7.4.5 Australian teacher observations of how this project benefits Australian students	74
Table 7.4.6 Australian teacher pedagogical outcomes of the use of videoconferencing for teaching: Numbers of teachers and percentages	75
Table 7.4.7 Asian students' confidence levels in knowing about Australian culture	77
Table 7.4.8 Behavioural indicators of the impact of videoconferencing with Australian peers on Asian students: Frequencies and percentages	78
Table 7.4.9 Affective responses to videoconferencing with Australian peers: Frequencies and percentages	79
Table 7.4.10 Asian teacher observations of how this project benefits Asian students	81
Table 7.4.11 Asian teacher pedagogical outcomes of the use of videoconferencing for teaching: Numbers of teachers and percentages	82
Table 8.3.1 A comparison of availability of in-kind contributions from teachers for the project	84

Supporting organizations



TechData



1. Introduction

Aim. The aim of the Asia ConneXions project was to connect thirty Australian schools with schools in Korea, Japan, China, Indonesia, and India using high definition (HD) videoconferencing for developing Australian students' cultural understanding of Asia and their Asian language skills.

Technological requirement. In order to do HD videoconferencing in schools, schools must have 1) HD videoconferencing equipment, such as Polycom HDX6000, Cisco SX20, and LifeSize Express220 units, 2) optic fibre broadband connections for the school internet ranging from 20Mbps to 1Gbps, and 3) the internet speed of 768Kbps bandwidth or above or 512Kbps minimum for videoconferencing.

Significance. This project is significant in that it contributes to meeting the requirements of the Australian Curriculum's cross-curriculum priority of 'Asia and Australia's engagement with Asia'; and second, the use of HD videoconferencing provides an alternative to the traditional method of teaching Asian languages. Teaching of Asian languages is in a critical state due to decreasing numbers of Australian mainstream students taking up Asian languages subjects despite the Australian Government's \$68million investment into the National Asian Languages and Studies in Schools Program (NALSSP) over 2009 – 2011.

Method. Thirty seven Australian schools were connected with schools in Korea, Japan, China, Indonesia, and India using HD videoconferencing. The Australian and Asian schools were recruited in stages: 5 schools in 2012, 18 schools in 2013, and 11 schools in 2014. The frequencies of videoconferencing sessions varied school by school, ranged from 1 to 47; the *Mean* was 12 sessions. The Australian and Asian teachers did Teacher Meetings for planning, deciding the exact dates and times for videoconferencing, discussing topics, and designing the sessions to meet their students' needs. All the videoconferencing sessions were monitored to ensure their successful connections, and were video-recorded. Videoconferencing highlights were submitted to the Australian Government as evidence of successful connections.

Data collection. Two types of data were collected for evidence of this project. First, Whole Schools Data were collected from all the participating schools, such as numbers of students, teachers, subjects delivered, school locations, and videoconferencing sessions. Second, Selected Schools Data (SSD) were obtained from the schools that responded to the Student Post-Survey 2014 and the Teacher Feedback 2014.

Outcomes. Educational outcomes of this project are as follows:

- 1) **Subjects:** 1,093 Australian students accessed new subjects, such as Asian cultures, Global Education, and Science Sharing.
- 2) **Increased interest:** Exposure to other cultures through this project increased Australian students' interest in Asian cultures and Asian languages.
- 3) **STEM:** 975 Australian students participated in STEM virtual excursions on topics of marine science and environmental science.
- 4) **Improved learning:** Australian students improved cultural understanding of Asia and Asian language skills.
- 5) **Collaboration:** Australian students collaborated with Asian peers learning about Asian culture from their Asian peers and teaching about Australian culture to Asian students. 1,204 Australian students said they enjoyed learning from their Asian peers, and 1,221 Australian students said they enjoyed teaching about Australia to their Asian peers.

- 6) **Interaction:** This project increased interaction between Australian and Asian students through 440 HD videoconferencing sessions organized for the school pairs.
- 7) **Engagement:** Australian students actively participated in videoconferencing with Asian peers. Australian students enjoyed synchronous videoconferencing with Asian peers. Australian students got Australian friends through e-pals of this project. Four Australian schools have built Sister School relationships with their Asian peers.
- 8) **Professional development:** 95 Australian teachers (100%) undertook Professional Development through HD videoconferencing.
- 9) **New pedagogical practice:** Australian teachers adopted the use of HD videoconferencing for teaching Asian cultures and languages. Australian teachers thought that videoconferencing with Asian peers facilitate student-centred learning.
- 10) **Parents:** 702 Australian students (44%) explained to their family members about their experience of videoconferencing with Asia peers.
- 11) **Fit-for-purpose:** HD videoconferencing is fit-for-purpose for teaching Asian cultures and languages (69 teachers [72%] agreed.); benefits Australian students, (78 teachers [82%] agreed.); and develops global thinking (95 teachers [100%] agreed).
- 12) **New platforms:** The AARNet VMR and Zoom rooms were identified as new platforms for Australian students to meet Asian students. Zoom is interoperable with hardware solutions.
- 13) **Digital skills:** This project improved Australian students' digital skills. All participating Australian teachers received basic training for using videoconferencing for teaching Asian cultures and languages.

Key learnings. The use of HD videoconferencing technology required development of *new pedagogical practices* to meet the needs of Asian language teachers and teachers teaching Asian studies. The design of the videoconferencing sessions led to *student-centred learning* and inquiry-based learning.

Future directions. Sustainability of this project depends on the project team securing further grants because this project is labour-intensive.

2. Key Achievements

- 1) This project connected **37 Australian schools** with schools in Korea, Japan, China, Indonesia, and India using HD videoconferencing for developing Australian students' cultural understanding of Asia and their Asian language skills.
- 2) This project developed Australian students' **cultural understanding of Asia** by increasing interaction and engagement with Asian peers.
- 3) Australian teachers confirmed that Australian students' conversations with Asian peers through synchronous videoconferencing **improved** their **Asian language skills**.
- 4) This project demonstrated that HD videoconferencing technology can be used to teach Asian languages more effectively by providing **real-purpose** for learning Asian languages.
- 5) This project developed **global thinking** of Australian students through synchronous, authentic interaction with Asian peers.
- 6) This project provided **global** experiences for **rural** and **regional** students in Australia, who, without this project, are not likely to have such opportunities.
- 7) This project developed such **21st century skills** as developing Collaboration, Communication skills, and ICT Literacy.
- 8) This project developed students' **confidence in speaking** in front of others, especially international audiences.
- 9) This project provided **STEM** virtual excursions on topics of marine science and environmental science delivered by the Great Barrier Reef and Sydney Olympic Park education teams.
- 10) This project increased Australian students' **interest** in and **motivation** to learn more about Asian cultures and languages.
- 11) **New pedagogical approaches** were developed to integrate the use of videoconferencing for teaching Asian languages and Asian cultures. For teaching Asian cultures, the 40mins were split into **two halves**. In the first half, Australian schools led teaching Australian culture in English; in the second half, Asian students led teaching Asian culture to Australian students in English. For teaching Asian languages, a **Ten Questions** method was used, in which teachers exchanged Ten Questions in advance, and their students prepared answers to the Ten Questions in advance. By using the Ten Questions method, students were well-prepared to interact actively and expand their discussion further.
- 12) The use of videoconferencing led to **student-centred learning** and **inquiry-based learning**.
- 13) This project created **three new curriculum subjects** of Asian cultures, Global Education, and Science Sharing by providing synchronous, peer-to-peer, HD videoconferencing to schools that did not have such an opportunity.
- 14) The Australian and Asian teachers participated in **Teacher Professional Development** through Teacher Meetings organised for each school pair, in which they did planning for their yearly videoconferencing sessions, and discussed new pedagogical approaches.
- 15) The use of HD videoconferencing **fits for the purpose** of developing Australian students' cultural understanding of Asia and developing their Asian language skills.
- 16) The new platform of Zoom (<https://aarnet.zoom.us/>) has been introduced to the Australian and Asian schools by collaborating with AARNet (Australian Academic Research Network: <https://www.aarnet.edu.au/>). The strength of Zoom is that Australian students can bring **videoconferencing outdoors** by installing the Zoom app on iPads and by carrying their iPads with Zoom to show their school campus and their outdoor events.
- 17) This project **reduced** enormous amounts of **travel times** and **costs** for students and teachers for bringing Asian students and teachers to the Australian classrooms by using videoconferencing technology.

3. Project Manager's Report

This project successfully deployed the HD videoconferencing technology to 37 Australian and Asian school pairs (7 school pairs more than the 30 school pairs proposed in the Implementation Plan), and demonstrated key Achievements and the educational outcomes of this project.

There are three changes diverted from the Implementation Plan of this project. First, the home aspect of Objective 4 was excluded from reporting because the current broadband connections in Australia do not offer high speed broadband to all homes in Australia. The optic fibre connections go only to the node, and the node-to-homes are still copper connections. Therefore, home access to HD videoconferencing was not available during this project period.

Second, there was some delay in having the Implementation plan approved, which was done in September 2013 instead of early 2013. The main cause of the delay was due to getting confirmation about recruited schools' access to HD videoconferencing and getting the Government's approval for the technical details. For example, the project team had to find out a) the brand and model of schools' videoconferencing equipment, e.g., Polycom HDX 6000, Cisco SX20, Life Size; b) broadband speeds for upload and download of the schools, including the VicSmart of the Victorian Department of Education's (DET) videoconferencing infrastructure and its upload/download speeds, c) whether the schools' broadband connections use optic fibre or not, and d) identifying the AARNet as equivalent to the NBN (National Broadband Network), thus qualifying for providing HD videoconferencing. IT Director of the VIC DET discussed with the NBN-EESS Project Manager to provide details of the VicSmart infrastructure, which has dedicated broadband bandwidth for VIC DET schools.

Finally, regarding the budget, the over-spent items are Project Assistants and Travel, and the under-spent items are NBN-connection cost. In order to recruit Japanese and Chinese schools to match with Australian schools, it was essential to hire a Japanese Project Assistant and a Chinese Project Assistant, in addition to a Korean Project Assistant, to facilitate discussions with education authorities in Japan and China in their mother tongue. Also, it was essential to visit Korea, Japan, and China to meet the education authorities, school principals, and teachers in the Asian countries in order to promote this project and recruit schools from Korea, Japan China. Thus, \$185,693 was spent for Project Assistants, which is \$37,863 more than the original budgeted amount of \$147,830. Also, \$55,933 was spent for Travel, including those to Korea, Japan, and China, which is \$36,585 more than the original budgeted amount of \$19,348. The original budget included \$93,654 for the NBN connection cost for 17 Australian schools. Since the NBN connection was no longer required at the end of 2013, the NBN connection cost budget was distributed to costs for Project Assistants, Travels, and Administration.

4. Case Studies

4.1 Case Study One: Providing a real purpose for learning Japanese language

The first videoconferencing session between Oakleigh South Primary School in Victoria and Higurashi Elementary School in Tokyo started with “Whaaa” from both sides. Oakleigh South Year 6 students have been learning Japanese language since the beginning of 2013, but have not had a chance to use it to communicate with Japanese people. Then, suddenly they faced a class of 30 Japanese students holding the English alphabets of their school name ‘HI-GU-RA-SHI’ in front of them. It was the first time for the Japanese children too to see Australian students of their age facing them through a TV screen and looking at them with curiosity and wonder. Mami Martin, a Japanese language teacher at Oakleigh South, and Ms Suzuki, Deputy Principal and English teacher at Higurashi, gave a sign for the start.



Figure 4.1 Oakleigh South Primary School students conversing with Higurashi Elementary School students in Japanese through real-time videoconferencing.

Higurashi children all stood up, and spoke in loud voice, ‘HI-GU-RA-SHI’ twice. The individual children came to the front and introduced their names in English. Then, they sang the song, ‘Head-Shoulders’ in English. In response to this, Australian children sang the song, ‘Head-Shoulders’ in Japanese, which amused everyone. The individual Australian children introduced him/herself in Japanese with clear Japanese pronunciation, which impressed the Japanese people.

Mami Martin wrote in the Teacher Feedback 2013 questionnaire: “When children learn Japanese in class, it is often an abstract skill to which they may see no immediate purpose. However, when they actually engaged with students who were living in Japan, seeing them, speaking to them and singing and laughing with them, then the language was *no longer an abstract skill*, it had a *real purpose*. The engagement of our children in this videoconference was phenomenal and those children who had this opportunity were excited and without exception wanted to do it again.” Another Japanese language teacher repeated a similar statement in the Feedback questionnaire; “We believe it is essential that students want to learn a second language and have a purpose to use it and make it *real*. By having conversations with Japanese students and presenting what they are learning, they are making what they have learnt meaningful and fun!” Other Asian language teachers echo similar statements.

Asian language teachers have been looking for an alternative way of teaching Asian languages, as the Australian Government’s investment of \$68 million into the National Asian Languages and Studies in Schools (NALSSP) program did not make much difference in increasing the number of Australian mainstream students learning Asian languages. Thus, using digital technology for Asian languages teaching is being suggested. Certainly creating opportunities that Australian students learning Japanese, Chinese, and Indonesian language converse with Japanese, Chinese, and Indonesian students, respectively, will benefit the Australian students. In the Asia ConneXions project, all the 16 Australian schools connected with Japan, China, and Indonesia are for teaching Asian languages.

4.2 Case Study Two: Inquiry-based learning for multicultural students

Athol Road Primary School is an inner-city school located in south-east of Melbourne's central district. The students are from a low socio-economic status and from 32 different cultural backgrounds. Usually, home, school, and shopping centres are their habitat, and travelling to Korea to meet Korean students is very unlikely for many of the Athol Road students. However, meeting Korean students became possible through videoconferencing. The Lead Teacher, Ilknur Moore, a Team Leader for Y4-6, is eager to provide new experiences for her students. She integrated curriculum topics of natural disasters, environmental education, solar system, and history as well as cultural topics of food, animals, and folksong. Ms Moore said teaching about Australian culture to Korean students improved their confidence in speaking in front of others, and provided her students with opportunities for *inquiry-learning* by searching for information about Australian culture in order to teach it to Korean children. She said her students are from multicultural backgrounds, such as Vietnam, India, Yugoslavia, Iran, and Africa. Thus, her students' preparation for teaching about Australian culture in fact improved her students' own knowledge about Australian culture.



Figure 4.2 Athol Road Primary School's students teaching about Australian culture to Korean students through videoconferencing.

Ms Moore also introduced Korean language starting with teaching the Korean alphabet to her students, who presented to Korean students what they learned about the Korean language. Korean students demonstrated authentic pronunciation of Korean alphabet and Korean phrases, such as 'Thank you' and 'How are you?', and also showed the writing of the phrases. The Athol Road students and their Korean e-pals exchanged cards and Christmas gifts during a Christmas party and sang Christmas carols in November last year.

When the Athol Road students were asked what they enjoyed most by videoconferencing with Korean students, they responded: "I enjoyed being able to learn about Korea from Korean students." "In enjoyed presenting and seeing each other." "I enjoyed comparing their holidays to ours." "I enjoyed it because it is about the Asian culture, and it is very unique." When the Athol students were asked what they found most fascinating about Korean culture, they said, "Korea has a Children's Day, while Australia does not;" "Celebrations in Korea," and "Different sounds of Korean words." The Athol students were asked what they presented on for teaching Australian culture to Korean students. They said: "Sorry Day and the stolen generation," "Captain Cook and Melbourne Cup," "Convict Years," "Australian Day," and "Extreme environments in Australia."

Ms Ilknur Moor said that the videoconferencing is effective for teaching Asian culture because of "Learning about the language, Comparing special celebrations, and Sharing of student work." She suggested that students' individual email exchanges outside classroom may "enhance student connectedness and help form friendship groups."

Athol Road Primary School is continuing videoconferencing in 2015 with its Korean partner school with similar topics like last year by integrating Science topics into their videoconferencing and using Edmodo (www.edmodo.com) to connect the individual students through online chat in a safe, secure environment, and exchanging cultural artefacts in November this year.

4.3 Case Study Three: STEM and Korean culture



Figure 4.3 St Joseph's Primary School, Maclean, students, together with its Korean partner school, Busan Daechung Primary School in Korea, are learning about marine science through the Great Barrier Reef virtual excursion.

As a STEM initiative of the Asia ConneXions project, the Great Barrier Reef virtual excursions were offered to the participating schools in collaboration with the Reef Education team. St Joseph's Primary School, Maclean, and its Korean partner school, Busan Daechung Primary School took the opportunity. Sharon Barrington, the Lead Teacher at St Joseph's, wrote an article about the Reef virtual excursion, which was published in their local Daily Examiner in Maclean. The article goes as follows:

Great Barrier Reef Virtual Excursion with Daechung Primary School in Korea

On Wednesday, 14 May, 2014, Saint Joseph's Maclean went on a virtual excursion to the Great Barrier Reef with their sister classes at Daechung Primary School in Busan, South Korea. We were guided through the Reef by our diver, Dianne, a Marine Biologist. We were her dive buddies and had signals to give her for - Okay, go up, go down, shark, sea turtle. First of all, Dianne showed us all the corals and small fish. We got to answer her questions and ask her questions of our own. We all were glad that Dianne was brave enough to go swimming among the sharks. Though we worried a little and kept giving the shark signal just in case she didn't see some of them. This was a very special event for us all. Our sister classes wanted to know how old you have to be to go snorkelling at the reef. We are lucky to be able to go snorkelling in our area and look forward to snorkelling on the amazing Reef one day.

St Joseph's and Busan Daechung students did a lot of activities for cultural exchanges during videoconferencing sessions. For example, St Joseph's students showed how to make Vegemite sandwiches, and Korean students, who brought similar food materials to the session, learned how to make vegemite sandwiches from St Joseph's students. The Korean teacher had sent Korean traditional fans with pink features used for 'Korean Fan Dance' by postal mail in advance, and St Joseph's students joined in learning Korean Fan Dance from Daechung students during videoconferencing.

St Joseph's students said that they enjoyed learning new things, such as Zodiac, Korean traditional games, and Korean words; enjoyed talking with Korean kids of their age; enjoyed having a Korean e-pal; enjoyed learning a Korean fan dance. A student at St Joseph said, 'They can tell what we are saying, and we can tell what they are saying.' He/she referring the real-time interaction with Korean kids. St Joseph's students said they were fascinated by Korean food, Korean traditional costumes, and Korean traditional celebrations, such as Korean Thanksgiving; and how big Busan city (where the Korean school is located) is. St Joseph's students said they taught Korean kids about Australian culture, such as Australian food, Australian colloquialisms, cricket and surfing, Australian children songs and dances, and art.

St Joseph's teachers said the videoconferencing with Korean students was effective for teaching Korean culture, because "Students interacted with each other to learn about another culture in an honest and interesting manner; Students had to be certain that communication and language were clear due to limited English of Korean students. They had to make sure at all times Korean students understood their presentation; Students are able to ask questions about things they don't readily understand." They also said the effective aspects of the videoconferencing were "interactive and inviting students to participate in an activity as opposed to just listening; meeting their e-Pals; using PowerPoint slides to view facts about Korean culture; and Learning basic Korean Language phrases to communicate with e-Pals."

The two schools signed a Memorandum of Understanding (MoU) for building a Sister School relationship through videoconferencing in July 2014. The Korean school's original plan was for the principal, teachers, and ten students to visit St Joseph's in July 2014 and signed the MoU in person. However, the Korean ferry disaster in April 2014 restricted all Korean schools from travelling overseas and taking any field trips. Thus, they signed it by sending the MoU by post in advance and meeting each other virtually.

4.4 Case Study Four: Meeting Indian Kindergarten Children in New Delhi for Cultural Exchanges



Figure 4.4 St Mary's Catholic Primary School's kindergarten children in Armidale, NSW are performing an Australian song-and-dance piece for Indian kindergarten children in St Mary's School in New Delhi, India through HD videoconferencing.

Connecting an Australian school with a school in India turned out to be very difficult because the project team could not find an Indian school with hardware videoconferencing equipment. The project team was introduced to two Indian schools by Sangeeta Gupta, IT Director of the Energy and Resources Institute (TERI: www.teriin.org) in New Delhi through the Global Development Learning Network (GDLN). The two Indian schools are St Mary's School (www.stmarysschooldwarka.in/; Deputy Principal, Seema Bali) in Dwarka, New Delhi, and the other is The Indian School in New Delhi (contact, Susan Thomas). However, TERI could offer only 384 Kbps bandwidth (standard definition) for videoconferencing for the Indian schools. Thus, we had to find a different venue that could offer at least 512 Kbps bandwidth for good quality videoconferencing.

Thus, the Indian schools asked for assistance to the Australian High Commission in New Delhi. However, since the Australian High Commission is a government organization, they allow only point-to-point videoconferencing and only ISDN calls (no IP/H323 calls available) for security reasons. Since the ISDN videoconferencing is an old technology and is expensive, none of the project team's equipment has the option of ISDN calls, and none of the Australian schools have

the ISDN option. The only place with the ISDN option is the UNE Videoconferencing Studio 1. Thus, the project brought a local school in Armidale, NSW to the UNE Studio 1.

Kindergarten children at St Mary's Catholic Primary School in Armidale met kindergarten children at St Mary's School in New Delhi through videoconferencing on 10 December (Wed), 2014. It was beautiful to see Indian kindergarten children dressed in their traditional costumes and demonstrating their traditional dance for Australian kindergarten children. In the meantime, an Australian Aboriginal child read an Aboriginal storybook, another child showed her drawing of a crocodile, and the whole class students performed a song-and-dance piece for Indian children. Two Australian parents joined to see the videoconferencing session. The Australian children showed their school uniforms, and showed where Armidale is in the Australia map. The Australian High Commissioner in New Delhi also came to see the Indian kindergarten children as well as the Australian children in our side. Indian children made paper structure of Taji Mahal and explained about its cultural importance, and an Indian boy demonstrated impressive acrobatic movements.

What do Australian and Indian kindergarten children learn from this one-off experience? Australian children will remember meeting Indian children through videoconferencing, so they will be able to recall what Indian children are like. They will remember the colourful traditional dresses and the beautiful smiling faces of the Indian children, so they are less likely to be indifferent towards Indian people in the future. They may remember the excitement that was around during the event and the enthusiasm and eagerness of the Indian teachers and also of the Australian principal, teachers, and parents. Australian children may remember India-related issues as positive rather than having no ideas about Indian people.

One Australian parent said she and her family will be visiting New Delhi in January 2015, and mentioned visiting the Indian school in New Delhi and bring Australian cultural gifts to the school. The Indian school is currently participating in an environmental project, and asked St. Mary's Catholic Primary School to join them for sharing and collaborating in the project. This is being negotiated.

5. Technology

5.1 Integration of HD videoconferencing into the school curriculum and pedagogical practices

This project used HD videoconferencing to connect Australian and Asian schools, which required HD videoconferencing equipment and high speed broadband for transferring HD audio and video data. Technical details of the Australian schools' high definition videoconferencing equipment and their broadband speed connections are shown in **Appendix B**. Among the 37 schools, 31 schools used Polycom HDX 6000, 1 school used Polycom HDX 8000, 4 schools used Cisco SX20, and 1 school used LifeSize. The schools' broadband connection speeds varied from AARNet 1 Gbps upload/download to VicSmart 20Mbps dedicated to videoconferencing. All the school broadband connections used optic fibre.

The HD videoconferencing technology was integrated into the school curriculum through the 'Engagement with Asia' cross-curriculum priority subject and the Asian languages subjects (Korean, Japanese, Chinese, and Indonesian). HD videoconferencing enabled Australian students to learn about Asian cultures from Asian peers with clear audio and video qualities synchronously, while they taught Australian culture to Asian peers. Asian languages teachers took the opportunity of providing their students with real-time conversations with Asian students

as part of their language teaching. When using videoconferencing for language teaching, high quality audio is the most important part and more important than video. This is because, without clear audio, students will not be able to understand each other's speaking. Fuzzy video is tolerable in language teaching, but unclear sound is not.

The most innovative aspect of using videoconferencing for Asian language learning is that students find real-purpose in learning Asian languages. Before synchronous HD videoconferencing, traditional ways of teaching Asian languages involved learning the grammar from teachers within the four-walls of classrooms. In the traditional ways of learning Asian languages, Australian students could not understand why they have to learn it when they hardly speak the language anywhere. However, with the synchronous HD videoconferencing with Asian peers, it was a different story. Australian students were able to meet Asian students of similar ages synchronously, were able to ask questions about their Asian culture, which Asian students answered facing each other. The instant feedback, facial expressions of Asian students, and spontaneous remarks and gestures made the virtual meetings 'real'. Australian students found a reason to study an Asian language so that they can impress their Asian peers by speaking the mother tongue of the Asian peers and also have benefits of this opportunity to practice Asian language skills by conversing with Asian peers.

In the Engagement with Asia classes, HD videoconferencing enabled authentic, synchronous learning of Asian cultures from Asian peers. Although there are teaching resources about Asian cultures, Australian students' experiences of meeting Asian students virtually and teaching each other and learning from each other cannot be compared to studying learning resources about Asian cultures. The synchronous HD videoconferencing provides 'live' experiences.

The effect of the technology in the learning environment is demonstrated by teachers' testimonials after using it regularly for one year. The Teacher Feedback 2014 collected teacher data about the effectiveness of the use of technology for teaching Asian cultures and Asian languages. 72% of the participating teachers said HD videoconferencing was effective for teaching Asian cultures and languages. 82% of the participating teachers said they will use HD videoconferencing again the next year for teaching Asian cultures and languages.

Benefits accruing to students and teachers in Australia and Asia through this project were investigated using the Student Post-Survey 2014 and the Teacher Feedback 2014. The results are reported in the section of '7.4 The 2014 Educational Outcomes' in this Final Report.

5.2 Hardware solutions, networks, and a new platform

Hardware solutions

- 1) This project used hardware solutions for videoconferencing such as Polycom, Cisco, and LifeSize equipment. For Polycom, Polycom HDX 6000 is the most commonly used equipment by the Australian schools. Others are Cisco SX20, Polycom HDX 8000, and LifeSize Express220. They are interoperable.
- 2) NSW public schools used Tandberg 3000. VIC public schools used Polycom HDX 6000. Knox Grammar used LifeSize Express 220. Scotch College in Perth used Cisco SX20. Independent schools, such as St Andrew's Anglican College and Calvin Christian College, used Polycom HDX 6000.
- 3) The project team uses Cisco EX90, Cisco SX20, and Tandberg 3000.
- 4) One thing that the project team had to be aware of in order to advise schools properly was the video call methods for Polycom and Cisco, which are different. For example:
 - Polycom: 202.158.195.138##2688
 - Cisco: 2688@202.158.195.138

- 5) The project team had to be aware of which hardware solutions schools have in order to provide which video call method to give. Often teachers were not aware of which (whether Polycom, Cisco, LifeSize) equipment their school has. Thus, the project team identified the equipment models from the schools' IT Directors.
- 6) The hardware solutions of Polycom, Cisco, and LifeSize supports scalable deployment, as they are interoperable.

Networks

- 1) AARNet Bridge is *interoperable with the networks* of the VIC public schools, all independent schools in NSW, QLD, TAS, WA, and Catholic schools, except NSW public schools. Thus, this project used AARNet Bridge by booking VMRs for all the videoconferencing sessions for the above schools.
- 2) NSW public schools used the NSW CCP network and could not come out of their CCP network. Thus, Asian schools entered the CCP network by registering the NSW CCP IP in the network of their school systems or by technical support of their network provider.
- 3) While VIC public schools had VicSmart Bridge with bookable VMRs, the VicSmart Bridge could not be used for this project because the project team did not have access to the booking system and had no control of videorecording in the VIC VMRs. The project team has to have full access to VMR booking systems and full control of the VMRs used in this project. Thus, we used AARNet VMRs for all of our schools except NSW public schools.
- 4) Catholic schools (O'Connor Catholic College, St. Joseph Primary School in MaClean) use the Catholic Network Australia (CAN), to which Asian schools could not enter. Thus, they came out of their network to meet Asian schools in AARNet VMRs.

New Platform

- 1) A new platform called **Zoom** was introduced for HD videoconferencing by AARNet, and this project team started using it since September 2014.
- 2) The Zoom technology is *interoperable with hardware solutions* of Polycom, Cisco, and LifeSize, and supports scalable deployment.
- 3) Also, Zoom can be used *as a software solution* by installing the Zoom app on computers and mobile devices, such as iPads and smart phones.
- 4) Since Zoom is *replacing the AARNet Bridge*, through which all of the Asia ConneXions schools except the three NSW public schools were connected using AARNet VMRs, it is critical that this project adopts the Zoom technology.
- 5) Zoom's features are as follows:
 - Capable of HD videoconferencing
 - The Zoom app enable the outdoor videoconferencing by installing it in mobile devices; e.g., iPads, smart phones.
 - Capable of 24 multipoint videoconferencing.
 - Recurring Zoom rooms booked through Zoom are available for 24/7, so schools can test their Zoom links at any time.
 - Zoom can record Zoom meetings locally in the host's computer (My Document → Zoom folder → listed by recording dates) and in the Zoom Cloud (downloadable).
 - The screen view can be set to Speaker view or Gallery view.

5.3 Trialling Multipoint Videoconferencing for the Sydney Olympic Park's 2014 Youth Eco Summit

The project team trialled coordinating 8-multipoint videoconferencing sessions for the Sydney Olympic Park's (SOP) Youth Eco Summit (see Figure 5.3). This was a great challenge for the project team, since the team had never done it before, but also was an opportunity to test the capability of HD videoconferencing. There are various factors that can make the event go wrong, and the 7 participating schools from Australia and Asia (the other participant is the SOP Presenters) had to all be ready for engaging with each other on environmental topics. Rather than the SOP presenters appearing as Talking Heads, the project team asked the participating schools to present their own ideas for 5 minutes each, which they prepared using the resources distributed to them in advance. Thus, the multipoint videoconferencing started with each school's 5-mins PPT presentations on their chosen topics. After each school's presentation, the SOP's environmental scientist, Dr Marianne Sheumack, provided feedback and integrated students' ideas in her talk about Australian migrating birds over the Australasia Flyways and how to keep wetlands clean with healthy insects for the birds.



Figure 5.3 Trialling an 8-multipoint HD videoconferencing for the Sydney Olympic Park's 2014 Youth Eco Summit event with Australian and Korean schools.

The project team used AARNet VMRs by booking VMRs for 10 participants and recording the session in the AARNet Bridge. The team tested the 10-multipoint capability using all of our videoconferencing equipment, which worked well. The next challenge is possible human errors. Will teachers all remember the exact date/time and the VMR numbers? Will the schools' audio and video work well? One school's audio problem can affect all the other schools. How will the schools operate their PPT slides used for schools' 5-mins presentations? The PPT slides were sent to the SOP team for them to run from their side. But some schools ran PPT using the Presentation mode in their videoconferencing equipment. Since there were 8 parties, it was difficult to see which school the SOP presenter was addressing. Although the SOP team had lists of

participating schools, they could not match the school names and the school views on the screen. Also, it was difficult for the SOP presenters to pronounce Korean schools' names properly. So, for the next day session, the SOP presenters practiced pronunciations of the Korean schools' names. The Environmental virtual excursions were scheduled as part of the virtual fest during the 2014 Youth Eco Summit (YES) organized by the SOP from 13 Oct (Mon) – 22 Oct (Wed), 2014.

Four multipoint videoconferencing sessions were scheduled with 18 schools (7 Australian, 8 Korean, 1 Japan, 1 Indonesian). The schedule is as follows:

- 13 Oct (Mon): 1) AUS: Blackburn HS, VIC. 2) Asia: Yonghwa Girls HS, KOR; Jeju Jeil MS, KOR.
- 15 Oct (Wed): 1) AUS: St Joseph's PS in Maclean, NSW; Mountain Gate PS, VIC; Kismet Park PS (class #1), VIC; Ringwood North PS, VIC. 2) Asia: Busan Daechung PS, KOR; Busan Hakjang PS, KOR; Jeonnam Sani PS, KOR; Busan Wolpyeong PS, KOR.
- 21 Oct (Tues): Asia: Sekolah Ekawijaya, Indonesia.
- 22 Oct (Wed): 1) AUS: Grey Street PS, VIC; Kismet Park PS (class #2), VIC. 2) Damyang Goseo PS, KOR; Saegum PS, KOR; Ogawa Primary and Junior HS, JAP.

For Australian and Korean students, the 8-multipoint videoconferencing was a 'Whaaa!' experience, since they have never seen so many schools at one time. It was a 'Whaaa!' experience too for the project team and the SOP team, since none of us actually have done that using HD videoconferencing. One thing that Korean students mentioned, however, was whether they can do videoconferencing *outdoors*. Since the multipoint sessions were organized in collaboration with the Sydney Olympic Park, students expected some outdoor physical activities. The next step for videoconferencing with Asian schools is bringing videoconferencing outdoors!

5.4 Comparing High Definition (HD) versus Standard Definition (SD) videoconferencing qualities through the Asia Cup Virtual Fest

This project proposed using HD videoconferencing in order to demonstrate the full benefit of high speed broadband for videoconferencing. However, we did not have evidence of lesser benefit using SD videoconferencing, except anecdotal comments from teachers using SD videoconferencing. In the midst of this, an opportunity came to compare HD versus SD videoconferencing qualities. The Asia Cup 2015 organisers contacted the project team through the Sydney Olympic Park Education team for organizing the Asia Cup Virtual Fest by using the Asia ConneXions schools network for reaching Asian schools as well as Australian schools through videoconferencing. The Asia Cup organizers wanted both NSW schools and schools in other States for the Virtual Fest and schools in Korea, Japan, China, and Indonesia. They provided the Asia Cup teaching resources that they developed by linking the Asia Cup themes with English, Math, Arts, and Physical Education aiming at Year 3 & 4 and Years 5 & 6. The Virtual Fest was scheduled on 27 Oct (Mon) – 31 Oct (Fri), 2014.

The project team recruited schools using HD videoconferencing from the Asia ConneXions schools and also recruited NSW public schools. It is a known fact that, while NSW has the largest number of schools (2,250 schools) with hardware videoconferencing equipment in Australia through the Connected Classrooms Program (CCP) implemented over 2007 – 2011, the bandwidth of the NSW videoconferencing is restricted to 384 Kbps bandwidth maximum (SD quality). On top of this, during the busy internet traffic hours from 9am to 1pm, the SD videoconferencing quality becomes even worse. The NSW DEC Distance and Rural Technologies (DART) team has been lobbying for years to increase the bandwidth of NSW public schools' videoconferencing. However, the NSW DEC's equity policy is either to increase the bandwidth for all of the 2,250 schools or for none of them. As this project team has

collaborated with the NSW DART team for years for various projects, we decided to gather evidence for the impact of HD versus SD videoconferencing qualities on students' engagement through the Asia Cup Virtual Fest (see Figure 5.4.1 and Figure 5.4.2). Three HD sessions were scheduled with 6 Australian and 9 Korean schools, and one SD session with 3 NSW and 2 Korean schools.

HD videoconferencing sessions

- 27 Oct (Mon): 1) AUS: Grey Street PS, VIC; Mountain Gate PS, VIC; Kismet Park PS (class #1), VIC. 2) Asia: Jeonbuk Unju PS, KOR; Anyang Shingi PS, KOR; Busan Gyoree PS, KOR; Sungduk PS, KOR.
- 30 Oct (Thur): 1) AUS: Kismet Park PS (class #2), VIC. 2) Asia: Damyang Goseo PS, KOR; Daejeon Hakha PS, KOR.
- 31 Oct (Fri): 1) AUS: Kismet Park PS (class #3), VIC; Ringwood North PS, VIC. 2) Asia: Daebyun PS, KOR; Busan Wolpyeong PS, KOR; Jeonnam Sani PS, KOR.

SD videoconferencing session

- 29 Oct (Wed): 1) AUS: Tacking Point Public School, NSW; Kambora Public School, NSW; Minto Public School, NSW. 2) KOR: Busan Naeri PS; Busan Jukseong PS.

Impact of HD versus SD videoconferencing qualities on students' engagement. In the HD multipoint videoconferencing sessions, participants were able to hear each other clearly, and responded to questions without much difficulty. Schools took turns to make PPT presentations on their chosen topics, and the Asia Cup presenters provided feedback. Video was clear enough to recognize facial expressions. The flow of the interaction among participants was smooth and without much difficulty. Since there were seven schools in the 8-multipoint session, schools seemed to be a bit shy and took caution in volunteering for comments and questions. In the SD videoconferencing session, pixels broke and the screen images got frozen. Still unclear video was bearable, but unclear audio was not. The Asia Cup presenters could not understand what students said, and students could not understand what the Asia Cup presenters said. The Asia Cup presenters did not know what to do, so they called for help from the project team. From this trial of HD versus SD videoconferencing, it became clear that good audio is extremely important in trying to understand each other, and more so than video. HD videoconferencing enhances engagement between Australian and Asian students, compared to SD videoconferencing.

6. Pedagogy

6.1 New Pedagogical Practices

The use of HD videoconferencing for teaching Asian studies and languages required adopting new class structures and using Power Point slides, Ten Questions method, Edmodo, and e-pals and exchange of cultural artefacts. Details are described below.

1) Class structures: The Engagement with Asia classes were either split into two halves, where the first 20 minutes were led by Australian students, and the next 20 minutes were by Asian students for sharing their cultures; or the first videoconferencing session was led by Australian students and the next by Asian students. The two-halves structure was used when the frequencies of their videoconferencing sessions were 10-12 times a year, while taking turns every two weeks was used when the frequencies were 18-22 times a year. The Asian language classes used the two halves structure for all of their videoconferencing sessions so that each time Australian students had opportunities to converse with their Asian peers in their target Asian language. In



Figure 5.4.1 High Definition (HD) videoconferencing in the Asia Cup 2014 Virtual Fest. The person on the right is the Asia Cup representative.



Figure 5.4.2 Standard Definition (SD) videoconferencing in the Asia Cup 2014 Virtual Fest. The person on the right is the Asia Cup representative – the same person as in Figure 5.4.1.

the first half of the session, both Australian and Asian students spoke the relevant Asian language so that Australian students could hear authentic pronunciations from their Asian peers. In the second half, everyone spoke English so that Asian students had opportunities to develop their English skills by conversing with Australian students and learn about Australian culture. This also gave Australian students opportunities to teach Australian culture to their Asian peers. In the first half, if Australian students' Asian language skills were limited or at the beginning stage (for example, Years 7 and 8 students who started learning an Asian language for the first time), teachers allowed their students to add details in English after speaking at least two sentences in their target Asian language. This flexibility was to prevent Australian students from feeling frustrated for not being able to explain details of their ideas. While some frustrations could motivate Australian students to study harder for the Asian language, too much frustration could lead to losing their confidence in speaking the Asia language, as teachers observed during videoconferencing sessions.

2) Power Point slides: This project used Power Point slides for students' presentations during videoconferencing in order to enhance verbal communications between Australian and Asian students. Since students could be shy when speaking in front of others, especially an international audience, their speaking voice could be weak. Also, Asian students' English pronunciations could be unclear. Students' speaking far away from the microphone could blur the sound quality. Classmates' noise (talking) while a group of students are presenting could send a bunch of sounds to the other side blocking the clarity of the presenters' voices. Thus, teachers were asked to have their students make Power Point slides by including visual cues (pictures, photos) and keywords/phrases/sentences in the slides. Teachers exchanged their PPT slides with their partner teacher by email attachment at least the day before their VC session. When Australian students were presenting, the Asian side showed the Australian PPT slides from their side on a separate screen or on a white wall using a data projector. The Australian students said, 'Next slide, please' when she moved to a next slide. The same was applied to Asian students' presentations.

3) Ten Questions method: In some Asian language classes, Australian teachers chose to use the Ten Questions method, which is for teachers to collect ten questions that their students want to ask their Asian peers, and send them at least two days *before* their videoconferencing sessions. By doing it, Australian students already brainstormed about what questions to ask their Asian peers, while Asian peers prepared their answers in advance. Also, Australian students had time to prepare their answers to the questions from their Asian peers, and were able to explain in detail during videoconferencing sessions. During videoconferencing sessions, Australian students asked their Ten Questions in their target Asian language, while Asian students answered in their mother tongue. Then, Asian students asked their Ten Questions in English, which Australian students answered in English in detail.

4) Edmodo: This project recommended using Edmodo (www.edmodo.com) for Australian and Asian students' free online chat in a secure, safe website outside their videoconferencing sessions. Australian teachers are familiar with Edmodo, which is used by many Australian teachers and teachers internationally. Edmodo checks teachers' credentials before approving their Edmodo membership using driver's licence, professional and personal websites, and the teacher registration number. The project team created an Edmodo room for each school pair and gave the Group Password to the teachers, who then gave the Password to their students for joining Edmodo. Edmodo provided an online venue where interested students could exchange messages with their Asian pairs in free and flexible environments by uploading photos of their personal and social activities.

5) E-pals and exchange of cultural artefacts: This project connected individual Australian and Asian students as e-pals so that can have a friend from Asia and Australia, respectively, and can write Christmas cards in October and send Christmas gifts symbolic of their own culture to their e-pals. This activity is to add more direct, human contacts on one-to-one basis in addition to their digital contacts using HD videoconferencing. For matching e-pals, the Australian teacher sent his/her student list with last name, first name, and gender to their Asian partner teacher, who matched Australian students with their (Asian) students, and sent the list back to the Australian teacher. In their first videoconferencing session, each student introduced him/herself, and teachers indicated who is his/her e-pal.

6.2 Pedagogical skills required

Using videoconferencing required different pedagogical skills from those for traditional teaching methods because the teacher is no longer teaching by him/herself. The teacher has to communicate and negotiate with the other party. The same goes for students. Australian students are no longer by themselves in a classroom. The classroom wall is no longer a physical boundary; but beyond the classroom wall, they are connected with an Asian country and students in a school there. And they are meeting in real-time! Their virtual meetings have clear purposes – for developing Australian students’ cultural understanding of Asia and for developing Australian students’ Asian language skills.

To adopt the HD videoconferencing technology:

1) Planning meeting: At the beginning of each year (2013, 2014), Australian and Asian teachers did a Teacher Meeting with the Project Manager of this project (Dr Auh) through videoconferencing to introduce each other and plan for the year’s videoconferencing sessions by deciding exact dates/times and topics. Teachers brought their timetable and school calendar so that they could check any school events and outings and exclude those dates from their schedule. Deciding class dates/times was the most difficult part in planning. This is because of time differences between Australia and the Asian countries of Korea and Japan (1-2 hr difference), China (2-3hr difference), Indonesia (3-4hr difference), and India (4-5hr difference); and even time differences within Australia by geographical locations (NSW, VIC, QLD, WA, TAS) and States’ different arrangement for Daylight Savings (e.g., NSW and QLD). On top of those, schools in Australia and Asia have varied timetables. Dr Auh facilitated Teacher Meetings to complete videoconferencing schedules, the new pedagogical practices of this project (described above), basic technical skills for using videoconferencing (described above), and any further questions.

2) Teacher as the facilitator: The role of teachers in this project is that of facilitator, as teachers guides students by providing information about videoconferencing with Asian students, helping students in making PPT slides, helping students’ preparations for oral presentations, encouraging students for Q&A during videoconferencing sessions, and facilitating students to compare similarities and differences between cultures, while students lead PPT presentations and Q&A.

3) Student-Centred Learning: In videoconferencing sessions of this project, it is not the teacher who provides new information about cultures and languages. It is the students who teach about their own culture and learn about their partner culture from their connected peers. For example, Australian students present on topics of Australian culture using PPT slides, and answer questions from Korean peers. Australian students learn about Korean culture from Korean students and ask questions to Korean peers. Teachers encourage students to ask questions, and if there are no questions, they give students hints for making questions. Also, if answers from Asian peers are not clear, Australian teachers ask Asian students and teachers to clarify their answers. Asian

students' answers can be Yes or No, which does not help Australian students to understand about the Asian culture. The whole purpose of the videoconferencing is to understand each other's culture, so the answers of Yes or No should be accompanied by explanations of why that is the case. Among the Australian teachers who responded to Teacher Feedback 2014, 77% of the Australian teachers (16 teachers out of 22) agreed that this project provides Student-Centred Learning, while 63% of the Asian teachers (25 teachers out of 37) agreed with this. It appears that since the main language for communication is English, English teachers in Asian schools take stronger roles compared to Australian teachers.

4) *Developing professional relationships with Asian teachers:* Some Australian and Asian teachers develop professional relationships through this project, as they collaborate closely for organising videoconferencing sessions. Such professional relationships become solid when Asian teachers with their students visit their partner Australian school and spend time together in person.

5) *Efficient email exchanges essential:* Since schools can have unexpected events and sudden changes of schedule, teachers must be efficient in emails. Teachers check emails at least once a day and just before their videoconferencing sessions, and also inform any changes to their partner school so that their partner school's students and teachers do not wait in vain. It happens that a teacher suddenly gets sick in the morning and does not come to school, but no one informs their partner school about cancellation of their videoconferencing sessions. Teachers should inform cancellation of their videoconferencing sessions to their partner teachers and the project team. If teachers cannot send an email to their partner teacher, they should inform the project team, who then informs the partner school by email, phone, and/or SMS. The project team asks teachers to cc all of their emails to the team so that the team can monitor their email exchanges and help teachers to get answers to their questions to their partner teachers.

6) *In close contact with partner teachers:* When teachers become familiar with using videoconferencing and with partner teachers, their email exchanges become frequent with concise messages. When they reach to that point, they do not need polite greetings, and they understand that their partner teacher is easy with them too. Thus, they exchange the questions that they want to get answers for by emails, and get answers pretty quickly. This is a very desirable professional relationships.

6.3 Basic Technical Skills required

Teachers had to learn basic technical skills for using videoconferencing in order to adopt the HD videoconferencing technology. The basic technical skills are:

- making videoconferencing calls
- how to zoom in and zoom out the videoconferencing camera, and controlling volumes
- how to get a self-view so that they can adjust their camera
- the position of a microphone for clear sounds
- trouble shooting tips for technical problems, such as rebooting the videoconferencing equipment
- checking batteries of the remote control (mal-function of the equipment can simply be due to a flat battery)
- checking connections of the internet-to-equipment cables (sometimes loose cables cause disconnection)
- telephone numbers to call for videoconferencing technical support

7. Outcomes

7.1 Method for collecting evidence for the Outcome Indicators

Three sources for evidence

The evidence provided in this section comes from three sources. The first source is the Whole Schools Data (WSD) for the 37 Australian and Asian school pairs collected over the 2-year project period (2013-2014). The Whole Schools Data have the following information for each school:

Whole Schools Data

- 1) school name
- 2) the country where the school is located (AUS, KOR, JAP, CHA, IDN, IDA),
- 3) number of participating students,
- 4) the subject that the students were doing videoconferencing for, number of teachers,
- 5) Year level of the participating students,
- 6) frequency of videoconferencing sessions in total
- 7) location of the schools in terms of metropolitan, regional, and rural
- 8) e-pal (whether the student had an e-pal or not),
- 9) science virtual excursion (whether the school participated in science virtual excursions from the Great Barrier Reef's marine science team and/or the Sydney Olympic Park's environmental science team, which were offered to the participating schools by free)
- 10) Asia Cup Sport Virtual Fest (the project team collaborated with the Asia Cup Education team to provide Virtual Fest for Sports)
- 11) Edmodo (online chat tool in a secure, safe environment)
- 12) whether teachers exchanged emails with their connected partner teachers to discuss details of their videoconferencing sessions,
- 13) whether teachers did Teacher Meeting for planning for their yearly videoconferencing sessions,
- 14) whether teachers were satisfied with the quality of Teacher Meetings and the Professional Development provided during the Teacher Meetings
- 15) whether they used AARNet VMRs, which is a new platform for most schools
- 16) whether the schools participated in this project in 2013, 2014, or both

The second source was Selected Schools Data using the Student Post-Survey 2014 and the Teacher Feedback 2014. Results of the Selected Schools Data were reported in the **Progress Report 5**, as the 2014 educational outcomes of this project. The selected schools were 13 Australian and 12 Asian schools, which agreed to administer the questionnaires. From the schools, data were collected from 225 Australian and 461 Asian students, and 22 Australian and 47 Asian teachers. The Student Post-Survey and the Teacher Feedback collected responses using 5-point rating schools and open-ended questions. Thus, students' and teachers' own comments were also collected as well as quantitative data from them. The relevant results from the Progress Report 5 are included in the section **7.4, 2014 Educational Outcomes project**.

The third source is **videoconferencing highlights** selected from the 440 videoconferencing sessions for the 37 pairs of Australian and Asian schools collected over 2013 - 2014. Videoconferencing highlights are submitted with the Final Evaluation Report of this project as evidence of achievement of the deployment trial of the Asia ConneXions project.

Whole Schools Data (WSD) and Selected Schools Data (SSD)

It should be noted that while the Whole Schools Data provided factual information listed above for all of the participating schools, they did not provide data requiring students' and teachers' own responses; for example, whether this project improved students' interest in Asian cultures and Asian languages, and whether teachers believed this project was fit for purpose for improving students' cultural understanding of Asia and their Asian language skills. For the Outcome indicators requiring such students' and teachers' own responses, results from the Selected Schools Data were applied to the whole participant numbers.

For example, the Outcome Indicator, 'Educational – Exposure to other cultures has increased Australian students' interest in Asian cultures and languages, this project had results only from the Selected Schools Data. That is, 52% Australian students (116 Australian students out of 225) said this project increased their interest in Asian cultures and languages. Thus, the 52% was applied to the whole participants of 1,672 Australian students to obtain evidence for this Outcome Indicator based on the whole number of students; i.e., $1,672 \times 52\% = 869$ Australian students. The same method was applied to evidence from teachers for the Outcome Indicator. For example, from the Selected Schools Data, 91% of the Australian teachers (19 Australian teachers out of 22) said this project increased students' interest in learning about Asian cultures and Asian languages. Thus, when applying the finding to the whole number of teachers ($N = 95$), it is 86 Australian teachers ($95 \times 91\% = 86$) who agreed to the comment.

When the evidence is based on the Selected Schools Data, this was indicated in the Evidence section, such as follows:

E.g., 1: 869 Australian students (52%) out of 1,672 said this project increased their *interest* in the Asian culture and Asian languages. (← based on SSD: 52%, 116 AUS students out of 225).

E.g., 2: 86 Australian teachers (91%) out of 95 said this project increased Australian students' interest in the Asian culture. (← based on SSD: 91%, 19 AUS teachers out of 22).

Data. The WSD and SSD of Australian and Asian participants are as follows:

<p>AUS - WSD</p> <ul style="list-style-type: none"> • AUS students: 1,672 • AUS teachers: 95 • AUS schools: 37 • Total VC frequency: 440 <ul style="list-style-type: none"> ➢ KOR: 361 ➢ JAP: 36 ➢ CHA: 11 ➢ IDN: 31 ➢ IDA: 1 <p>AUS - SSD</p> <ul style="list-style-type: none"> • AUS students: 225 • AUS teachers: 22 • AUS schools: 13 	<p>Asia –WSD</p> <ul style="list-style-type: none"> • <u>Asian students: 1,980</u> KOR: 1,379 JAP: 194 CHA: 142 IDN: 240 IDA: 25 • <u>Asian teachers: 92</u> KOR: 54 JAP: 13 CHA: 10 IDN: 12 IDA: 3 • <u>Asian schools: 32</u> KOR: 22 JAP: 5 CHA: 4 IDN: 1 IDA: 1 • <u>Total VC frequency: 440</u> KOR: 361 JAP: 36 CHA: 11 IDN: 31 IDA: 1 <p>Asia –SSD</p> <ul style="list-style-type: none"> • <u>Asian students: 461</u> KOR: 363 JAP: 44 CHA: 19 IDN: 45 • <u>Asian teachers: 37</u> KOR: 20 JAP: 9 CHA: 3 IDN: 5 • <u>Asian schools: 12</u> KOR: 8 JAP: 2 CHA: 1 IDN: 1
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Note. Schools' short names shown in *Appendix A* is used to refer to the participating schools in this section since schools' full names are quite long.

7.2 Australian Outcomes and Outcome Indicators

AUSTRALIAN OUTCOMES	
<p>Outcome category: Educational</p> <p>Measure: Benefits accruing to students, teachers, and schools related to increasing participation and engagement in education, increasing the range of educational opportunities, and improving educational outcomes.</p>	
Outcome Indicators	Evidence through
1) Increased number of <i>new subjects</i> offered by schools	<ul style="list-style-type: none"> • 1,093 Australian students out of 1,672 accessed new subjects. • Numbers of students: <ul style="list-style-type: none"> ➤ By school: ArmidaleC, 56; AtholIR, 66; BenVenue, 53; Dederang, 26; Gilmore, 40; GreyS, 27; Kismet, 108; MountainG, 17; RingwoodN, 224; StJseophM, 71; TyabbRWS, 40; Upperplenty, 20; Carranballac, 50; ClaytonN, 55, O’Connor, 24; StMary’sA, 25; ScotchP, 15; CalvinTAS, 8; Blackburn, 140; Nossal, 28. ➤ By year level: Kindergarten, 25; Y3-4, 17; Y5-6, 746; Y7-8, 74; Y9-10, 216; Y11, 15. ➤ By Subject: Asian culture, 925; Global Education, 140; Science Sharing, 28. • Three new subjects were created through this project, which are: Asian culture, Global Education, and Science sharing.
2) Exposure to other cultures has increased Australian students’ <i>interest</i> in the Asian culture and Asian languages	<ul style="list-style-type: none"> • 869 Australian students (52%) out of 1,672 said this project increased their <i>interest</i> in the Asian culture and Asian languages. (← based on SSD: 52%, 116 AUS students out of 225). • 86 Australian teachers (91%) out of 95 said this project increased Australian students’ <i>interest in the Asian culture</i>. (← based on SSD: 91%, 19 AUS teachers out of 22). • 72 Australian teachers (76%) out of 95 said this project increased Australian students’ <i>interest in Asian languages</i> (← based on SSD: 76%, 16 AUS teachers out of 22).
3) Australian students participated in <i>STEM</i> (Science, Technology, Engineering and Mathematics) virtual excursions through HD videoconferencing.	<ul style="list-style-type: none"> • 875 Australian students (52%) out of 1,672 participated in STEM virtual excursions through HD videoconferencing. • Numbers of students: <ul style="list-style-type: none"> ➤ By location: Metropolitan, 475 (28%); Regional, 400 (24%); Rural, 0 (0%) → Total, 875. • Non-traditional teaching resources by type: <ul style="list-style-type: none"> ➤ Science Virtual Excursions ➤ Topics: Great Barrier Reef marine science, Sydney Olympic Park’s environmental science.
4) Australian students <i>collaborate</i> with Asian students through HD videoconferencing.	<p>Frequency of HD VC</p> <ul style="list-style-type: none"> • In total, 440 HD videoconferencing sessions were held during the project period (2013 - 2014). • Numbers of HD videoconferencing sessions:

	<ul style="list-style-type: none"> ➤ By school: ArmidaleC, 33; AtholR, 17; BenVenue, 43; Blackburn, 16; Dederang, 7; Duval, 29; Gilmore, 8; GreyS, 13; Kismet, 32; Knox, 23; MountainG, 24; RingwoodN, 47; StJosephM, 21; Drouine, 8; Nossal, 4; StAndrew'sA, 2; Belmont, 11; Maryborough, 14; Tyabb, 6; TyabbRWS, 12; UpperPlenty, 10; Bendigo, 4; Carranballac, 10; Melton, 11; Wesley, 1; Abbotsleigh, 4; ClaytonN, 7; MoretonB, 2; Oakleigh, 3; Wodonga, 2; MathewF, 2; Pymble, 2; O'Connor, 3; StMary'sA, 1; ScotchP, 1; Birchip, 3; CalvinTAS, 4. ➤ By location: Metropolitan, 195; Regional, 217; Rural, 28. ➤ By year level: Kindergarten, 1; Y3-4, 33; Y5-6, 245; Y7-8, 91; Y9-10, 63; Y11, 3; Y12, 4. ➤ By connected Asian country: Korea, 361; Japan, 36; China, 11; Indonesia, 31; India, 1. <p>Types of Collaboration</p> <ul style="list-style-type: none"> • Australian students learned about their connected Asian culture and/or their target Asian language from their Asian peers through HD videoconferencing. 1,204 Australian students (72%) out of 1,672 said they <i>enjoyed learning</i> about the Asian culture from their peers. (← based on SSD: 72%, 163 AUS students out of 225). • Australian students taught about Australian culture to Asian peers through HD videoconferencing. 1,221 Australian students (73%) out of 1,672 said they <i>enjoyed teaching</i> about Australian culture to their Asian peers. (← based on SSD: 73%, 164 AUS students out of 225.)
<p>5) Australian students are interested in learning more about the Asian culture and studying their target Asian language, and <i>engaging with Asian peers</i>.</p>	<ul style="list-style-type: none"> • 1,203 Australian students (74%) out of 1,672 said they <i>actively participated</i> in videoconferencing with Asian peers. (← based on SSD: 74%, 167 AUS students out of 225.) • 786 Australian students (47%) out of 1,672 said they got an <i>Asian friend</i> through e-pals and exchange of cultural artefacts from this project. (← based on SSD: 47%, 107 AUS students out of 225.) • 652 Australian students (39%) out of 1,672 said they want to <i>visit</i> their connected Asian country in the future, if they can afford it. (← based on SSD: 39%, 86 AUS students out of 225.) • 90 Australian teachers (95%) out of 95 said Australian students <i>enjoyed synchronous</i> videoconferencing with Asian peers. (← based on SSD: 95%, 20 AUS teachers out of 22.) • Count of students by subject: <ul style="list-style-type: none"> ➤ Asian culture, 925 ➤ Asian language, 425 ➤ Global Education, 140 ➤ Social Science, 154 ➤ Science Sharing, 28
<p>6) Australian students have improved <i>cultural understanding</i> of Asia and</p>	<ul style="list-style-type: none"> • 786 Australian students (47%) out of 1672 said they are confident in knowing about their connected Asian culture (← based on SSD, 47%, 106 AUS students out of 225).

<p>their <i>Asian language skills</i>.</p>	<ul style="list-style-type: none"> • 82 Australian teachers (86%) out of 95 said that this project improves Australian students' cultural understanding of Asia (← based on SSD: 86%, 18 AUS teachers out of 22), and 86 Australian teachers (90%) out of 95 said that this project improves Australian students' confidence in speaking their target Asian language (← based on SSD: 90%, 19 AUS teachers of 22). • A 10-question knowledge quiz was administered to Australian students studying the Asian culture, and a 10-question Asian language quiz to Australian students studying an Asian language. 201 Australian students out of 225 answered the quiz, and the results showed: M = 5.97 out of 10. This indicates that Australian students can get 60% correct for Asian culture and Asian language questions.
<p>7) Australian teachers undertook <i>professional development</i> through HD videoconferencing, and have developed <i>basic technical skills</i> using videoconferencing.</p>	<ul style="list-style-type: none"> • All of the 95 Australian teachers (100%) undertook Professional Development through HD videoconferencing with the project team individually or in small groups during the project period (2013-2014). • In collaboration with the VIC DET Digital Learning team, Teacher Professional Sharing session (1-day) was provided to 12 VIC public school teachers (16/05/14).
<p>8) Australian teachers have increased professional satisfaction and have adopted <i>new pedagogy practice</i> to incorporate HD videoconferencing technology into teaching.</p>	<ul style="list-style-type: none"> • 68 Australian teachers (72%) out of 95 said this project is <i>effective</i> for teaching the Asian culture and Asian languages. (← based on SSD: 72%, 16 AUS teachers out of 22). • 78 Australian teachers (82%) out of 95 said they will participate in this project <i>next year</i>. (← based on SSD: 82%, 18 AUS teachers out of 22). • 73 Australian teachers (77%) out of 95 said this project facilitates <i>student-centred learning</i>, as students lead presentations and ask questions to each other. (← based on SSD: 77%, 16 AUS teachers out of 22.) • This project develops the <i>21st century skills</i> for learning, such as communication skills and digital skills. <ul style="list-style-type: none"> ➢ Communication skills: All 95 Australian teachers (100%) agreed. ➢ Digital skills: 1,371 Australian students (85%) agreed.
<p>9) Australian students <i>explained to their family members</i> about Asian cultures that they were learning using HD videoconferencing.</p>	<ul style="list-style-type: none"> • 702 Australian students (44%) out of 1,672 said they explained about their experience of videoconferencing with Asian peers in schools to their <i>family members</i> and friends (← based on SSD: 44%, 106 AUS students out of 225).
<p>10) Increased <i>interaction</i> between Australian and Asian students.</p>	<ul style="list-style-type: none"> • This project provided 440 HD videoconferencing sessions for Australian students to interact with Asian peers in real-time during the project period (2013 - 2014). • 1,203 Australian students (74%) out of 1,672 said they actively participated in videoconferencing with Asian peers. (← based on SSD: 74%, 167 AUS students out of 225.)

	<ul style="list-style-type: none"> • 786 Australian students (47%) out of 1,672 said they got an <i>Asian friend</i> through e-pals of this project. (← based on SSD: 47%, 107 AUS students out of 225.) • 734 Australian students from 11 schools <i>exchanged cards and cultural artefacts</i> with their Asian peers in Oct/Nov of 2013 and 2014 by post. • 90 Australian teachers (95%) out of 95 said Australian students enjoyed synchronous videoconferencing with Asian peers. (← based on SSD: 95%, 20 AUS teachers out of 22.) • 15 Australian schools (893 students) each were provided with an Edmodo (www.edmodo.com) room for social chat with their Asian peers outside videoconferencing sessions in a safe, secure online environment. Interested students volunteered for putting messages to their Asian peers. • 4 Australian schools (BenVenue Public School, NSW; St Joseph Primary School in MacClean, NSW; Nossal High School, VIC; Calvin Christian School, TAS) built <i>Sister School relationships</i> with their Asian partner schools, and 160 Australian students from the schools had opportunities to interact with each other in long-term meaningful relationships.
<p>*11) HD videoconferencing is <i>fit for purpose</i> for teaching Asian cultures and languages by Australian teachers.</p>	<ul style="list-style-type: none"> • 68 Australian teachers (72%) out of 95 said this project is <i>effective</i> for teaching the Asian culture and Asian languages. (← based on SSD: 72%, 16 AUS teachers out of 22). • 78 Australian teachers (82%) out of 95 said they will participate in this project <i>next year</i>. (← based on SSD: 82%, 18 AUS teachers out of 22). • 78 Australian teachers (82%) out of 95 said this project <i>benefits</i> Australian students in terms of developing global thinking, cultural understanding of Asia, confidence in speaking in front of others, communication skills; providing access to authentic Asian culture and rare opportunities of synchronous interaction with Asian peers; increasing interest in Asian culture and Asian languages, and developing students' ICT skills. (← based on SSD: 82%, 18 AUS teachers out of 22). • 95 Australian teachers (100%) said this project develops Australian students' <i>global thinking</i>. (← based on SSD: 100%, 22 AUS teachers out of 22.) • One major technical difficulty (limitation) in using videoconferencing was <i>firewalls</i> set to the Independent Schools Association's (ISA) network, and to schools in Asia. The firewalls initially prevented schools from entering into the AARNet VMRs. This was later resolved by collaborating with the ISA's Transforming the Education Digital Supply Chain (TtEDSC) to open up QLD Independent schools (e.g., St Andrew's Anglican College); and by collaborating with TechData in Korea, Cisco Japan, and Cisco Hong Kong.
<p>*12) <i>New platforms</i> have been identified to support HD videoconferencing</p>	<ul style="list-style-type: none"> • Two new platforms were identified to support schools' HD videoconferencing. One is AARNet VMRs, which were not known to VIC public schools and known only to a few in

<p>between Australian and Asian schools.</p>	<p>Independent schools. We had to use AARNet VMRs instead of the VIC DET network because Asian schools had difficulty in getting through the VIC DET firewalls. Thus, it was easier for VIC DET schools to come out of the VIC DET network and meet Asian schools in a secure, safe VMRs, such as AARNet VMRs. All of the 37 Australian schools used AARNet VMRs.</p> <ul style="list-style-type: none"> • The second new platform, which was identified in September, 2014, is the AARNet Zoom (https://aarnet.zoom.us/), which can connect to hardware videoconferencing equipment (Polycom, Cisco, LifeSize), enables HD videoconferencing, 20 multipoint videoconferencing, and its software can be installed into iPads and Smart Phones. That means, the AARNet Zoom can allow students to do videoconferencing outdoor by carrying iPads with Zoom and showing the school campus and events. This was not possible before using Zoom. A few schools (e.g., Ringwood North Primary School) used Zoom to show their campus to their Korean peers in October 2014. • As part of sustaining the project, Australian and Asian connected schools are continuing their videoconferencing in 2015, and many of them are using Zoom.
<p>*13) <i>Digital sills of Australian students and teachers have improved.</i></p>	<ul style="list-style-type: none"> • 1,371 Australian students (85%) out of 1,672 said they developed ICT skills, which includes making Power Point slides and becoming familiar with HD videoconferencing technology. (← based on SSD: 85%, 190 AUS students out of 225.) • 72 Australian teachers (76%) out of 95 said this project improved Australian students' ICT skills. (← based on SSD: 76%, 16 AUS teachers out of 22.) • All of the 95 Australian teachers (100%) received training for basic technical skills for using videoconferencing in Teacher Meetings organized by the project team. • Learn by experience: The most important exercise for developing teachers' videoconferencing technology skills was using videoconferencing for each of their videoconferencing sessions, which provided instant and real feedback for how well they are dealing with the technology. So, they learned and improved their technical skills <i>through experiences</i>.
<p>Outcome category: Productivity</p> <p>Measure: Benefits accruing to schools related to increasing schools' workplace skills and teacher productivity or reducing skills shortages.</p>	
<p>Outcome Indicators</p>	<p>Evidence through</p>
<p>1) HD videoconferencing has encouraged Australian students to <i>undertake studying new subjects</i>, which they wouldn't have if only available through</p>	<ul style="list-style-type: none"> • 1,093 students in total undertook Asian culture (925 students), Global Education (140), and Science Sharing (28 students). • Count of students: <ul style="list-style-type: none"> ➤ By location: Metropolitan, 635; Regional, 392; Rural, 66. ➤ By connected Asian country: Korea, 1,016; Japan, 52; China, 0; Indonesia, 0; India, 25.

traditional education settings.	
2) HD videoconferencing was <i>suitable</i> for effective and efficient teaching of Asian cultures and languages.	<ul style="list-style-type: none"> • 1,204 Australian students (72%) out of 1,672 said they <i>enjoyed learning</i> about the Asian culture from their peers. (← based on SSD: 72%, 163 AUS students out of 225). • 1,221 Australian students (73%) out of 1,672 said they <i>enjoyed teaching</i> about Australian culture to their Asian peers. (← based on SSD: 73%, 164 AUS students out of 225.) • 95 Australian teachers (100%) said this project develops Australian students' <i>global thinking</i>. (← based on SSD: 100%, 22 AUS teachers out of 22.) • 77 Australian teachers (81%) said this project provides <i>authentic</i> Asian culture by enabling Australian students to interact with Asian peers. (← based on SSD: 81%, 17 AUS teachers out of 22.) • 786 Australian students (47%) out of 1,672 said they are <i>confident</i> in knowing about their connected Asian culture (← based on SSD, 47%, 106 AUS students out of 225). • 82 Australian teachers (86%) out of 95 said that this project improves Australian students' <i>cultural understanding</i> of Asia (← based on SSD: 86%, 18 AUS teachers out of 22) • 86 Australian teachers (90%) out of 95 said that this project improves Australian students' confidence in speaking their target Asian language (← based on SSD: 90%, 19 AUS teachers of 22).
3) HD videoconferencing has enhanced Australian students' <i>collaboration</i> with Asian students.	<ul style="list-style-type: none"> • 786 Australian students (47%) out of 1,672 said they got an <i>Asian friend</i> through e-pals of this project. (← based on SSD: 47%, 107 AUS students out of 225.) • 734 Australian students from 11 schools <i>exchanged cards and cultural artefacts</i> with their Asian peers in Oct/Nov in 2013 and 2014 by postal mail. • 15 Australian schools (893 students) were provided with an <i>Edmodo</i> (www.edmodo.com) room for their social chat with their Asian peers outside videoconferencing sessions in a safe, secure online environment. Interested students volunteered to send messages to their Asian peers. • 4 Australian schools (Ben Venue Public School, NSW; St Joseph Primary School in MacClean, NSW; Nossal High School, VIC; Calvin Christian School, TAS) built <i>Sister School relationships</i> with their Asian partner schools, and 160 Australian students from the schools had opportunities to interact with each other in long-term meaningful relationships.
4) HD videoconferencing has improved Australian students' <i>ICT literacy</i> .	<ul style="list-style-type: none"> • 1,371 Australian students (85%) out of 1,672 said they developed ICT skills, which includes making Power Point slides and becoming familiar with HD videoconferencing technology. (← based on SSD: 85%, 190 AUS students out of 225.)

	<ul style="list-style-type: none"> • 72 Australian teachers (76%) out of 95 said this project improved Australian students' ICT skills. (← based on SSD: 76%, 16 AUS teachers out of 22.) • 95 Australian teachers (100%) received training for basic technical skills for using videoconferencing in Teacher Meetings held early each year.
<p>Outcome category: Regional Impact</p> <p>Measure: Benefits accruing to regional communities that are related to increasing the skills of people living in regional areas, increasing the educational opportunities available and increasing ability of learners to remain within their communities while completing qualifications.</p>	
Outcome Indicators	Evidence through
1) Australian students <i>take up learning about Asian cultures and languages</i> rather than opting out of learning them or learning them in traditional teaching methods.	<ul style="list-style-type: none"> • 535 Australian students in rural/regional areas were able to take up <i>Asian cultures</i> studies rather than opting out of learning them. • 167 Australian students in rural/regional areas were able to take up <i>Asian languages</i> by conversing with Asian peers rather than learning them in traditional teaching methods. • Asian cultures: Count of students by location: <ul style="list-style-type: none"> ➢ regional, 469; rural, 66; metropolitan, 712. • Asian languages: count of students by location: <ul style="list-style-type: none"> ➢ regional, 108; rural, 59; metropolitan, 258.
2) Increased community interest in HD videoconferencing for engaging with Asian students.	<ul style="list-style-type: none"> • Smart House in Armidale, which is connected to the National Broadband Network (NBN), invited the Asia ConneXions project to demonstrate HD videoconferencing to the New England community members in 2013, when 50 people gathered to see demonstrations of HD videoconferencing and other digital tools. • Autumn Lodge in Armidale, which is an old folk's home, expressed interest in using HD videoconferencing for medical consultations of the Autumn Lodge residents instead of them having to travel to Sydney for medical specialists. This has been proposed in early 2015, and is currently in negotiation.
<p>Outcome category: Indigenous students</p> <p>Measure: Benefits accruing to indigenous learners and indigenous communities related to increasing the range of educational opportunities available and delivering educational services that better serve their needs.</p>	
Outcome Indicators	Evidence through
1) Indigenous students able to engage with New Zealand Maori students for sharing their indigenous cultures.	As a spin-off of the Asia ConneXions project, connecting Australian Aboriginal students in local schools in Armidale, NSW with New Zealand Maori students in Auckland was attempted using HD videoconferencing. The motivation for the spin-off was that Australian Aboriginal students were not interested in connecting with students in Asia, but they were with

	<p>NZ Maori students; and the Project Manager (Dr Auh) met with an academic, Dr Berman, at Massey University in Auckland, NZ, who proposed this spin-off idea. Both the school principals in the Aboriginal schools and in the Maori schools welcomed this proposal. The schools' details are as follows:</p> <ul style="list-style-type: none"> • Drummond Memorial Public School, Armidale, NSW http://www.drummondm-p.schools.nsw.edu.au/ Principal: Carolyn Briggs • Minimbah Primary School, Armidale, NSW www.facebook.com/MinimbahSchool Principal: Jenny Brown • Woodhill School, Auckland http://www.woodhill.school.nz/ Principal: Jacqualene Maindonald • Western Heights School, Auckland http://www.westernheights.school.nz/ Principal: Ash Maindonald <p>In order to get the principals' confirmation for their commitment to this proposal, Dr Berman and the Massey University's Senior Maori Advisor, Margaret Kawharu, visited the Maori schools, and Dr Auh discussed details with the principals of the local Aboriginal schools in Armidale, including bringing their students to the Videoconferencing Studio at the University of New England in order to use HD videoconferencing. However, this attempt was not completed by December 2014. One main reason was that the Maori schools wanted to use Skype, while the project team offered use of the Videoconferencing Studio at Massey University with all the costs of the Maori schools' visit to the university covered by the project team. Skype cannot provide HD videoconferencing, thus it was essential that the Maori schools come to the Studio to access HD videoconferencing.</p> <p>A few things can be done to achieve this proposal in the future: 1) We suggest the Maori schools use the new platform of Zoom (http://aarnet.zoom.us), which enables HD videoconferencing) and can be used in their schools without travelling to Massey University; 2) We allocate sufficient time for the school principals to plan and discuss details for videoconferencing.</p>
<p>Outcome category: Financial</p> <p>Measure: Benefits accruing to individuals, institutions or companies that relate to reduced costs or the ability to generate increased revenue.</p>	
<p>Outcome Indicators</p>	<p>Evidence through</p>
<p>1) <i>Reduced travel times and costs for Australian students</i> to meet Asian students.</p>	<ul style="list-style-type: none"> • Count of students: 1,672 Australian students • Amount of reduction in travel time:

- If Australian students are to meet their connected Asian peers in person, they have to fly to the countries and visit the Asian schools physically.
- One visit takes 3 days for each of Korea, Japan, China, Indonesia, and India: 1 day to fly to their connected Asian country, 1 day for visiting the school and meeting their connected Asian peers in schools, and 1 day for coming back to Australia.
- The reduced travel time is calculated by multiplying the following: Frequency of videoconferencing sessions x number of students x 3 days p/trip.
- Table 7.2.1 shows the days and years of reduced travel time for Australian students for meeting their Asian peers in person.
- The reduced travel time for Australian students are: 3,471 years for Korea, 71 years for Japan, 10 years for China, 32 years for Indonesia, and 0.2 years (75 days) for India.
- In total, the reduced travel time for Australian students to meet their Asian peers was **3,585 years**.

Table 7.2.1 Reduced travel time for Australian students for meeting their connected Asian peers in person

Connected Asian country	VC frequency (sessions)	Student numbers	Travel time (p/trip)	Days of reduced travel time	Years of reduced travel time
Korea	361	1170	3	1,267,110	3,471
Japan	36	240	3	25,920	71
China	11	112	3	3,696	10
Indonesia	31	125	3	11,625	32
India	1	25	3	75	0.2
TOTAL				1,308,426 days	→ 3,585 years

- Amount of reduction in travel cost (unit: AUD \$):
 - One travel to each of Korea, Japan and China will cost \$1,400; and one travel to each of Indonesia and India will cost \$1,000.
 - The reduced travel cost for Australian students for meeting their connected Asian peers in person is: \$591 million for Korea; \$12 million for Japan; \$2 million for China; \$4 million for Indonesia; and \$0.03 million for India. See Table 7.2.2
 - In total, the reduced travel cost for Australian students to meet their Asian peers was **\$609 million dollars**.

Connected Asian country	VC frequency (sessions)	Student numbers	Travel cost (p/trip)	AUD \$ of reduced travel cost	Million (M) \$ of reduced travel cost
Korea	361	1170	\$1,400	\$591,318,000	\$591 M
Japan	36	240	\$1,400	\$12,096,000	\$12 M
China	11	112	\$1,400	\$1,724,800	\$2 M
Indonesia	31	125	\$1,000	\$3,875,000	\$4 M
India	1	25	\$1,000	\$25,000	\$0.03M
TOTAL				\$609.03 M	→ \$609 M

Table 7.2.2 Reduced travel cost for Australian students for meeting their connected Asian peers in person (unit: AUD \$)

2) *Reduced travel time and costs for Australian teachers* to bring Asian students and teachers to the Australian classrooms.

- Count of Australian teachers: 95 Australian teachers
- Amount of reduction in travel time:
 - The same rule for calculating reduced travel time for Australian students, used above, was applied to that for Australian teachers.
 - Each travel takes 3 days for each of Korea, Japan, China, Indonesia, and India (1 day to fly to their connected Asian country, 1 day for visiting the school and meeting their connected Asian peers in schools, and 1 day for coming back to Australia).
 - The reduced travel time is calculated by multiplying the following: Frequency of videoconferencing sessions x number of teachers x 3 days p/trip.
 - Table 7.2.3 shows the days and years of reduced travel time for Australian teachers for meeting Asian teachers and students in person.
 - The reduced travel times for Australian teachers are: 68,229 days for Korea, 1,512 days for Japan, 330 days for China, 558 days for Indonesia, and 6 days for India.
 - In total, the reduced travel time for Australian teachers to meet Asian students and teachers was 70,635 days → **193.52 years.**

Table 7.2.3 Reduced travel time for Australian teachers for meeting Asian teachers and students in person

Connected Asian country	VC frequency (sessions)	Teacher numbers	Travel time (p/trip)	Days of reduced travel time	Years of reduced travel time
Korea	361	63	3	68,229	186.93
Japan	36	14	3	1,512	4.14
China	11	10	3	330	.90
Indonesia	31	6	3	558	1.53
India	1	2	3	6	0.02
TOTAL				70,635 days	→ 193.52 years

	<ul style="list-style-type: none"> • Amount of reduction in travel cost (unit: AUD \$): <ul style="list-style-type: none"> ➤ One travel to each of Korea, Japan, and China will cost \$1,400; and one travel to each of Indonesia and India will cost \$1,000. ➤ The reduced travel cost for Australian teachers for meeting Asian teachers and students in person is: \$31,840,200 for Korea; \$705,600 for Japan; \$154,000 for China; \$186,000 for Indonesia; and \$2,000 for India. See Table 7.2.4. ➤ In total, the reduced travel cost for Australian teachers to meet Asian teachers and students was \$32,887,800 → \$33.9 Million. <p>Table 7.2.4 Reduced travel cost for Australian teachers for meeting Asian teachers and students in person (unit: AUD \$)</p> <table border="1" data-bbox="584 707 1347 1014"> <thead> <tr> <th>Connected Asian country</th> <th>VC frequency (sessions)</th> <th>Teacher numbers</th> <th>Travel cost (p/trip)</th> <th>AUD \$ of Reduced travel cost</th> </tr> </thead> <tbody> <tr> <td>Korea</td> <td>361</td> <td>63</td> <td>\$1,400</td> <td>\$31,840,200</td> </tr> <tr> <td>Japan</td> <td>36</td> <td>14</td> <td>\$1,400</td> <td>\$705,600</td> </tr> <tr> <td>China</td> <td>11</td> <td>10</td> <td>\$1,400</td> <td>\$154,000</td> </tr> <tr> <td>Indonesia</td> <td>31</td> <td>6</td> <td>\$1,000</td> <td>\$186,000</td> </tr> <tr> <td>India</td> <td>1</td> <td>2</td> <td>\$1,000</td> <td>\$2,000</td> </tr> <tr> <td>TOTAL</td> <td></td> <td></td> <td></td> <td>\$32,887,800 → \$33.9 M</td> </tr> </tbody> </table>	Connected Asian country	VC frequency (sessions)	Teacher numbers	Travel cost (p/trip)	AUD \$ of Reduced travel cost	Korea	361	63	\$1,400	\$31,840,200	Japan	36	14	\$1,400	\$705,600	China	11	10	\$1,400	\$154,000	Indonesia	31	6	\$1,000	\$186,000	India	1	2	\$1,000	\$2,000	TOTAL				\$32,887,800 → \$33.9 M
Connected Asian country	VC frequency (sessions)	Teacher numbers	Travel cost (p/trip)	AUD \$ of Reduced travel cost																																
Korea	361	63	\$1,400	\$31,840,200																																
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India	1	2	\$1,000	\$2,000																																
TOTAL				\$32,887,800 → \$33.9 M																																
<p>3) <i>Financial benefits</i> over traditional education approaches encourages other Australian schools to support the expansion of the trialled HD videoconferencing services.</p>	<p>50 VIC schools waiting to get connected with schools in Asia</p> <ul style="list-style-type: none"> • Count and location of schools and regions that would support expansion: The VIC DET gave the project team a list of 72 VIC public schools that had submitted their Expression of Interest for participating in the Asia ConneXions project in early September 2013. Among the 72 VIC public schools, 22 schools were matched with schools in Asia through this project. Thus, 50 VIC public schools are still waiting to get connected with schools in Asia using HD videoconferencing for developing cultural understanding of Asia and Asian language skills; see <i>Appendix C</i>. <p>Note: Among the 24 VIC schools connected in this project, 22 VIC public schools were recruited in collaboration with the VIC DET, while the other two VIC schools (Nossal HS, Wesley Secondary College) were not recruited through the VIC DET.</p> <p>Pay?</p> <ul style="list-style-type: none"> • However, it is unlikely that the waiting VIC schools will pay for videoconferencing with schools in Asia. Why not? Because <i>schools do not have funds to pay for videoconferencing with schools in Asia, however beneficial this project must be.</i> • So, if Australian schools are required to pay for their videoconferencing with schools in Asia, what would they do? They would drop from this project. 																																			
<p>4) Australian students participating in this project</p>	<p>Superiority based on the evidence of educational Outcomes</p> <ul style="list-style-type: none"> • The Educational Outcomes Indicators and their evidence of the Australian Outcomes, shown above, clearly demonstrate that a) 																																			

<p>found HD videoconferencing <i>superior to traditional education approaches</i> to teaching Asian cultures and languages, and intend to continue using the services.</p>	<p>this project benefits Australian students; 2) Australian teachers adopt new pedagogy practice for teaching Asian cultures and Asian languages by integrating the use of HD videoconferencing into teaching; and 3) Australian teachers' confirmation that they will participate in this project the next year is a clear indication of the effectiveness of HD videoconferencing for their teaching.</p>
<p>*5) On-going viability and sustainability of the HD videoconferencing demonstrated.</p>	<ul style="list-style-type: none"> • Proof of service demand: <ul style="list-style-type: none"> ➢ As of 30/04/15, thirteen Australian schools already finalized their 2015 videoconferencing schedule, and started videoconferencing with their partner schools in Asia for this year. The schools are: Armidale City PS, Ben Venue PS, Duval HS, Knox, Blackburn HS, Mountain Gate PS, Ringwood North PS, Maryborough Edu Centre, Tyabb Railway Station PS, Bendigo Senior SC, Melton SC, Scotch Perth, and Calvin Christian S. ➢ As of 30/04/30, seven Australian schools confirmed continuing videoconferencing with schools in Asia, and are currently waiting for their 2015 videoconferencing schedule to be finalised. The schools are: Athol Road PS, Dederang PS, Nossal HS, Carranballac P9, Birchip P12, St Andrew's AC, Moreton Bay C. ➢ New schools joined this project for the first time in 2015: <ul style="list-style-type: none"> ✚ Portland Secondary College, VIC ✚ Shaxi High School, China ✚ Assalaam Solo in Central Java, Indonesia ➢ Thus, Portland Secondary College was connected with Asslaam Solo for teaching Indonesian language. Shaxi High School in China is Blackburn's Sister School, so they joined together this year for videoconferencing. ➢ There are 46 VIC public schools that had submitted their Expression of Interest for participating in the Asia ConneXions in August 2013 and are still waiting to get connected with Asian countries. • This project can become more efficient using online registration and online coordination of videoconferencing sessions in the future. • However, this project <i>cannot be self-sufficient</i> because successful and effective videoconferencing with Asian students requires three essential factors: <ol style="list-style-type: none"> 1) Technology connection (successful link technology-wise) 2) Human connection (people turning up on time) 3) Communication issues (answering emails, sending PPT slides in advance, language barriers) <p>➔ There should always be a <i>Videoconferencing Coordinator</i> helping the above three factors in order to maintain schools' successful and effective videoconferencing sessions.</p>

	<ul style="list-style-type: none"> • Funding source commitment: The project team applied for grants to secure funds to continue this project in 2015 and 2016. Results of the grant applications will be announced in June/July/August, 2015, which will determine the future of this project in terms of sustainability. • This project demonstrated its educational outcomes in terms of teaching Asian cultures, Asian languages, Global Education, Social Studies, and Science Sharing. However, this project cannot be commercialised <i>because schools do not have funds</i> to pay for the service however effective this project must be. • Project Manager, Dr Auh, is committed to continuing this project beyond June 2015. However, continuation of this project depends on securing grants in order to hire a Project Assistant, who can provide support for teachers, monitoring videoconferencing sessions, and helping with teachers' communications.
<p>*6) Hardware solutions and the <i>new platform</i> of Zoom are interoperable and supports scalable deployment.</p>	<p>New Platform</p> <ul style="list-style-type: none"> • The Zoom technology is <i>interoperable with hardware solutions</i> of Polycom, Cisco, and LifeSize, and supports scalable deployment. • Also, Zoom can be used <i>as a software solution</i> by installing the Zoom app on computers and mobile devices, such as iPads and smart phones. • Zoom's features are as follows: <ol style="list-style-type: none"> 1) Capable of HD videoconferencing 2) The Zoom app enable the outdoor videoconferencing by installing it in mobile devices; e.g., iPads, smart phones. 3) Capable of 24 multipoint videoconferencing. 4) Recurring Zoom rooms booked through Zoom are available for 24/7, so schools can test their Zoom links at any time. 5) Zoom can record Zoom meetings locally in the host's computer (My Document → Zoom folder → listed by recording dates) and in the Zoom Cloud (downloadable). 6) The screen view can be set to Speaker view or Gallery view.
<p>*7) HD videoconferencing and spin offs are <i>commercialised</i> and marketed to other providers.</p>	<ul style="list-style-type: none"> • This project aimed at providing quality education to Australian schools for teaching Asian cultures and Asian languages using high speed broadband, and also providing rural/regional students with global education opportunities. The vision of this project is to <i>serve the public</i>, especially rural/regional students, by providing quality education and global education opportunities using advanced digital technology. <p>➔ <i>Commercialising this project goes against the project's vision.</i></p>

7.3 Asian Outcomes and Outcome Indicators

The Asian Outcomes are presented in two ways: 1) Asian outcomes with all the five Asian countries' outcomes combined, and 2) Outcomes for each of Korea, Japan, China, and Indonesia (India excluded). The separate outcomes for each Asian country provide detailed, accurate and more relevant information for those who are looking for information only for, e.g., Korea. The Korean Outcomes, Japanese Outcomes, Chinese Outcomes, and Indonesian Outcomes are shown in the headings of 7.3.1, 7.3.2, 7.3.3, and 7.3.4, respectively.

ASIAN OUTCOMES	
Outcome category: Educational	
Measure: Benefits accruing to students, teachers, and schools related to increasing participation and engagement in education, increasing the range of educational opportunities, and improving educational outcomes.	
Outcome Indicators	Evidence through
Asian Student Outcomes	
1) Asian students developed <i>global thinking</i> .	<ul style="list-style-type: none"> 64 Asian teachers (70%) out of 92 said Asian students developed global thinking through this project (← based on SSD: 70%, 25 Asian teachers out of 37).
2) Asian students developed <i>English skills</i> through this project.	<ul style="list-style-type: none"> 752 Asian students (38%) out of 1,980 said they are confident in speaking English with Western native English speakers (← based on SSD: 38%, 176 Asian students out of 471). 990 Asian students (50%) out of 1,980 said their English skills have improved through videoconferencing with Australian students (← based on SSD: 50%, 229 Asian students out of 471).
3) Asian students have improved their <i>cultural understanding</i> of Australia.	<ul style="list-style-type: none"> 792 Asian students (40%) out of 1,980 said they are confident in knowing about Australian culture (← SSD: 40%, 188 Asian students out of 461). Asian students' being able to explain about Australian culture to their family members and friends is seen as an indication of having developed cultural understanding of Australia. → 832 Asian students (42%) out of 1,980 said they explained about Australian culture to their family members and friends (← based on SSD: 42%, 198 Asian students out of 461). 965 Asian teachers (49%) out of 1,980 said this project improves Asian students' cultural understanding of Australia (← based on SSD: 49%, 17 Asian teachers out of 37). A 10-questions Quiz was administered to Asian students – for Korean students to answer about Australian culture, and for Japanese and Indonesian students to write 10 sentences in English to the best they can. Student responses to the language questions were compared with their class groups. 436 Asian students answered the Quiz: <i>Mean</i> = 6.04. This indicates that Asian students answered 60% correct for questions on Australian culture and English language.
4) Interacting with Australian students has <i>increased</i> Asian	<ul style="list-style-type: none"> 1,426 Asian students (72%) out of 1,980 said this project increased their <i>interest</i> in studying English harder and learning

<p>students' <i>interest</i> in studying English and <i>motivation</i> to learn more about Australian culture.</p>	<p>more about Australian culture (← based on SSD: 72%, 338 Asian students out of 471).</p> <ul style="list-style-type: none"> • 80 Asian teachers (87%) out of 92 said this project increased Asian students' <i>interest in studying English</i> (← based on SSD: 87%, 32 Asian teachers out of 37). • 63 Asian teachers (69%) out of 92 said this project increased Asian students' <i>motivation</i> to learn more about Australian culture (← based on SSD: 69%, 25 Asian teachers out of 37).
<p>5) Asian students <i>collaborated</i> with Australian students teaching and learning from each other through HD videoconferencing.</p>	<p>Frequency of HD VC</p> <ul style="list-style-type: none"> • In total, 440 HD videoconferencing sessions were held between Asian and Australian schools during the project period (2013-2014); Korea, 361 sessions; Japan, 36; China, 11; Indonesia, 31, and India 1. • Numbers of HD videoconferencing sessions: <ul style="list-style-type: none"> ➢ By Asian country and school: <ol style="list-style-type: none"> a) Korea: K_Chorim, 33; K_Chilam, 17; K_Jukseong, 20; K_Imae, 10; K_Majang, 5; K_Sungduk, 29; K_Yeonje, 8; K_Goseo, 13; K_Saegeum, 18; K_Sani, 14; K_Yonghwa, 15; K_JejuJeil, 14; K_Hakjang, 24; K_Wolypyeong, 30; K_AShingi, 17; K_BDaechung, 28; K_Guhak, 12; K_Daebyun, 10; K_KKyungwon, 4; K_Jungang, 13; K_Yulgeum, 4; K_Cheongsol, 23. b) Japan: J_Chitose, 13; J_Chosei, 9; J_Higurashi, 3; J_Ogawa, 3; J_Shinwa, 8. c) China: C_ChineseF, 2; C_Munsang, 1; C_YCHWWS, 8. d) Indonesia: I_Ekawijaya, 31. e) India: Ia_StMary's, 1. ➢ By location: Metropolitan, 346; Regional, 39; Rural, 55. ➢ By Year level: Kindergarten, 1; Y3-Y4, 20; Y5-Y6, 254; Y7-Y8, 98; Y9, 18; Y10-Y11, 49. <p>Types of Collaboration</p> <ul style="list-style-type: none"> • Asian students <i>practiced speaking English</i> with Australian peers and <i>learned about Australian culture</i> through HD videoconferencing. → 1,544 Asian students (78%) out of 1,980 said they enjoyed learning from Australian students through HD videoconferencing (← based on SSD: 78%, 364 Asian students out of 461). • Asian students <i>taught Australian students about their own Asian culture</i> through HD videoconferencing. 1,386 Asian students (70%) out of 1,980 said they <i>enjoyed teaching</i> about their own Asian culture to Australian students. (← based on SSD: 70%, 322 Asian students out of 471).
<p>6) Asian students developed <i>confidence in speaking English</i> in front of others.</p>	<ul style="list-style-type: none"> • 752 Asian students (38%) out of 1,980 said they are confident in speaking English with Western native English speakers (← based on SSD: 38%, 176 Asian students out of 471).
<p>7) Asian students developed <i>communication</i> skills.</p>	<ul style="list-style-type: none"> • 70 Asian teachers (76%) out of 92 said Asian students developed communication skills through this project (← based on SSD: 76%, 28 Asian teachers out of 37).

<p>8) Increased <i>interaction</i> between Asian and Australian students.</p>	<ul style="list-style-type: none"> • This project provided 440 HD videoconferencing sessions for Asian students to interact with Australian peers in real-time in 2013-2014. • 69 Asian teachers (75%) out of 92 said Asian students <i>enjoyed synchronous</i> videoconferencing with Australian peers. (← based on SSD: 75%, 27 Asian teachers out of 37.) • 876 Asian students from 15 Asian schools (47%; out of 32 schools) were provided with Edmodo (www.edmodo.com) rooms for social chat with their Australian peers outside videoconferencing sessions in a safe, secure online environment. Interested students volunteered to send messages to their Australian peers.
<p>9) Asian students <i>engaged with Australian</i> peers.</p>	<ul style="list-style-type: none"> • 1,010 Asian students (51%) out of 1,980 said they actively participated in videoconferencing with Australian peers (based SSD: 51%, 235 Asian students out of 471). • 574 Asian students (29%) out of 1,980 said they got an <i>Australian friend</i> through e-pals of this project. (← based on SSD: 29%, 138 Asian students out of 471.) • 495 Asian students from 14 Asian schools <i>exchanged cards and cultural artefacts</i> with their Australian e-pals in Oct/Nov of 2013 and 2014 by post. • 4 Asian schools (Jukseong Primary School, Busan Daechung Primary School, and Imae Middle School in South Korea; and Chosei High School in Japan) built <i>Sister School relationships</i> with their Australian partner schools (Ben Venue Public School in NSW, St Joseph Primary School Maclean in NSW, Calvin Christian School in TAS, and Nossal High School in Japan, respectively), and 563 Asian students from the schools had opportunities to interact and engage with each other in long-term meaningful relationships. • 1,505 Asian students (76%) out of 1,980 said they want to <i>visit Australia</i> in the future, if they can afford it. (← based on SSD: 76%, 356 Asian students out of 471.) • Count of students by subject: <ul style="list-style-type: none"> ➢ English + Australian culture, 1,952 ➢ Science Sharing + English + Australian culture, 28
<p>10) Number of Asian students experiencing <i>synchronous HD videoconferencing</i> with Australian peers</p>	<ul style="list-style-type: none"> • 1,980 Asian students <i>experienced synchronous HD</i> videoconferencing with Australian peers. • Numbers of students: <ul style="list-style-type: none"> ➢ By Asian country: Korea, 1,379 students; Japan, 194; China, 142; Indonesia, 240; India, 25. ➢ By school: <ol style="list-style-type: none"> 1) Korea: K_AShingi, 59; K_BDaebyun, 20; K_BDaechung, 45; K_BJungang, 49; K_BWolpyeong, 50; K_Cheongsol, 25; K_Chilam, 28; K_Chorim, 40; K_Goseo, 27; K_Guhak, 37; K_Hakjang, 60; K_Imae, 400; K_JejuJeil, 64; K_Jukseong, 18; K_KKyungwon, 16; K_Majang, 20; K_Saegung, 20; K_Sani, 15; K_Sungduk, 51; K_Yeonje, 162; K_Yonghwa, 144; K_Yulgeum, 29. 2) Japan: J_Shinwa, 27; J_Higurashi, 30; J_Chitose, 82; J_Chosei, 40; J_Ogawa, 15.

	<p>3) China: C_ChineseF, 15; C_Munsang, 20; C_YCHWWS, 107.</p> <p>4) Indonesia: I_Ekawijaya, 240.</p> <p>5) India: Ia_StMary's, 1.</p> <p>➤ By year level: Kindergarten, 25; Y3-Y4, 58; Y5-6, 480; Y7-8, 546; Y9, 427; Y10-Y11, 444.</p> <p>➤ By Subject: English + Australian culture, 1,952; Science Sharing + English + Australian culture, 28.</p>
11) Asian students participated in STEM (Science, Technology, Engineering and Mathematics) virtual excursions through HD videoconferencing.	<ul style="list-style-type: none"> • 918 Asian students (50%) out of 1,980 participated in STEM virtual excursions through HD videoconferencing. • Numbers of students: <ul style="list-style-type: none"> ➤ By Asian country: Korea, 678; Japan, 0; China, 0; Indonesia, 240. ➤ By location (% by school numbers): Metropolitan, 779 (69%); Regional, 59 (6%); Rural, 80 (25%). • Non-traditional teaching resources by type: <ul style="list-style-type: none"> ➤ Science Virtual Excursions ➤ Topics: Great Barrier Reef marine science, Sydney Olympic Park's environmental science.
12) Asian students in rural/regional areas had opportunities for global experiences.	<ul style="list-style-type: none"> • 276 Asian students from rural/regional areas (Rural, 95; Regional, 181) had opportunities for global experiences of interacting and engaging with Australia students. The students are from 5 rural and 3 regional schools (25%) out of 32 Asian schools. <ul style="list-style-type: none"> ➤ By region and schools: <ul style="list-style-type: none"> a) Rural: K_Jukseong, 18; K_Majang, 20; K_Goseo, 27; K_Sani, 15; J_Ogawa, 15. b) Regional: K_AShingi, 59; J_Chitose, 82; J_Chosei, 40.
*13) Digital skills of Asian students and teachers have improved.	<ul style="list-style-type: none"> • 1,110 Asian students (51%) out of 1,379 said they developed ICT skills, which includes making Power Point slides and becoming familiar with HD videoconferencing technology (← based on SSD: 51%, 236 Asian students out of 471). • 50 Asian teachers (54%) out of 92 said this project improved Asian students' ICT skills (← based on SSD: 54%, 20 Asian teachers out of 37). • All of the 92 Asian teachers (100%) received training for basic technical skills for using videoconferencing in Teacher Meetings organized by the project team. • Learn by experience: The most important exercise for developing teachers' videoconferencing technology skills was using videoconferencing for each of their videoconferencing sessions, which provided instant and real feedback for how well they are dealing with the technology. So, they learned and improved their technical skills through experiences.
Asian Teacher Outcomes	
14) Asian teachers undertook professional development through HD videoconferencing, and have developed basic technical skills	<ul style="list-style-type: none"> • All of the 92 Asian teachers (100%) undertook Professional Development through HD videoconferencing with the project team individually or in small groups during the project period (2013-2014).

using videoconferencing.	<ul style="list-style-type: none"> • In collaboration with the VIC DET Digital Learning team, Teacher Professional Sharing session (1-day) was provided to 12 VIC public school teachers on 16/05/14.
15) Asian teachers have increased professional satisfaction and have adopted <i>new pedagogy practice</i> to incorporate HD videoconferencing technology into teaching.	<ul style="list-style-type: none"> • 75 Asian teachers (81%) out of 92 said this project is <i>effective</i> for teaching English conversations and Australian culture (← based on SSD: 81%, 30 Asian teachers out of 37). • 66 Asian teachers (72%) out of 92 said they will participate in this project <i>next year</i> (← based on SSD: 72%, 23 Asian teachers out of 32 [5 missing data]). • 57 Asian teachers (60%) out of 92 said this project facilitates <i>student-centred learning</i>, as students lead presentations and ask questions to each other (← based on SSD: 60%, 22 Asian teachers out of 37). • This project develops the <i>21st century skills</i> for learning, such as communication skills and digital skills. <ul style="list-style-type: none"> ➢ Communication skills: 70 Asian teachers (76%) agreed. ➢ Digital skills: 1,110 Asian students (51%) agreed. • All 95 Australian teachers (90%) said this project develops Australian students' communication skills by thinking of the Asian peers' perspectives. (← based on SSD: 100%, 95 AUS teachers.)
Technology Outcomes in Asia	
*16) HD videoconferencing is <i>fit for purpose</i> and recognized as effective for teaching English and Australian culture by Asian teachers.	<ul style="list-style-type: none"> • 75 Asian teachers (81%) out of 92 said this project is <i>effective</i> for teaching English conversations and Australian culture (← based on SSD: 81%, 30 Asian teachers out of 37). • 66 Asian teachers (72%) out of 92 said they will participate in this project <i>next year</i> (← based on SSD: 72%, 23 Asian teachers out of 37). • 76 Asian teachers (83%) out of 92 said this project <i>benefits</i> Asian students in terms of developing global thinking, cultural understanding of Australia, confidence in speaking in front of others, communication skills; providing access to authentic Australian culture and rare opportunities of synchronous interaction with Australian peers; increasing interest in studying English and Australian culture, and developing Asian students' ICT skills (← based on SSD: 83%, 29 Asian teachers out of 37). • One major technical difficulty in using HD videoconferencing was <i>firewalls</i> set to Asian schools by their Departments of Education and/or the school systems. Technical details for the firewalls in Korea, Japan, China, and Indonesia were all different and had to be tackled by network experts in the countries. For the technical support, TechData in Korea, Cisco Japan, Cisco Hong Kong, and a private network in Indonesia helped the participating schools conducting various connection tests with the VIC DET and the NSW DEC videoconferencing support units.
*17) <i>New platforms</i> have been identified to support HD videoconferencing	<ul style="list-style-type: none"> • The same evidence for the <i>Educational Outcome Indicator 12</i>, 'New platforms' in the <i>Australian Outcomes</i> is also applied here. → See the <i>Indicator 12: New platforms</i> have been identified to support HD videoconferencing between Australian and Asian schools.

between Asian and Australian schools.	
<p>Outcome category: Productivity</p> <p>Measure: Benefits accruing to schools related to increasing schools' workplace skills and teacher productivity or reducing skills shortages.</p>	
Outcome Indicators	Evidence through
1) HD videoconferencing was <i>suitable</i> for effective and efficient teaching of English and Australian culture for Asian schools.	<ul style="list-style-type: none"> • The same evidence for the <i>Educational Outcome Indicator 16, 'fit-for-purpose,'</i> in the <i>Asian</i> Outcomes is also applied here. → See the <i>Indicator 16: HD videoconferencing is fit for purpose</i> and recognized as effective for teaching English and Australian culture by Asian teachers.
2) HD videoconferencing has enhanced Asian students' <i>collaboration</i> with Australian students.	<ul style="list-style-type: none"> • The same evidence for the <i>Educational Outcome Indicator 5, 'collaboration,'</i> in the <i>Asian</i> Outcomes is also applied here. → See the <i>Indicator 5: Asian students collaborate</i> with Australian students teaching and learning from each other through HD videoconferencing.
3) HD videoconferencing has improved Asian students' <i>ICT literacy</i> .	<ul style="list-style-type: none"> • The same evidence for the <i>Educational Outcome Indicator 13, 'Digital skills,'</i> in the <i>Asian</i> Outcomes is also applied here. → See the <i>Indicator 13: Digital skills</i> of Asian students and teachers have improved.
<p>Outcome category: Financial</p> <p>Measure: Benefits accruing to individuals, institutions or companies that relate to reduced costs or the ability to generate increased revenue.</p>	
Outcome Indicators	Evidence through
1) <i>Reduced travel times and costs</i> for <i>Asian students</i> to meet Australian students.	<ul style="list-style-type: none"> • Count of students: 1,970 Asian students • Amount of reduction in travel time: <ul style="list-style-type: none"> ➤ If Asian students are to meet Australian students in person, they have to fly to Australia and visit their partner Australian schools physically. ➤ One visit to Australia takes 3 days: 1 day to fly to Australia, 1 day for visiting the school and meeting Australian peers in schools, and 1 day for coming back to their Asian country. ➤ The reduced travel time is calculated by multiplying the following: Frequency of videoconferencing sessions x number of students x 3 days p/trip. ➤ The reduced travel time for Asian students is: 4,092 years for Korean students, 57 years for Japanese, 13 years for Chinese, 61 years for Indonesian, and 0.2 years (75 days) for Indian students. See Table 7.3.1. ➤ In total, the reduced travel time for Asian students to meet their Australian peers was 4,223 years.

Table 7.3.1 Reduced travel time for Asian students to meet their Australian peers in person

Asian country	VC frequency (sessions)	Student numbers	Travel time (days p/trip)	Days of reduced travel time	Years of reduced travel time
Korea	361	1,379	3	1,493,457	4,092
Japan	36	194	3	20,952	57
China	11	142	3	4,686	13
Indonesia	31	240	3	22,320	61
India	1	25	3	75	0.2
TOTAL	1,541,490 days → 4,223 years				

- Amount of reduction in travel cost (unit: AUD \$):
 - One travel to Australia from Korea, Japan, and China will cost \$1,400 each; and one travel to Australia from Indonesia and India will cost \$1,000 each.
 - The reduced travel cost for Asian students for meeting their Australian peers in person is: \$697 million for Korean students; \$10 million for Japanese; \$2 million for Chinese; \$7 million for Indonesian; and \$0.03 million for Indian students. See Table 7.3.2.
 - In total, the reduced travel cost for Asian students to meet their Australian peers was **\$716 million dollars**.

Table 7.3.2 Reduced travel cost for Asian students to meet their Australian peers in person (unit: AUD \$)

Asian country	VC frequency (sessions)	Student numbers	Travel cost (p/trip)	AUD \$ of reduced travel cost	Million (M) \$ of reduced travel cost
Korea	361	1,379	\$1,400	\$696,946,600	\$697 M
Japan	36	194	\$1,400	\$9,777,600	\$10 M
China	11	142	\$1,400	\$2,186,800	\$2 M
Indonesia	31	240	\$1,000	\$7,440,000	\$7 M
India	1	25	\$1,000	\$25,000	\$ 0.03M
TOTAL	\$716,376,000 → \$716 M				

2) Reduced travel time and costs for Asian teachers to bring Australian students and teachers to the Asian classrooms.

- Count of Asian teachers: 92 Asian teachers
- Amount of reduction in travel time:
 - The same rule for calculating reduced travel time for Asian students, used above, was applied to that for Asian teachers.
 - Each travel takes 3 days to Australia from each of Korea, Japan, China, Indonesia, and India (1 day to fly to Australia, 1 day for visiting the school and meeting Australian teachers and students in schools, and 1 day for coming back to their Asian country).
 - The reduced travel time is calculated by multiplying the following: Frequency of videoconferencing sessions x number of teachers x 3 days p/trip.
 - Table 7.3.3 shows the days and years of reduced travel time for Asian teachers for meeting Australian teachers and students in person.

- The reduced travel time for Asian teachers is: 58,482 days for Korean teachers, 1,404 days for Japanese, 330 days for Chinese, 1,116 days for Indonesian, and 9 days for Indian teachers.
- In total, the reduced travel time for Asian teachers to meet Australian students and teachers was 61,338 days → **168.05 years**.

Table 7.3.3 Reduced travel time for Asian teachers to bring Asian students and teachers to the Asian classrooms

Asian country	VC frequency (sessions)	Teacher numbers	Travel time (days p/trip)	Days of reduced travel time	Years of reduced travel time
Korea	361	54	3	58,482	160.22
Japan	36	13	3	1,404	3.85
China	11	10	3	330	.90
Indonesia	31	12	3	1,116	3.06
India	1	3	3	9	0.02
TOTAL	61,338 days → 168.05 years				

- Amount of reduction in travel cost (unit: AUD \$):
 - One travel to each of Korea, Japan, and China will cost \$1,400; and one travel to each of Indonesia and India will cost \$1,000.
 - The reduced travel cost for Asian teachers to meet Australian teachers and students in person is: \$27,291,600 for Korean teachers; \$655,200 for Japanese; \$154,000 for Chinese; \$372,000 for Indonesian; and \$3,000 for Indian teachers. See Table 7.3.4.
 - In total, the reduced travel cost for Asian teachers to meet Australian teachers and students was \$28,475,800 → **\$28.4 Million**.

Table 7.3.4 Reduced travel cost for Asian teachers to bring Australian teachers and students to the Asian classrooms (unit: AUD \$)

Asian country	VC frequency (sessions)	Teacher numbers	Travel cost (days p/trip)	AUD \$ of Reduced travel cost
Korea	361	54	\$1,400	\$27,291,600
Japan	36	13	\$1,400	\$655,200
China	11	10	\$1,400	\$154,000
Indonesia	31	12	\$1,000	\$372,000
India	1	3	\$1,000	\$3,000
TOTAL	\$28,475,800 → \$28.4 M			

***3) Ongoing demands from Asian schools**

Ongoing demands

- **Korea:** It is predicted that 10 new Korean schools will join this project through promotion of this project by the project team in collaboration with KERIS (Korean Education and Research Information Service) and by TechData in Korea (partner organization). In 2015 only, the cities of Incheon, Daegu, and

Yeosoo in South Korea were designated as Global Education cities, and schools in the cities are looking for innovative ways of implementing global education. Already, Incheon Yeonsoo Girls High School joined the Asia ConneXions project for the first time this year for videoconferencing with Bendigo Senior Secondary College, which is the largest senior secondary school in Australia. Also, 3 other new Korean schools from Jeju city and Busan city joined the project.

- **Japan:** Saga prefecture, supported by Cisco Japan, is observing how the rural Island school of Ogawa Primary & Junior High School (PJHS) (26 students for K-Y9) is doing cultural exchanges with the rural school of Birchip P12 College in VIC. If the educational outcomes of Ogawa PJHS are positive, they intend to deploy the Australia-Japan ConneXion program to 50 rural schools in Saga prefecture. The Japanese Outcomes in this Government report will provide evidence to Saga prefecture.
- **China:** A new Chinese school from Mainland China, Shaxi High School in Jiangsu province, joined this project for the first time. Shaxi HS is a Sister School with Blackburn High School in VIC, but did not have a hardware videoconferencing unit until Dec 2014. Upon a Blackburn teacher's request, the project team organized a videoconferencing demonstration when Blackburn principal visited Shaxi HS in Nov 2014. Since then, Shaxi HS obtained a Polycom unit, and is doing videoconferencing in Blackburn's Global Education classes. This is an exemplary case for the possibility of *connecting other Australian schools with their Asian Sister Schools through HD videoconferencing* for regular video links throughout the year. There are a lot of Australian schools with Asian Sister Schools through the Asia Education Foundation's Asia Bridge program, which focuses on teacher exchange visits and uses Skype. Those teachers testify how unreliable Skype connections are. Also, this project demonstrated *million dollars of travel costs* and *thousands of years of travel time* saved by videoconferencing with Asian schools. This project can be scaled out to those Australian-Asian Sister Schools through collaboration with Polycom China, Cisco Japan, and Polycom Indonesia.
- **Indonesia:** A big Islamic secondary school in Central Java, Assalaam Solo (<http://assalaam.or.id/id>) joined this project for the first time, and is currently doing videoconferencing with Portland Secondary College for Indonesian/English language teaching using Polycom HDX6000. Surprisingly, Assalaam Solo already has had a Polycom HDX 6000 unit since 3 years ago, which they were not using it. An Assaslaam teacher said there are other Indonesian schools with Polycom equipment. These Indonesian schools with Polycom equipment are the target schools for connecting them with Australian schools for cultural and language learning.

	<ul style="list-style-type: none"> • Thus, the number of Asian schools that want to connect with Australian schools using HD videoconferencing is growing, which provides opportunities for Australia to take in order to benefit Australia students for developing an Asia-capable workforce among the students as well as developing an Australia-capable workforce among the Asian students participating in this project.
*4) Superior to traditional methods of teaching	<p>Superiority based on the evidence of educational Outcomes</p> <p>The Educational Outcomes Indicators and their evidence of the Asian Outcomes, shown above, clearly demonstrate that a) this project benefits Asian students in Korea, Japan, China, and Indonesia; 2) Asian teachers adopt new pedagogy practice for teaching English and Australian culture by integrating the use of HD videoconferencing into teaching; and 3) Asian teachers' confirmation that they will participate in this project the next year (2015) is a clear indication of superiority of HD videoconferencing to traditional teaching methods.</p>

7.3.2 Korean Outcomes

KOREAN OUTCOMES	
Outcome category: Educational	
Measure: Benefits accruing to students, teachers, and schools related to increasing participation and engagement in education, increasing the range of educational opportunities, and improving educational outcomes.	
Outcome Indicators	Evidence through
Korean Student Outcomes	
1) Korean students developed global thinking .	<ul style="list-style-type: none"> • 41 Korean teachers (75%) out of 54 said Korean students developed global thinking through this project (← based on SSD: 75%, 15 KOR teachers out of 20).
2) Korean students developed English skills through this project.	<ul style="list-style-type: none"> • 483 Korean students (35%) out of 1,379 said they are confident in speaking English with Western native English speakers (← based on SSD: 35%, 124 KOR students out of 356). • 648 Korean students said their English skills improved through videoconferencing with Australian students (← based on SSD: 47%, 166 KOR students out of 363).
3) Korean students have improved their cultural understanding of Australia.	<ul style="list-style-type: none"> • 552 Korean students (40%) out of 1,379 said they are confident in knowing about Australian culture (← based on SSD: 42%, 151 KOR students out of 363). • Korean students' being able to explain about Australian culture to their family members and friends is seen as an indication of having developed cultural understanding of Australia. → 593 Korean students (43%) out of 1,379 said they explained about Australian culture to their family members and friends (← based on SSD: 43%, 154 KOR students out of 363) • 21 Korean teachers (39%) out of 54 said this project develops Korean students' cultural understanding of Australia (← based on SSD: 39%, 7 KOR teachers out of 19).

	<ul style="list-style-type: none"> • A 10-questions Quiz asking about Australian culture was administered to Korean students. 363 Korean students answered the Quiz: <i>Mean</i> = 5.98. This indicates that Korean students answered 60% correctly for questions about Australian culture.
4) Interacting with Australian students has increased Korean students' interest in studying English and motivation to learn more about Australian culture.	<ul style="list-style-type: none"> • 938 Korean students (68%) out of 1,379 said this project increased their interest in studying English harder and learning more about Australian culture (← based on SSD: 68%, 248 KOR students out of 363). • 51 Korean teachers (95%) out of 54 said this project increased Korean students' interest in studying English (← based on SSD: 95%, 19 KOR teachers out of 20). • 32 Korean teachers (60%) out of 54 said this project increased Korean students' motivation to learn more about Australian culture (← based on SSD: 60%, 12 KOR teachers out of 20).
5) Korean students collaborated with Australian students teaching and learning from each other through HD videoconferencing.	<p>Frequency of HD VC</p> <ul style="list-style-type: none"> • In total, 361 HD videoconferencing sessions were held between Korean and Australian schools during the project period (2013-2014). • Numbers of HD videoconferencing sessions: <ul style="list-style-type: none"> ➢ By school: K_Chorim, 33; K_Chilam, 17; K_Jukseong, 20; K_Imae, 10; K_Majang, 5; K_Sungduk, 29; K_Yeonje, 8; K_Goseo, 13; K_Saegung, 18; K_Sani, 14; K_Yonghwa, 15; K_JejuJeil, 14; K_Hakjang, 24; K_Wolpyeong, 30; K_AShingi, 17; K_BDaechung, 28; K_Guhak, 12; K_Daebyun, 10; K_KKyungwon, 4; K_Jungang, 13; K_Yulgeum, 4; K_Cheongsol, 23. ➢ By location: Metropolitan, 292; Regional, 17; Rural, 52. ➢ By Year level: Y3-Y4, 17; Y5-Y6, 251; Y7-Y8, 13; Y9, 10; Y10-Y11, 27. <p>Types of Collaboration</p> <ul style="list-style-type: none"> • Korean students practiced speaking English with Australian peers and learned about Australian culture through HD videoconferencing. → 1,076 Korean students (78%) out of 1,379 said they enjoyed learning from Australian students through HD videoconferencing (based on SSD: 78%, 282 KOR students out of 363). • Korean students taught Australian students about Korean culture through HD videoconferencing. 979 Korean students (71%) out of 1,379 said they enjoyed teaching Australian students about Korean culture (← based on SSD: 71%, 251 KOR students out of 363).
6) Korean students developed confidence in speaking English in front of others.	<ul style="list-style-type: none"> • 483 Korean students (35%) out of 1,379 said they are confident in speaking English with Western native English speakers (← based on SSD: 35%, 124 KOR students out of 356).
7) Korean students developed communication skills.	<ul style="list-style-type: none"> • 38 Korean teachers (70%) out of 54 said Korean students developed communication skills through this project (← based on SSD: 70%, 14 Korean teachers out of 20).

<p>8) Increased <i>interaction</i> between Korean and Australian students.</p>	<ul style="list-style-type: none"> • This project provided 361 HD videoconferencing sessions for Korean students to interact with Australian peers in real-time in 2013-2014. • 41 Korean teachers (75%) out of 54 said Korean students <i>enjoyed synchronous</i> videoconferencing with Australian peers (← based on SSD: 75%, 15 KOR teachers out of 20). • 507 Korean students from 11 Korean schools (50%; out of 22 schools) were provided with an Edmodo (www.edmodo.com) room for their social chat with their Australian peers outside videoconferencing sessions in a safe, secure online environment. Interested students volunteered for putting messages to their Australian peers.
<p>9) Korean students <i>engaged with Australian</i> peers.</p>	<ul style="list-style-type: none"> • 676 Korean students (49%) out of 1,379 said they actively participated in videoconferencing with Australian peers (based SSD: 49%, 174 KOR students out of 363). • 455 Korean students (33%) out of 1,379 said they got an <i>Australian friend</i> through e-pals of this project. (← based on SSD: 33%, 118 KOR students out of 363.) • 495 Korean students from 14 Asian schools <i>exchanged cards and cultural artefacts</i> with their Australian e-pals in Oct/Nov in 2013 and 2014 by post. • 1,062 Korean students (77%) out of 1,379 said they want to <i>visit Australia</i> in the future, if they can afford it. (← based on SSD: 77%, 283 KOR students out of 363.) • Count of students by subject: <ul style="list-style-type: none"> ➢ English + Australian culture, 1,379 (100% students)
<p>10) Number of Korean students experiencing <i>synchronous HD videoconferencing</i> with Australian peers.</p>	<ul style="list-style-type: none"> • 1,379 Korean students <i>experienced synchronous HD</i> videoconferencing with Australian peers. • Numbers of students: <ul style="list-style-type: none"> ➢ By school: K_AShingi, 59; K_BDaebyun, 20; K_BDaechung, 45; K_BJungang, 49; K_Cheongsol, 25; K_Chilam, 28; K_Chorim, 40; K_Goseo, 27; K_Guhak, 37; K_Hakjang, 60; K_Imae, 400; K_JejuJeil, 64; K_Jukseong, 18; K_KKyungwon, 16; K_Majang, 20; K_Saegueum, 20; K_Sani, 15; K_Sungduk, 51; K_Wolpyeong, 50; K_Yeonje, 162; K_Yonghwa, 144; K_Yulgeum, 29. ➢ By Year level: Y3-Y4, 28; Y5-Y6, 465; Y7-Y8, 164; Y9, 400; Y10-Y11, 322. ➢ By subject: English + Australian culture, 1,379.
<p>11) Korean students participated in <i>STEM</i> (Science, Technology, Engineering and Mathematics) virtual excursions through HD videoconferencing.</p>	<ul style="list-style-type: none"> • 678 Korean students (68%) out of 1,379 participated in STEM virtual excursions on topics of Great Barrier Reef and Australasian migrating birds through HD videoconferencing. • Numbers of students: <ul style="list-style-type: none"> ➢ By school: K_AShingi, 59; K_BDaechung, 45; K-Chilam, 28; K_Chorim, 40; K_Goseo, 27; K_Guhak, 37; K_Hakjang, 60; K_JejuJeil, 64; K_Jukseong, 18; K_Majang, 20; K_Saegueum, 20; K_Sani, 15; K_Sungduk, 51; K_Wolpyeong, 50; K_Yonghwa, 144; • Non-traditional teaching resources by type: <ul style="list-style-type: none"> ➢ Science Virtual Excursions

<p>12) Korean students in <i>rural/regional</i> areas had opportunities for <i>global</i> experiences.</p>	<ul style="list-style-type: none"> • 139 Korean students from rural/regional areas (Rural, 80; Regional, 59) had opportunities for global experiences of interacting and engaging with Australia students. The students are from 4 rural (18%) and 1 regional school/s (5%) out of 22 Korean schools. <ul style="list-style-type: none"> ➤ By region and schools: <ul style="list-style-type: none"> a) Rural: K_Jukseong, 18; K_Majang, 20; K_Goseo, 27; K_Sani, 15. • b) Regional: K_AShingi, 59.
<p>*13) Digital skills of Korean students and teachers have improved.</p>	<ul style="list-style-type: none"> • 717 Korean students (51%) out of 1,379 said they developed ICT skills, which includes making Power Point slides and becoming familiar with HD videoconferencing technology (← based on SSD: 52%, 184 KOR students out of 363). • 24 Korean teachers (45%) out of 54 said this project improved Korean students' ICT skills (← based on SSD: 45%, 9 KOR teachers out of 20). • All of the 54 Korean teachers (100%) received training for basic technical skills for using videoconferencing in Teacher Meetings organized by the project team. • Learn by experience: The most important exercise for developing teachers' videoconferencing technology skills was using videoconferencing for each of their videoconferencing sessions, which provided instant and real feedback for how well they are dealing with the technology. So, they learned and improved their technical skills <i>through experiences</i>.
<p>Korean Teacher Outcomes</p>	
<p>14) Korean teachers undertook <i>professional development</i> through HD videoconferencing, and have developed <i>basic technical skills</i> using videoconferencing.</p>	<ul style="list-style-type: none"> • All of the 54 Korean teachers (100%) undertook Professional Development through HD videoconferencing with the project team individually or in small groups during the project period (2013-2014). • Professional Sharing Seminars were organized for Korean teachers in April, 2013 and April, 2014 in collaboration with the Australian Trade Commission in the Australian Embassy in Seoul.
<p>15) Korean teachers have increased professional satisfaction and have adopted <i>new pedagogy practice</i> to incorporate HD videoconferencing technology into teaching.</p>	<ul style="list-style-type: none"> • 46 Korean teachers (85%) out of 54 said this project is <i>effective</i> for teaching English conversations and Australian culture (← based on SSD: 85%, 17 KOR teachers out of 20). • 41 Korean teachers (75%) out of 54 said they will participate in this project <i>next year</i> (← based on SSD: 75%, 15 KOR teachers out of 20). • 30 Korean teachers (55%) out of 54 said this project facilitates <i>student-centred learning</i>, as students lead presentations and ask questions to each other (← based on SSD: 55%, 11 KOR teachers out of 20). • This project develops the <i>21st century skills</i> for learning, such as communication skills and digital skills. <ul style="list-style-type: none"> ➤ Communication skills: 38 Korean teachers (70%) agreed. ➤ Digital skills: 717 Korean students (51%) agreed.

Technology Outcomes in Korea	
<p>*16) HD videoconferencing is <i>fit for purpose</i> and recognized as effective for teaching English and Australian culture by Korean teachers.</p>	<ul style="list-style-type: none"> • 46 Korean teachers (85%) out of 54 said this project is <i>effective</i> for teaching English conversations and Australian culture (← based on SSD: 85%, 17 KOR teachers out of 20). • 41 Korean teachers (75%) out of 54 said they will participate in this project <i>next year</i> (← based on SSD: 75%, 15 KOR teachers out of 20). • 48 Korean teachers (89%) out of 54 said this project <i>benefits</i> Korean students in terms of developing global thinking, cultural understanding of Australia, confidence in speaking in front of others, communication skills; providing access to authentic Australian culture and rare opportunities of synchronous interaction with Australian peers; increasing interest in studying English and Australian culture, and developing Korean students' ICT skills (← based on SSD: 89%, 17 KOR teachers out of 20). • One major technical difficulty in using HD videoconferencing was <i>firewalls</i> set to Korean schools by their Departments of Education. For the technical support, TechData in Korea helped the participating Korean schools conducting various connection tests with the VIC DET and the NSW DEC videoconferencing support units.
<p>*17) <i>New platforms</i> have been identified to support HD videoconferencing between Korean and Australian schools.</p>	<ul style="list-style-type: none"> • The same evidence for the <i>Educational Outcome Indicator 12, 'New platforms'</i> in the <i>Australian</i> Outcomes is also applied here. → See the <i>Indicator 12: New platforms</i> have been identified to support HD videoconferencing between Australian and Asian schools.
<p>Outcome category: Productivity</p> <p>Measure: Benefits accruing to schools related to increasing schools' workplace skills and teacher productivity or reducing skills shortages.</p>	
Outcome Indicators	Evidence through
<p>1) HD videoconferencing was <i>suitable</i> for effective and efficient teaching of English and Australian culture for Korean schools.</p>	<ul style="list-style-type: none"> • The same evidence for the <i>Educational Outcome Indicator 16, 'fit-for-purpose,'</i> in the <i>Korean</i> Outcomes is also applied here. → See the <i>Indicator 16: HD videoconferencing is fit for purpose</i> and recognized as effective for teaching English and Australian culture by Korean teachers.
<p>2) HD videoconferencing has enhanced Korean students' <i>collaboration</i> with Australian students.</p>	<ul style="list-style-type: none"> • The same evidence for the <i>Educational Outcome Indicator 5, 'collaboration,'</i> in the <i>Korean</i> Outcomes is also applied here. → See the <i>Indicator 5: Korean students collaborate</i> with Australian students teaching and learning from each other through HD videoconferencing.
<p>3) HD videoconferencing has improved Korean students' <i>ICT literacy</i>.</p>	<ul style="list-style-type: none"> • The same evidence for the <i>Educational Outcome Indicator 13, 'Digital skills,'</i> in the <i>Korean</i> Outcomes is also applied here. → See the <i>Indicator 13: 'Digital skills</i> of Korean students and teachers have improved' in the <i>Korean</i> Outcomes.

Outcome category: Financial	
Measure: Benefits accruing to individuals, institutions or companies that relate to reduced costs or the ability to generate increased revenue.	
Outcome Indicators	Evidence through
1) Reduced travel time and costs for Korean students to meet Australian students.	<ul style="list-style-type: none"> The reduced travel time for Korean students to meet Australian peers 361 times was 4,092 years (361 sessions x 1,379 students x 3 days p/trip = 1,493,457 days = 4,092 years). The reduced travel cost for Korean students to meet Australian peers 361 times was \$697 million (361 sessions x 1,379 students x \$1,400 p/trip = \$696,946,600 = \$697 million).
2) Reduced travel time and costs for Korean teachers to bring Australian students and teachers to the Korean classrooms.	<ul style="list-style-type: none"> The reduced travel time for Korean teachers to bring Australian students and teachers to the Korean classrooms 361 times was 160.22 years (361 sessions x 54 teachers x 3 days p/trip = 58,482 days = 160.22 years). The reduced travel cost for Korean teachers to bring Australian students and teachers to the Korean classrooms 361 times was \$27 million (361 sessions x 54 teachers x \$1,400 p/trip = \$27,291,600 = \$27 million).
*3) Ongoing demands from Korean schools	<ul style="list-style-type: none"> See the Korea part in the ‘Ongoing demands from Asian schools’, which is in the Financial Outcomes Indicator 3, ‘Ongoing demands from Asian schools’ in the Asian Outcomes.
*4) Superior to traditional methods of teaching	<ul style="list-style-type: none"> See ‘Superiority based on the evidence of educational Outcomes’ in the Financial Outcomes Indicator 4, ‘Superior to traditional methods of teaching’ in the Asian Outcomes.

7.3.3 Japanese Outcomes

JAPANESE OUTCOMES	
Outcome category: Educational	
Measure: Benefits accruing to students, teachers, and schools related to increasing participation and engagement in education, increasing the range of educational opportunities, and improving educational outcomes.	
Outcome Indicators	Evidence through
Japanese Student Outcomes	
1) Japanese students developed global thinking .	<ul style="list-style-type: none"> 10 Japanese teachers (75%) out of 13 said Japanese students developed global thinking through this project (← based on SSD: 75%, 6 JAP teachers out of 8).
2) Japanese students developed English skills through this project.	<ul style="list-style-type: none"> Japanese students were asked to write 10 sentences in English to the best they can, which were assessed by two expert judges by comparing student responses within the class group. Their responses showed <i>Mean</i> = 7.30. This indicates that Japanese students answered 73% correctly for writing sentences in English. 93 Japanese students (48%) out of 194 said they are confident in speaking English with Western native English speakers (← based on SSD: 48%, 21 JAP students out of 44).

	<ul style="list-style-type: none"> • 128 Japanese students (66%) out of 194 said their <i>English skills improved</i> through videoconferencing with Australian students (← based on SSD: 66%, 29 JAP students out of 44).
3) Japanese students have improved their <i>cultural understanding</i> of Australia.	<ul style="list-style-type: none"> • 124 Japanese students (64%) out of 194 said they are confident in knowing about Australian culture (← based on SSD: 64%, 30 JAP students out of 44). • Japanese students' being able to explain about Australian culture to their family members and friends is seen as an indication of having developed cultural understanding of Australia. → 111 Japanese students (57%) out of 194 said they explained about Australian culture to their family members and friends (← based on SSD: 57%, 25 JAP students out of 44) • 7 Japanese teachers (50%) out of 13 said this project develops Japanese students' cultural understanding of Australia (← based on SSD: 50%, 4 JAP teachers out of 9).
4) Interacting with Australian students has <i>increased</i> Japanese students' <i>interest</i> in studying English and <i>motivation</i> to learn more about Australian culture.	<ul style="list-style-type: none"> • 177 Japanese students (91%) out of 194 said this project increased their <i>interest</i> in studying English harder and learning more about Australian culture (← based on SSD: 91%, 40 JAP students out of 44). • 10 Japanese teachers (78%) out of 13 said this project increased Japanese students' <i>interest in studying English</i> (← based on SSD: 78%, 7 JAP teachers out of 9). • 11 Japanese teachers (88%) out of 13 said this project increased Japanese students' <i>motivation</i> to learn more about Australian culture (← based on SSD: 88%, 7 JAP teachers out of 9).
5) Japanese students <i>collaborated</i> with Australian students teaching and learning from each other through HD videoconferencing.	<p>Frequency of HD VC</p> <ul style="list-style-type: none"> • In total, 36 HD videoconferencing sessions were held between Japanese and Australian schools during the project period (2013-2014). • Numbers of HD videoconferencing sessions: <ul style="list-style-type: none"> ➤ By school: J_Chitose, 13; J_Chosei, 9; J_Higurashi, 3; J_Ogawa, 3; J_Shinwa, 8. ➤ By location: Metropolitan, 11; Regional, 22; Rural, 3. ➤ By Year level: Y3-Y4, 3; Y5-Y6, 3; Y9, 8; Y10-Y11, 22. <p>Types of Collaboration</p> <ul style="list-style-type: none"> • Japanese students <i>practiced speaking English</i> with Australian peers and <i>learned about Australian culture</i> through HD videoconferencing. → 190 Japanese students (98%) out of 194 said they enjoyed learning from Australian students through HD videoconferencing (← based on SSD: 98%, 42 JAP students out of 44). • Japanese students <i>taught Australian students about Japanese culture</i> through HD videoconferencing. 163 Japanese students said they enjoyed teaching Australian students about Japanese culture (← based on SSD: 84%, 37 JAP students out of 44).
6) Japanese students developed <i>confidence in speaking English</i> in front of others.	<ul style="list-style-type: none"> • 93 Japanese students (48%) out of 194 said they are confident in speaking English with Western native English speakers (← based on SSD: 48%, 21 JAP students out of 44).

7) Japanese students developed <i>communication</i> skills.	<ul style="list-style-type: none"> • 10 Japanese teachers (78%) out of 13 said Japanese students developed communication skills through this project (← based on SSD: 78%, 7 Japanese teachers out of 9).
8) Increased <i>interaction</i> between Japanese and Australian students.	<ul style="list-style-type: none"> • This project provided 36 HD videoconferencing sessions for Japanese students to interact with Australian peers in real-time in 2013-2014. • 8 Japanese teachers (63%) out of 13 said Japanese students <i>enjoyed synchronous</i> videoconferencing with Australian peers (← based on SSD: 63%, 5 JAP teachers out of 8). • 109 Japanese students from 2 Japanese schools (40%; out of 5 schools) were provided with an Edmodo (www.edmodo.com) room for their social chat with their Australian peers outside videoconferencing sessions in a safe, secure online environment. Interested students volunteered for putting messages to their Australian peers.
9) Japanese students <i>engaged with Australian</i> peers.	<ul style="list-style-type: none"> • 114 Japanese students (59%) out of 194 said they actively participated in videoconferencing with Australian peers (based SSD: 59%, 26 JAP students out of 44). • 45 Japanese students (23%) out of 194 said they got an <i>Australian friend</i> through e-pals of this project. (← based on SSD: 23%, 10 JAP students out of 44.) • 140 Japanese students (72%) out of 194 said they want to <i>visit Australia</i> in the future, if they can afford it. (← based on SSD: 72%, 31 JAP students out of 44.) • Count of students by subject: <ul style="list-style-type: none"> ➢ English + Australian culture, 166 ➢ Science Sharing + English + Australian culture, 28
10) Number of Japanese students experiencing <i>synchronous HD videoconferencing</i> with Australian peers	<ul style="list-style-type: none"> • 194 Japanese students <i>experienced synchronous HD</i> videoconferencing with Australian peers. • Numbers of students: <ul style="list-style-type: none"> ➢ By school: J_Shinwa, 27; J_Higurashi,, 30; J_Chitose, 82; J_Chosei, 40; J_Ogawa, 15. ➢ By Year level: Y3-Y4, 30; Y5-Y6, 15; Y9, 27. ➢ By subject: English + Australian culture, 166; Science Sharing English + Australian culture, 28.
11) Japanese students participated in <i>STEM</i> (Science, Technology, Engineering and Mathematics) virtual excursions through HD videoconferencing.	<ul style="list-style-type: none"> • 28 Japanese students in Chosei High School, which is a Super Science High School, presented their science experiments to their Australian peers through Science Sharing sessions, to which Australian students provided feedback.
12) Japanese students in <i>rural/regional</i> areas had opportunities for <i>global</i> experiences.	<ul style="list-style-type: none"> • 137 Japanese students from rural/regional areas (Rural, 15; Regional, 122) had opportunities for global experiences of interacting and engaging with Australia students. The students are from 1 rural (20%) and 2 regional school/s (40%) out of 5 Japanese schools. <ul style="list-style-type: none"> ➢ By region and schools: <ul style="list-style-type: none"> a) Rural: J_Ogawa, 15. • b) Regional: J_Chitose, 82; J_Chosei, 40.

<p>*13) Digital skills of Japanese students and teachers have improved.</p>	<ul style="list-style-type: none"> • 107 Japanese students (55%) out of 194 said they developed ICT skills, which includes making Power Point slides and becoming familiar with HD videoconferencing technology (← based on SSD: 55%, 24 JAP students out of 44). • 12 Japanese teachers (89%) out of 13 said this project improved Japanese students' ICT skills (← based on SSD: 89%, 8 JAP teachers out of 9). • All of the 13 Japanese teachers (100%) received training for basic technical skills for using videoconferencing in Teacher Meetings organized by the project team. • Learn by experience: The most important exercise for developing teachers' videoconferencing technology skills was using videoconferencing for each of their videoconferencing sessions, which provided instant and real feedback for how well they are dealing with the technology. So, they learned and improved their technical skills through experiences.
Japanese Teacher Outcomes	
<p>14) Japanese teachers undertook professional development through HD videoconferencing, and have developed basic technical skills using videoconferencing.</p>	<ul style="list-style-type: none"> • All of the 13 Japanese teachers (100%) undertook Professional Development through HD videoconferencing with the project team individually or in small groups during the project period (2013-2014). • 6 Japanese teachers from Chosei High School (3 teachers) and Chitose High School (3 teachers) had in-depth face-to-face discussion as part of their professional development in April, 2013, when the project team visited the schools in person.
<p>15) Japanese teachers have increased professional satisfaction and have adopted new pedagogy practice to incorporate HD videoconferencing technology into teaching.</p>	<ul style="list-style-type: none"> • All of the 13 Japanese teachers (100%) said this project is effective for teaching English conversations and Australian culture (← based on SSD: 100%, 9 JAP teachers out of 9). • All of the 4 Japanese teachers (100%) out of 4 said they will participate in this project next year (← based on SSD: 100%, 4 JAP teachers out of 4 [5 missing data]). • 6 Japanese teachers (44%) out of 13 said this project facilitates student-centred learning, as students lead presentations and ask questions to each other (← based on SSD: 44%, 4 JAP teachers out of 9). • This project develops the 21st century skills for learning, such as communication skills and digital skills. <ul style="list-style-type: none"> ➢ Communication skills: 10 Japanese teachers (78%) agreed. ➢ Digital skills: 107 Japanese students (55%) agreed.
Technology Outcomes in Japan	
<p>*16) HD videoconferencing is fit for purpose and recognized as effective for teaching English and Australian culture by Japanese teachers.</p>	<ul style="list-style-type: none"> • All of the 13 Japanese teachers (100%) said this project is effective for teaching English conversations and Australian culture (← based on SSD: 100%, 9 JAP teachers out of 9). • All of the 4 Japanese teachers (100%) out of 4 said they will participate in this project next year (← based on SSD: 100%, 4 JAP teachers out of 4 [5 missing data]). • 10 Japanese teachers (75%) out of 13 said this project benefits Japanese students in terms of developing global thinking, cultural understanding of Australia, confidence in speaking in front of others, communication skills; providing access to authentic Australian culture and rare opportunities of

	<p>synchronous interaction with Australian peers; increasing interest in studying English and Australian culture, and developing Japanese students' ICT skills (← based on SSD: 75%, 6 JAP teachers out of 9).</p> <ul style="list-style-type: none"> • One major technical difficulty in using HD videoconferencing was <i>firewalls</i> set to Japanese schools by their Departments of Education and/or school systems. For the technical support, Cisco Japan helped the participating Japanese schools conducting various connection tests with the VIC DET and the NSW DEC videoconferencing support units.
<p>*17) New platforms have been identified to support HD videoconferencing between Japanese and Australian schools.</p>	<ul style="list-style-type: none"> • The same evidence for the <i>Educational Outcome Indicator 12</i>, 'New platforms' in the <i>Australian</i> Outcomes is also applied here. → See the <i>Indicator 12: New platforms</i> have been identified to support HD videoconferencing between Australian and Asian schools.
<p>Outcome category: Productivity</p> <p>Measure: Benefits accruing to schools related to increasing schools' workplace skills and teacher productivity or reducing skills shortages.</p>	
Outcome Indicators	Evidence through
<p>1) HD videoconferencing was <i>suitable</i> for effective and efficient teaching of English and Australian culture for Japanese schools.</p>	<ul style="list-style-type: none"> • The same evidence for the <i>Educational Outcome Indicator 16</i>, '<i>fit-for-purpose</i>,' in the <i>Japanese</i> Outcomes is also applied here. → See the <i>Indicator 16: HD videoconferencing is fit for purpose</i> and recognized as effective for teaching English and Australian culture by Japanese teachers.
<p>2) HD videoconferencing has enhanced Japanese students' <i>collaboration</i> with Australian students.</p>	<ul style="list-style-type: none"> • The same evidence for the <i>Educational Outcome Indicator 5</i>, '<i>collaboration</i>,' in the <i>Japanese</i> Outcomes is also applied here. → See the <i>Indicator 5: Japanese students collaborate</i> with Australian students teaching and learning from each other through HD videoconferencing.
<p>3) HD videoconferencing has improved Japanese students' <i>ICT literacy</i>.</p>	<ul style="list-style-type: none"> • The same evidence for the <i>Educational Outcome Indicator 13</i>, '<i>Digital skills</i>,' in the <i>Japanese</i> Outcomes is also applied here. → See the <i>Indicator 13: Digital skills</i> of Japanese students and teachers have improved.
<p>Outcome category: Financial</p> <p>Measure: Benefits accruing to individuals, institutions or companies that relate to reduced costs or the ability to generate increased revenue.</p>	
Outcome Indicators	Evidence through
<p>1) <i>Reduced travel time and costs for Japanese students</i> to meet Australian students.</p>	<ul style="list-style-type: none"> • The reduced travel time for Japanese students to meet Australian peers 36 times was 57 years (36 sessions x 194 students x 3 days p/trip = 20,952 days = 57 years). • The reduced travel cost for Japanese students to meet Australian peers 36 times was \$10 million (36 sessions x 194 students x \$1,400 p/trip = \$9,777,600 = \$10 million).
<p>2) <i>Reduced travel time and costs for Japanese</i></p>	<ul style="list-style-type: none"> • The reduced travel time for Japanese teachers to bring Australian students and teachers to the Japanese classrooms 36 times was

<i>teachers</i> to bring Australian students and teachers to the Asian classrooms.	3.85 years (36 sessions x 13 teachers x 3 days p/trip = 1,404 days = 3.85 years). <ul style="list-style-type: none"> The reduced travel cost for Japanese teachers to bring Australian students and teachers to the Japanese classrooms 36 times was \$655,200 (36 sessions x 13 teachers x \$1,400 p/trip = \$655,200).
*3) Ongoing demands from Japanese schools	<ul style="list-style-type: none"> See the <i>Japan part</i> in the ‘Ongoing demands from Asian schools’, which is in the <i>Financial Outcomes Indicator 3, ‘Ongoing demands from Asian schools’ in the Asian Outcomes.</i>
*4) Superior to traditional methods of teaching	<ul style="list-style-type: none"> See ‘Superiority based on the evidence of educational Outcomes’ in the <i>Financial Outcomes Indicator 4, ‘Superior to traditional methods of teaching’ in the Asian Outcomes.</i>

7.3.4 Chinese Outcomes and Outcome Indicators

CHINESE OUTCOMES	
Outcome category: Educational	
Measure: Benefits accruing to students, teachers, and schools related to increasing participation and engagement in education, increasing the range of educational opportunities, and improving educational outcomes.	
Outcome Indicators	Evidence through
Chinese Student Outcomes	
1) Chinese students developed <i>global thinking</i> .	<ul style="list-style-type: none"> All of the 10 Chinese teachers (100%) said Chinese students developed global thinking through this project (← based on SSD: 100%, 3 CHA teachers out of 3).
2) Chinese students developed <i>English skills</i> through this project.	<ul style="list-style-type: none"> The Chinese students were Hong Kong Chinese, so asking them about English questions seemed less appropriate. Thus, they were not asked to write 10 sentences in English. 37 Chinese students (26%) out of 142 said they are confident in speaking English with Western native English speakers (← based on SSD: 26%, 5 CHA students out of 19). 30 Chinese students (21%) out of 142 said their English skills improved through videoconferencing with Australian students (← based on SSD: 21%, 4 CHA students out of 19).
3) Chinese students have improved their <i>cultural understanding</i> of Australia.	<ul style="list-style-type: none"> 30 Chinese students (21%) out of 142 said they are confident in knowing about Australian culture (← based on SSD: 21%, 4 CHA students out of 19). Chinese students’ being able to explain about Australian culture to their family members and friends is seen as an indication of having developed cultural understanding of Australia. → However, only 7 CHA students (5%) said they explained about Australian culture to their family members and friends. The lack of confidence might be due to infrequent videoconferencing sessions (11 sessions in total) with Australian students (← based on SSD: 5%, 1 CHA student out of 19). 3 CHA teachers (33%) out of 10 said this project develops cultural understanding of Australia (← based on SSD: 33%, 1 CHA teacher out of 3).

<p>4) Interacting with Australian students has increased Chinese students' interest in studying English and motivation to learn more about Australian culture.</p>	<ul style="list-style-type: none"> • 89 Chinese students (63%) out of 142 said this project increased their interest in studying English harder and learning more about Australian culture (← based on SSD: 63%, 12 CHA students out of 19). • 3 Chinese teachers (33%) out of 10 said this project increased Chinese students' interest in studying English (← based on SSD: 33%, 1 CHA teacher out of 3). • 3 Chinese teachers (33%) out of 10 said this project increased Chinese students' motivation to learn more about Australian culture (← based on SSD: 33%, 1 CHA teacher out of 3).
<p>5) Chinese students collaborated with Australian students teaching and learning from each other through HD videoconferencing.</p>	<p>Frequency of HD VC</p> <ul style="list-style-type: none"> • In total, 11 HD videoconferencing sessions were held between Chinese and Australian schools during the project period (2013-2014). • Numbers of HD videoconferencing sessions: <ul style="list-style-type: none"> ➢ By school: C_ChineseF, 2; C_Munsang, 1; C_YCHWWS, 8. ➢ By location: Metropolitan, 11. ➢ By Year level: Y7-Y8, 11. <p>Types of Collaboration</p> <ul style="list-style-type: none"> • Chinese students practiced speaking English with Australian peers and learned about Australian culture through HD videoconferencing. → 71 Chinese students (50%) out of 142 said they enjoyed learning from Australian students through HD videoconferencing (← based on SSD: 50%, 9 CHA students out of 19). • Chinese students taught Australian students about Hong Kong Chinese through HD videoconferencing. 45 Chinese students said they enjoyed teaching Australia students about Hong Kong Chinese culture (← based on SSD: 32%, 6 CHA students out of 19).
<p>6) Chinese students developed confidence in speaking English in front of others.</p>	<ul style="list-style-type: none"> • 37 Chinese students (26%) out of 142 said they are confident in speaking English with Western native English speakers (← based on SSD: 26%, 5 CHA students out of 19).
<p>7) Chinese students developed communication skills.</p>	<ul style="list-style-type: none"> • 7 Chinese teachers (67%) out of 10 said Chinese students developed communication skills through this project (← based on SSD: 67%, 2 CHA teachers out of 3).
<p>8) Increased interaction between Chinese and Australian students.</p>	<ul style="list-style-type: none"> • This project provided 11 HD videoconferencing sessions for Chinese students to interact with Australian peers in real-time in 2013-2014. • 7 Chinese teachers (67%) out of 10 said Chinese students enjoyed synchronous videoconferencing with Australian peers (← based on SSD: 67%, 2 CHA teachers out of 3). • 20 Chinese students out of 1 Chinese school (33%; out of 3 schools) were provided with an Edmodo (www.edmodo.com) room for their social chat with their Australian peers outside videoconferencing sessions in a safe, secure online environment. Interested students volunteered for putting messages to their Australian peers.

9) Chinese students <i>engaged with Australian</i> peers.	<ul style="list-style-type: none"> • 47 Chinese students (33%) out of 142 said they actively participated in videoconferencing with Australian peers (based SSD: 33%, 6 CHA Asian students out of 18). • 7 Chinese students (5%) out of 142 said they got an <i>Australian friend</i> through e-pals of this project. (← based on SSD: 5%, 1 CHA student out of 19.) • 2 Chinese students (11%) out of 142 said they want to <i>visit Australia</i> in the future, if they can afford it. (← based on SSD: 11%, 2 CHA students out of 19.) • Count of students by subject: <ul style="list-style-type: none"> ➢ English + Australian culture, 142 (100% students)
10) Number of Chinese students experiencing <i>synchronous HD videoconferencing</i> with Australian peers	<ul style="list-style-type: none"> • 142 Chinese students <i>experienced synchronous HD</i> videoconferencing with Australian peers. • Numbers of students: <ul style="list-style-type: none"> ➢ By school: C_ChineseF, 15; C_Munsang, 20; C_YCHWWS, 107. ➢ By Year level: Y7-Y8, 142. ➢ By subject: English + Australian culture, 142.
11) Chinese students participated in <i>STEM</i> virtual excursions through HD videoconferencing.	<ul style="list-style-type: none"> • No Chinese students participated in STEM virtual excursions.
12) Chinese students in <i>rural/regional</i> areas had opportunities for <i>global</i> experiences.	<ul style="list-style-type: none"> • None of the 142 Chinese students are from rural/regional areas (100% - Metropolitan).
<i>*13) Digital skills of Chinese students and teachers have improved.</i>	<ul style="list-style-type: none"> • 37 Chinese students (26%) out of 142 said they developed ICT skills, which includes making Power Point slides and becoming familiar with HD videoconferencing technology (← based on SSD: 26%, 5 CHA students out of 19). • Chinese teachers did not think this project improved their students' ICT skills because the students' interactions with Australian students were mainly Q&A, and they did not do any presentations using PPT slides. • All of the 10 Chinese teachers (100%) received training for basic technical skills for using videoconferencing in Teacher Meetings organized by the project team. • <i>Learn by experience</i>: The most important exercise for developing teachers' videoconferencing technology skills was using videoconferencing for each of their videoconferencing sessions, which provided instant and real feedback for how well they are dealing with the technology. So, they learned and improved their technical skills <i>through experiences</i>.
Chinese Teacher Outcomes	
14) Chinese teachers undertook <i>professional development</i> through HD videoconferencing, and have developed <i>basic technical skills</i>	<ul style="list-style-type: none"> • All of the 10 Chinese teachers (100%) undertook Professional Development through HD videoconferencing with the project team individually or in small groups during the project period (2013-2014). • 3 Chinese teachers from the Chinese Foundation Secondary School (2 teachers) and YWH Wong Wha San Secondary

using videoconferencing.	School (1 teacher) had in-depth face-to-face discussion as part of their professional development in April, 2013, when the project team visited the schools in person.
15) Chinese teachers have increased professional satisfaction and have adopted <i>new pedagogy practice</i> to incorporate HD videoconferencing technology into teaching.	<ul style="list-style-type: none"> • 3 Chinese teachers (33%) out of 10 said this project is <i>effective</i> for teaching English conversations and Australian culture (← based on SSD: 33%, 1 CHA teacher out of 3). • 3 Chinese teachers (33%) out of 10 said they will participate in this project <i>next year</i> (← based on SSD: 33%, 1 CHA teacher out of 3). • 7 Chinese teachers (67%) out of 10 said this project facilitates <i>student-centred learning</i>, as students lead presentations and ask questions to each other (← based on SSD: 67%, 2 CHA teachers out of 3). • This project develops the <i>21st century skills</i> for learning, such as communication skills and digital skills. <ul style="list-style-type: none"> ➢ Communication skills: 7 Chinese teachers (67%) agreed. ➢ Digital skills: 37 Chinese students (26%) agreed.
Technology Outcomes in China	
*16) HD videoconferencing is <i>fit for purpose</i> and recognized as effective for teaching English and Australian culture by Chinese teachers.	<ul style="list-style-type: none"> • 3 Chinese teachers (33%) out of 10 said this project is <i>effective</i> for teaching English conversations and Australian culture (← based on SSD: 33%, 1 CHA teacher out of 3). • 3 Chinese teachers (33%) out of 10 said they will participate in this project <i>next year</i> (← based on SSD: 33%, 1 CHA teacher out of 3). • 3 Chinese teachers (33%) out of 10 said this project <i>benefits</i> Chinese students in terms of developing global thinking, cultural understanding of Australia, confidence in speaking in front of others, communication skills; providing access to authentic Australian culture and rare opportunities of synchronous interaction with Australian peers; increasing interest in studying English and Australian culture, and developing Chinese students' ICT skills (← based on SSD: 33%, 1 CHA teacher out of 3). • One major technical difficulty in using HD videoconferencing was <i>firewalls</i> set to Chinese schools by their Departments of Education and/or school systems. For the technical support, Cisco Hong Kong helped the participating Hong Kong schools conducting various connection tests with the VIC DET videoconferencing support unit.
*17) <i>New platforms</i> have been identified to support HD videoconferencing between Chinese and Australian schools.	<ul style="list-style-type: none"> • The same evidence for the <i>Educational Outcome Indicator 12, 'New platforms'</i> in the <i>Australian Outcomes</i> is also applied here. → See the <i>Indicator 12: New platforms</i> have been identified to support HD videoconferencing between Australian and Asian schools.
Outcome category: Productivity	
Measure: Benefits accruing to schools related to increasing schools' workplace skills and teacher productivity or reducing skills shortages.	
Outcome Indicators	Evidence through

1) HD videoconferencing was <i>suitable</i> for effective and efficient teaching of English and Australian culture for Chinese schools.	<ul style="list-style-type: none"> The same evidence for the <i>Educational Outcome Indicator 16, 'fit-for-purpose,'</i> in the <i>Chinese Outcomes</i> is also applied here. → See the <i>Indicator 16</i>: HD videoconferencing is <i>fit for purpose</i> and recognized as effective for teaching English and Australian culture by Chinese teachers.
2) HD videoconferencing has enhanced Chinese students' <i>collaboration</i> with Australian students.	<ul style="list-style-type: none"> The same evidence for the <i>Educational Outcome Indicator 5, 'collaboration,'</i> in the <i>Chinese Outcomes</i> is also applied here. → See the <i>Indicator 5</i>: Chinese students <i>collaborate</i> with Australian students teaching and learning from each other through HD videoconferencing.
3) HD videoconferencing has improved Chinese students' <i>ICT literacy</i> .	<ul style="list-style-type: none"> The same evidence for the <i>Educational Outcome Indicator 13, 'Digital skills,'</i> in the <i>Chinese Outcomes</i> is also applied here. → See the <i>Indicator 13: Digital skills</i> of Chinese students and teachers have improved.
<p>Outcome category: Financial</p> <p>Measure: Benefits accruing to individuals, institutions or companies that relate to reduced costs or the ability to generate increased revenue.</p>	
Outcome Indicators	Evidence through
1) <i>Reduced travel time and costs</i> for <i>Chinese students</i> to meet Australian students.	<ul style="list-style-type: none"> The reduced travel time for Chinese students to meet Australian peers 11 times was 13 years (11 sessions x 142 students x 3 days p/trip = 4,686 days = 13 years). The reduced travel cost for Chinese students to meet Australian peers 11 times was \$2 million (11 sessions x 142 students x \$1,400 p/trip = \$2,186,800 = \$2 million).
2) <i>Reduced travel time and costs</i> for <i>Chinese teachers</i> to bring Australian students and teachers to the Asian classrooms.	<ul style="list-style-type: none"> The reduced travel time for Chinese teachers to bring Australian students and teachers to the Chinese classrooms 11 times was 0.90 years (11 sessions x 10 teachers x 3 days p/trip = 330 days = 0.90 years). The reduced travel cost for Chinese teachers to bring Australian students and teachers to the Chinese classrooms 11 times was \$154,000 (11 sessions x 10 teachers x \$1,400 p/trip = \$154,000).
*3) <i>Ongoing demands from Chinese schools</i>	<ul style="list-style-type: none"> See the <i>China part</i> in the 'Ongoing demands from Asian schools', which is in the <i>Financial Outcomes Indicator 3, 'Ongoing demands from Asian schools' in the Asian Outcomes</i>.
*4) <i>Superior to traditional methods of teaching</i>	<ul style="list-style-type: none"> See 'Superiority based on the evidence of educational Outcomes' in the <i>Financial Outcomes Indicator 4, 'Superior to traditional methods of teaching' in the Asian Outcomes</i>.

7.3.5 Indonesian Outcomes

INDONESIAN OUTCOMES	
Outcome category: Educational	
Measure: Benefits accruing to students, teachers, and schools related to increasing participation and engagement in education, increasing the range of educational opportunities, and improving educational outcomes.	
Outcome Indicators	Evidence through
Indonesian Student Outcomes	
1) Indonesian students developed <i>global thinking</i> .	<ul style="list-style-type: none"> • 10 Indonesian teachers (80%) out of 12 said Indonesian students developed global thinking through this project (← based on SSD: 80%, 4 IDN teachers out of 5).
2) Indonesian students developed <i>English skills</i> through this project.	<ul style="list-style-type: none"> • Indonesian students were asked to write 10 sentences in English to the best they can, which were assessed by two expert judges by comparing student responses within the class group. Their responses showed <i>Mean</i> = 4.97. This indicates that Indonesian students answered 50% correctly for writing sentences in English. • 139 Indonesian students (58%) out of 240 said they are confident in speaking English with Western native English speakers (← based on SSD: 58%, 26 IDN students out of 45). • 163 Indonesian students (68%) out of 240 said their English skills improved through videoconferencing with Australian students (← based on SSD: 68%, 30 IDN students out of 44).
3) Indonesian students have improved their <i>cultural understanding</i> of Australia.	<ul style="list-style-type: none"> • 65 Indonesian students (27%) said they are confident in knowing about Australian culture (← based on SSD: 27%, 12 IDN students out of 45). • Indonesian students' being able to explain about Australian culture to their family members and friends is seen as an indication of having developed cultural understanding of Australia. → 96 IDN students (40%) out of 240 said they explained about Australian culture to their family members and friends (← based on SSD: 40%, 18 IDN students out of 45). • All of the 12 IDN teachers said this project develops cultural understanding of Australia (← based on SSD: 100%, 5 IDN teachers out of 5).
4) Interacting with Australian students has <i>increased</i> Indonesian students' <i>interest</i> in studying English and <i>motivation</i> to learn more about Australian culture.	<ul style="list-style-type: none"> • 130 Indonesian students (84%) out of 240 said this project increased their <i>interest</i> in studying English harder and learning more about Australian culture (← based on SSD: 84%, 38 IDN students out of 45). • All of the 12 Indonesian teachers (100%) said this project increased Indonesian students' <i>interest in studying English</i> (← based on SSD: 100%, 5 IDN teachers out of 5). • All of the 12 Indonesian teachers (100%) said this project increased Indonesian students' <i>motivation</i> to learn more about Australian culture (based on SSD: 100%, All 5 IDN teachers out of 5).
5) Indonesian students <i>collaborated</i> with	Frequency of HD VC

<p>Australian students teaching and learning from each other through HD videoconferencing.</p>	<ul style="list-style-type: none"> • In total, 31 HD videoconferencing sessions were held between Indonesian and Australian schools during the project period (2013-2014). • Numbers of HD videoconferencing sessions: <ul style="list-style-type: none"> ➤ By school: L_Ekawijaya, 31. ➤ By location: Metropolitan, 31. ➤ By Year level: Y7-Y8, 31. <p>Types of Collaboration</p> <ul style="list-style-type: none"> • Indonesian students practiced speaking English with Australian peers and learned about Australian culture through HD videoconferencing. → 166 Indonesian students (69%) out of 240 said they enjoyed learning from Australian students through HD videoconferencing (← based on 69%, 31 IDN students out of 45). • Indonesian students <i>taught Australian students about Indonesian culture</i> through HD videoconferencing. 149 Indonesian students said they enjoyed teaching Australian students about Indonesian culture (← based on SSD: 62%, 28 IDN students out of 45).
<p>6) Indonesian students developed <i>confidence in speaking English</i> in front of others.</p>	<ul style="list-style-type: none"> • 139 Indonesian students (58%) out of 240 said they are confident in speaking English with Western native English speakers (← based on SSD: 58%, 26 IDN students out of 45).
<p>7) Indonesian students developed <i>communication</i> skills.</p>	<ul style="list-style-type: none"> • All 12 Indonesian teachers said Indonesian students developed communication skills through this project (← based on SSD: 100%, All 5 IDN teachers out of 5).
<p>8) Increased <i>interaction</i> between Indonesian and Australian students.</p>	<ul style="list-style-type: none"> • This project provided 31 HD videoconferencing sessions for Indonesian students to interact with Australian peers in real-time in 2013-2014. • All 12 Indonesian teachers (100%) out of 12 said Indonesian students <i>enjoyed synchronous</i> videoconferencing with Australian peers (← based on SSD: 100%, 5 IDN teachers out of 5). • 240 Indonesian students from 1 Indonesian school (100%; out of 1 school) were provided with an Edmodo (www.edmodo.com) room for their social chat with their Australian peers outside videoconferencing sessions in a safe, secure online environment. Interested students volunteered for putting messages to their Australian peers.
<p>9) Indonesian students <i>engaged with Australian</i> peers.</p>	<ul style="list-style-type: none"> • 156 Indonesian students (65%) out of 240 said they actively participated in videoconferencing with Australian peers (based SSD: 65%, 29 IDN students out of 45). • 48 Indonesian students (20%) out of 240 said they got an <i>Australian friend</i> through e-pals of this project. (← based on SSD: 20%, 9 IDN students out of 45.) • 218 Indonesian students (91%) out of 240 said they want to <i>visit Australia</i> in the future, if they can afford it. (← based on SSD: 91%, 40 IDN students out of 44.) • Count of students by subject: <ul style="list-style-type: none"> ➤ English + Australian culture, 240 (100% students)

10) Number of Indonesian students experiencing synchronous HD videoconferencing with Australian peers	<ul style="list-style-type: none"> • 240 Indonesian students experienced synchronous HD videoconferencing with Australian peers. • Numbers of students: <ul style="list-style-type: none"> ➢ By school: I_Ekawijaya, 240. ➢ By Year level: Y7-Y8, 240. ➢ By subject: English + Australian culture, 240.
11) Indonesian students participated in STEM virtual excursions through HD videoconferencing.	<ul style="list-style-type: none"> • 240 Indonesian students (100%) out of 240 participated in STEM virtual excursions on the topics of Australasian migrating birds through HD videoconferencing. • Numbers of students: I_Ekawijaya, 240. • Non-traditional teaching resources by type: <ul style="list-style-type: none"> ➢ Science Virtual Excursions
12) Indonesian students in rural/regional areas had opportunities for global experiences.	<ul style="list-style-type: none"> • None of the 240 Indonesian students are from rural/regional areas (100% - Metropolitan).
*13) Digital skills of Indonesian students and teachers have improved.	<ul style="list-style-type: none"> • 122 Indonesian students (51%) out of 240 said they developed ICT skills, which includes making Power Point slides and becoming familiar with HD videoconferencing technology (← based on SSD: 51%, 23 IDN students out of 45). • 7 Indonesian teachers (60%) out of 12 said this project improved Indonesian students' ICT skills (← based on SSD: 60%, 3 IDN teachers out of 5). • All of the 12 Indonesian teachers (100%) received training for basic technical skills for using videoconferencing in Teacher Meetings organized by the project team. • Learn by experience: The most important exercise for developing teachers' videoconferencing technology skills was using videoconferencing for each of their videoconferencing sessions, which provided instant and real feedback for how well they are dealing with the technology. So, they learned and improved their technical skills through experiences.
Indonesian Teacher Outcomes	
14) Indonesian teachers undertook professional development through HD videoconferencing, and have developed basic technical skills using videoconferencing.	<ul style="list-style-type: none"> • All of the 12 Indonesian teachers (100%) undertook Professional Development through HD videoconferencing with the project team individually or in small groups during the project period (2013-2014).
15) Indonesian teachers have increased professional satisfaction and have adopted new pedagogy practice to incorporate HD videoconferencing technology into teaching.	<ul style="list-style-type: none"> • 7 Indonesian teachers (60%) out of 12 said this project is effective for teaching English conversations and Australian culture (← based on SSD: 60%, 3 IDN teachers out of 5). • 7 Indonesian teachers (60%) out of 12 said they will participate in this project next year (← based on SSD: 60%, 3 IDN teachers out of 5). • All of the 12 Indonesian teachers (100%) said this project facilitates student-centred learning, as students lead presentations and ask questions to each other (← based on SSD: 100%, 5 IDN teachers out of 5).

	<ul style="list-style-type: none"> • This project develops the <i>21st century skills</i> for learning, such as communication skills and digital skills. <ul style="list-style-type: none"> ➤ Communication skills: All 12 Indonesian teachers (100%) agreed. ➤ Digital skills: 122 Indonesian students (51%) agreed
Technology Outcomes in Indonesia	
*16) HD videoconferencing is <i>fit for purpose</i> and recognized as effective for teaching English and Australian culture by Indonesian teachers.	<ul style="list-style-type: none"> • Indonesian teachers (60%) out of 12 said this project is <i>effective</i> for teaching English conversations and Australian culture (← based on SSD: 60%, 3 IDN teachers out of 5). • 7 Indonesian teachers (60%) out of 12 said they will participate in this project <i>next year</i> (← based on SSD: 60%, 3 IDN teachers out of 5). • All of the 12 Indonesian teachers (100%) said this project <i>benefits</i> Indonesian students in terms of developing global thinking, cultural understanding of Australia, confidence in speaking in front of others, communication skills; providing access to authentic Australian culture and rare opportunities of synchronous interaction with Australian peers; increasing interest in studying English and Australian culture, and developing Indonesian students' ICT skills (← based on SSD: 100%, 5 IDN teachers out of 5). • One major technical difficulty in using HD videoconferencing was <i>firewalls</i> set to Korean schools by their Departments of Education. For the technical support, TechData in Korea helped the participating Korean schools conducting various connection tests with the VIC DET videoconferencing support unit.
*17) <i>New platforms</i> have been identified to support HD videoconferencing between Indonesian and Australian schools.	<ul style="list-style-type: none"> • The same evidence for the <i>Educational Outcome Indicator 12</i>, '<i>New platforms</i>' in the <i>Australian Outcomes</i> is also applied here. → See the <i>Indicator 12: New platforms</i> have been identified to support HD videoconferencing between Australian and Asian schools.
Outcome category: Productivity	
Measure: Benefits accruing to schools related to increasing schools' workplace skills and teacher productivity or reducing skills shortages.	
Outcome Indicators	Evidence through
1) HD videoconferencing was <i>suitable</i> for effective and efficient teaching of English and Australian culture for Indonesian schools.	<ul style="list-style-type: none"> • The same evidence for the <i>Educational Outcome Indicator 16</i>, '<i>fit-for-purpose</i>,' in the <i>Indonesian Outcomes</i> is also applied here. → See the <i>Indicator 16: HD videoconferencing is fit for purpose</i> and recognized as effective for teaching English and Australian culture by Indonesian teachers.
2) HD videoconferencing has enhanced Indonesian students' <i>collaboration</i> with Australian students.	<ul style="list-style-type: none"> • The same evidence for the <i>Educational Outcome Indicator 5</i>, '<i>collaboration</i>,' in the <i>Indonesian Outcomes</i> is also applied here. → See the <i>Indicator 5: Indonesian students collaborate</i> with Australian students teaching and learning from each other through HD videoconferencing.

3) HD videoconferencing has improved Indonesian students' <i>ICT literacy</i> .	<ul style="list-style-type: none"> The same evidence for the <i>Educational Outcome Indicator 13, 'Digital skills,'</i> in the <i>Indonesian Outcomes</i> is also applied here. → See the <i>Indicator 13: Digital skills</i> of Indonesian students and teachers have improved.
<p>Outcome category: Financial</p> <p>Measure: Benefits accruing to individuals, institutions or companies that relate to reduced costs or the ability to generate increased revenue.</p>	
Outcome Indicators	Evidence through
1) <i>Reduced travel time and costs</i> for <i>Indonesian students</i> to meet Australian students.	<ul style="list-style-type: none"> The reduced travel time for Indonesian students to meet Australian peers 31 times was 61 years (31 sessions x 240 students x 3 days p/trip = 22,320 days = 61 years). The reduced travel cost for Indonesian students to meet Australian peers 31 times was \$7 million (31 sessions x 240 students x \$1,000 p/trip = \$7,440,000 = \$7 million).
2) <i>Reduced travel time and costs</i> for <i>Indonesian teachers</i> to bring Australian students and teachers to the Asian classrooms.	<ul style="list-style-type: none"> The reduced travel time for Indonesian teachers to bring Australian students and teachers to the Indonesian classrooms 31 times was 3.06 years (31 sessions x 12 teachers x 3 days p/trip = 1,116 days = 3.06 years). The reduced travel cost for Indonesian teachers to bring Australian students and teachers to the Indonesian classrooms 31 times was \$372,000 (31 sessions x 12 teachers x \$1,000 p/trip = \$372,000).
*3) <i>Ongoing demands from Indonesian schools</i>	<ul style="list-style-type: none"> See the <i>Indonesia part</i> in the 'Ongoing demands from Asian schools' in the <i>Financial Outcomes Indicator 3, 'Ongoing demands from Asian schools' in the Asian Outcomes</i>.
*4) <i>Superior to traditional methods of teaching</i>	<ul style="list-style-type: none"> See 'Superiority based on the evidence of educational Outcomes' in the <i>Financial Outcomes Indicator 4, 'Superior to traditional methods of teaching' in the Asian Outcomes</i>.

7.4 The 2014 Educational Outcomes

7.4.1 Key Summary

The University of New England's Asia ConneXions project connected 37 Australian schools with schools in Korea, Japan, China, Indonesia, and India for developing cultural understandings and language skills using high definition (HD) videoconferencing. To investigate educational outcomes of the videoconferencing connections, the Student Post-Survey 2014 was administered to students who participated in videoconferencing for at least six months or at least six videoconferencing sessions. The Teacher Feedback 2014 was administered to all teachers. Data were collected from 696 students (225 Australian, 461 Asian) and 59 teachers (22 Australian, 37 Asian). Key findings are shown below.

Outcomes for Australian students and teachers

- 1) 47% of the Australian students developed confidence in knowing about their connected Asian culture.
- 2) 51% of the Australian students demonstrated their confidence in knowing about their connected culture by behaviours, such as actively participating in videoconferencing sessions; explaining about their connected Asian culture to their family members and/or friends; wanting to visit their connected Asian country in the future if they can afford it; and developing friendship with an Asian student.
- 3) 65% of the Australian students expressed their positive affective responses to videoconferencing with Asian peers by stating that they enjoyed learning about Asian culture from Asian friends; they enjoyed teaching Australian culture to their Asian peers; and they want to learn more about their connected Asian culture.
- 4) 88% of the Australian teachers said videoconferencing benefits Australian students by providing global experiences to rural/regional students and opportunities to learn authentic Asian culture; developing cultural understanding of Asia, confidence in speaking in

front of others, and communication skills; increasing interest in learning more about the Asian culture and the Asian languages; providing synchronous interaction with Asian peers; and developing ICT skills, especially PPT skills.

- 5) 72% of the Australian teachers said videoconferencing is effective for teaching the Asian culture and the Asian languages, compared to teaching them without videoconferencing.
- 6) 82% of the Australian teachers confirmed that they will use videoconferencing next year for teaching, which is a behavioural indicator reflecting teachers' confirmation about the effectiveness of videoconferencing for teaching.
- 7) 77% of the Australian teachers said videoconferencing enables student-centred learning, which has a pedagogical implication.

Outcomes for Asian students and teachers

Similar results were found with Asian students and teachers.

- 8) 40% of the Asian students developed confidence in knowing about Australian culture.
- 9) 49% of the Asian students demonstrated their confidence in knowing about Australian culture by behaviours.
- 10) 73% of the Asian students expressed their positive affective responses to videoconferencing with Australian peers.
- 11) 71% of the Asian teachers said videoconferencing benefits Asian students.
- 12) 82% of the Asian teachers said videoconferencing is effective for developing students' English skills and teaching Australian culture.
- 13) 72% of the Asian teachers said they will use videoconferencing next year for teaching, which is a behavioural indicator confirming the effectiveness of videoconferencing for teaching.
- 14) 59% of the Asian teachers said videoconferencing enables student-centred learning.

7.4.2 Objectives and Outcomes

Objective 1: Does the Asia ConneXions project establish high definition videoconferencing connections for 30 pairs of Australian and Asian schools using the broadband connections?

Outcomes: Achieved.

The Asia ConneXions project connected **37 pairs** of Australian and Asian schools connected using high definition (HD) videoconferencing. The school pairs are shown below (by connected Asian country). The Australian schools are from NSW (9 schools), VIC (24 schools), QLD (2 schools), WA (1 school), and TAS (1 school). Twenty Australian schools were connected with South Korea; seven schools with Japan; three schools with China; three schools with Indonesia, and one school with India. The project connected four schools more, thus 34 schools in total, than what it proposed (30 schools).

South Korea

- 1) Armidale City Public School, NSW Chorim Primary School, Gyeonggi province
- 2) Ben Venue Public School, NSW 2013: Cheongsol Primary School, Gyeonggi province
2014: Jukseong Primary School, Busan city
- 3) Duval High School, NSW Sungduk Middle School, Daejeon city
- 4) Knox Grammar School, NSW Jeju Jeil Middle School, Jeju Island
- 5) St. Joseph Primary School Maclean, NSWBusan Daechung Primary School, Busan city
- 6) Athol Road Primary School, VIC Chilam Primary School, Busan city
- 7) Clayton North Primary School, VIC Busan Daechung Primary School, Busan city
- 8) Dederang Primary School, VICMajang Primary School, Gyeonggi province
- 9) Grey Street Primary School, VIC Damyang Goseo Primary School, Jeonnam province
- 10) Kismet Park Primary School, VIC Saegeum Primary School, Gyeonggi province
- 11) Mountain Gate Primary School, VIC Hakjang Primary School, Busan city
- 12) Ringwood North Primary School, VIC Busan Wolpyeong Primary School, Busan city
- 13) Tyabb Railway Station Primary School, VIC...Guhak Primary School, Busan city
- 14) Upper Plenty Primary School, VIC Busan Daebyun Primary School, Busan city
- 15) Bendigo Senior Secondary College, VIC..... Kimhae Kyungwon High School, Gyeongnam province
- 16) Blackburn High School, VIC Yongwha Girls High School, Seoul
- 17) Carranballac P-9 College, VICBusan Jungang Middle School, Busan city
- 18) Gilmore Girls College, VIC Yeonje High School, Busan city
- 19) Scotch College, WA Yeonje High School, Busan city

20) Calvin Christian School, TAS Imae Middle School, Gyeonggi province

Japan

21) Birchip P-12 School, VIC Ogawa Elementary & Junior High School, Saga prefecture

22) Oakleigh South Primary School, VIC Higurash Elementary School, Tobyo

23) Drouin Secondary College, VIC Shinwa Junior/Senior High School, Kumamoto

24) Melton Secondary School, VIC Chitose High School (Masae), Hokkaido

25) Moreton Bay College, QLD Chitose High School (Mr Arai), Hokkaido

26) Nossal High School, VIC Chosei High School (Jason), Chiba prefecture

27) O'Connor Catholic College, NSW Chosei High School, Chiba prefecture

28) Wodonga Senior Secondary College, VIC.... Chosei High School (JRaymond), Chiba prefecture

China

29) Abbotsleigh, NSW YCH Wong Wha San Secondary School, Hong Kong

30) Mathew Flinders Girls Secondary College, VIC.... YCH Wong Wha San Secondary School, Hong Kong

31) Pymble Ladies College, NSW The Chinese Foundation Secondary School, Hong Kong

32) St Andrew's Anglican College, QLD YCH Wong Wha San Secondary School, Hong Kong

33) Wesley College, VIC Munsang College, Hong Kong

Indonesia

34) Tyabb Primary School, VIC Sekolah Eka Wijaya, West Java

35) Belmont High School, VIC Sekolah Eka Wijaya, West Java

36) Maryborough Education Centre, VIC Sekolah Eka Wijaya, West Java

India

37) St. Mary's Catholic Primary School, NSW ... St. Mary's School, Dwarka, New Delhi

Objective 2: What positive changes does the Asia ConneXions project make for Australian students' learning about Asia?

Outcomes (O)

O2.1 47% of the Australian students said they are *confident* in knowing about their Asian culture. This indicates that they developed a moderate level of confidence in knowing about their connected Asian culture (Confidence level, $M = 3.39$).

O2.2 51% of the Australian students demonstrated their confidence in knowing about their connected Asian culture by their *behaviours*, such as 1) actively participating in videoconferencing with Asian peers (74% agreed); 2) explaining about their connected Asian culture to their family members or friends (44% agreed); 3) wanting to visit their partner Asian country in the future if they can afford it (39% agreed); and 4) developing friendship with an Asian student (47% agreed).

O2.3 65% of the Australian students expressed positive *affective* responses to their videoconferencing experiences with Asian peers by confirming that 1) they enjoyed learning about their connected Asian culture from Asian peers (72% agreed); 2) they enjoyed teaching Australian culture to their Asian peers (73% agreed); and 3) they want to learn more about their connected Asian culture (52% agreed).

O2.4 88% of the Australian teachers said that videoconferencing *benefits* their students by 1) providing global experiences, especially to rural/regional students (100% agreed); 2) providing opportunities to learn authentic Asian culture from Asian peers (81% agreed); 3) developing cultural understanding of Asia (86% agreed); 4) developing confidence in speaking in front of others (90% agreed); 5) developing communication skills (100% agreed); 6) increasing interest in learning more about Asian culture (91%); 7) increasing motivation for learning an Asian language (76%); 8) synchronously interacting with Asian peers (95%); and 9) developing ICT skills, especially PPT skills (76% agreed).

Evidence

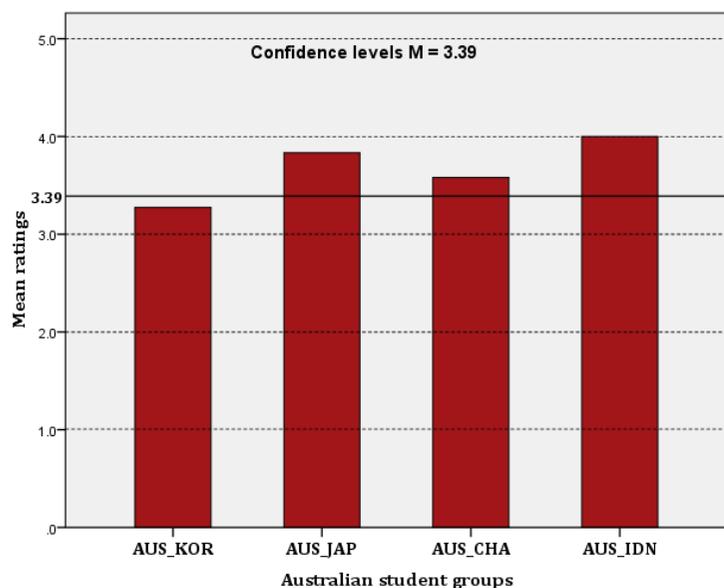
Data collection for the project: In October and November 2014, the 'Student Post-Survey 2014' was administered to those schools that did videoconferencing for at least a half year or at least six times in 2014 in order to see the impact of videoconferencing on their learning. The 'Teacher Feedback 2014' was administered to all of the teachers in Australia and Asia who participated in this project. Table 7.4.1 shows the numbers of students and teachers from whom the 2014 data were collected for this project.

Table 7.4.1 Numbers of students and teachers from whom the 2014 data were collected

Students, Total N = 696			
AUS students n = 225		Asian students, n = 461	
KOR-connected	172	KOR	363
JAP-connected	30	JAP	44
CHA-connected	19	CHA	9
IDN-connected	4	IDN	45
Teachers, Total N = 59			
AUS teachers, n = 22		Asian teachers, n = 37	
KOR-connected	18	KOR	20
JAP-connected	5	JAP	9
CHA-connected	2	CHA	3
IDN-connected	2	IDN	6

Evidence for O2.1: Australian students were asked to indicate how much they agree with the statement, for example, ‘I know about Korean culture,’ using a 5-point rating scale ranging from 5 (strongly agree) to 1 (strongly disagree). The results showed (see Table 7.4.2 and Figure 7.4.1):

- 1) **47%** of the Australian students said they are confident in knowing their connected Asian culture.
- 2) The results indicated that Australian students developed a *moderate level of confidence* in knowing the Asian culture that they engaged with. Mean of the confidence levels = 3.39.
- 3) Figure 7.4.1 shows the confidence levels of the Australian students connected with Korea, Japan, China, and Indonesia.



Note: AUS_KOR = Australian students connected with Korean peers. AUS_JAP = Australian students connected with Japanese peers.
 AUS_CHA = Australian students connected with Chinese peers.
 AUS_IDN = Australian students connected with Indonesian students.

Figure 7.4.1 Australian students’ confidence levels in knowing about their connected Asian culture

Table 7.4.2 Australian students’ confidence levels in knowing about their connected Asian culture

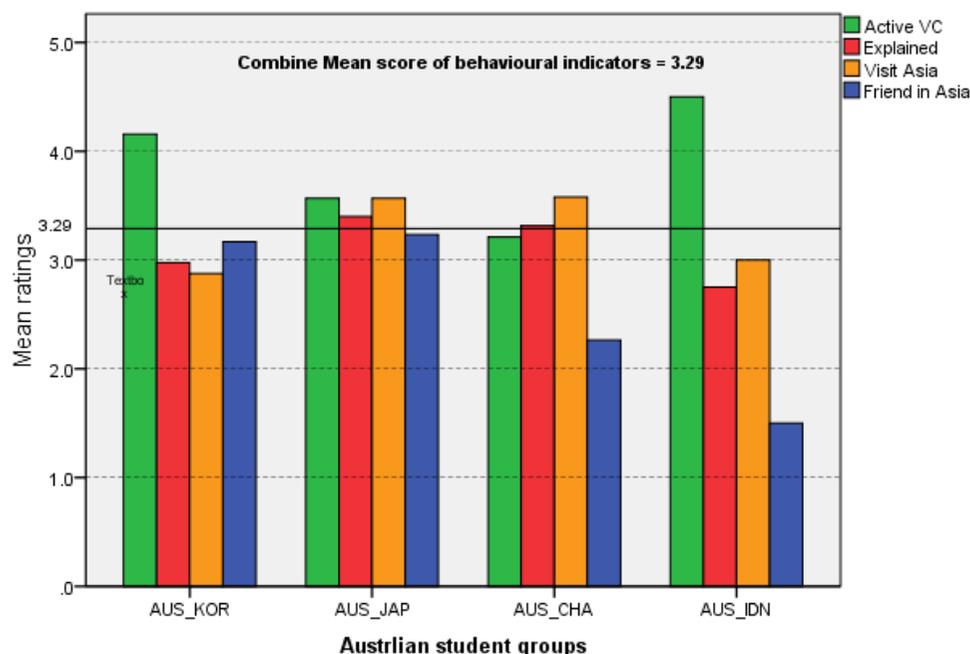
Rating scale	Confidence levels
Strongly Agree	24 (11%)
Agree	82 (36%)
So So	82 (46%)
Disagree	31 (14%)
Strongly Disagree	6 (3%)
Mean	M = 3.39

Evidence for O2.2: Australian students were asked if they actively participated in videoconferencing with their connected Asian peers; if they explained what they know about their connected Asian culture to their family members and/or friends; whether they would visit their connected Asian country in the future if they can afford it; and if they have an Asian friend in their connected Asian country through this project. The results showed (see Table 7.4.2 and Figure 7.4.2):

- 1) **74%** of the students said they actively participated in videoconferencing with Asian peers.
- 2) **44%** of the students said they explained about their connected Asian culture to their family members and/or friends.
- 3) **39%** of the students said they will visit their connected Asian country in the future if they can afford it.
- 4) **47%** of the students said they have an Asian friend in Asia through this project.
- 5) In summary, **51%** of the students demonstrated their interest in and understanding of their connected Asian culture through behavioural indicators. Combined Mean = 3.29

Table 7.4.3 Behavioural indicators of the impact of videoconferencing with Asian peers: Frequencies and percentages

Rating scale	Active VC	Explained	Visit Asia	Friend Asia	Combined Mean
Strongly Agree	94 (42%)	32 (14%)	44 (20%)	64 (28%)	59 (26%)
Agree	73 (32%)	67 (30%)	42 (19%)	43 (19%)	56 (25%)
So So	30 (13%)	47 (21%)	60 (27%)	27 (12%)	41 (18%)
Disagree	21 (9%)	40 (18%)	35 (15%)	27 (12%)	31 (14%)
Strongly Disagree	7 (3%)	39 (17%)	44 (20%)	64 (28%)	39 (17%)
Mean	M = 4.0	M = 3.06	M = 3.03	M = 3.07	M = 3.29

**Figure 7.4.2** Behavioural indicators of the impact of videoconferencing with Asian peers on Australian students

Evidence for O2.3: Australian students were asked if they enjoyed learning about their connected Asian culture; if they enjoyed teaching Australian culture to their Asian peers; and if they want to learn more about their connected Asian culture. The results showed (see Table 7.4.3):

- 1) **72%** of the students said they enjoyed learning from their Asian peers.
- 2) **73%** of the students said they enjoyed teaching about Australian culture to their Asian peers.
- 3) **52%** of the students said they want to learn more about their connected Asian culture or Asian language.
- 4) In summary, **65%** of the students expressed their positive experience of videoconferencing with Asian peers.
Combined Mean = 3.79

Table 7.4.4 Affective responses to videoconferencing with Asian peers: Frequencies and percentages

Rating scale	Enjoyed Learning	Enjoyed Teaching	Learn More	Combined Mean
Strongly Agree	81 (36%)	95 (42%)	42 (19%)	73 (32%)
Agree	82 (36%)	69 (31%)	74 (33%)	75 (33%)
So So	36 (16%)	38 (17%)	60 (27%)	45 (20%)
Disagree	19 (8%)	13 (6%)	31 (14%)	21 (9%)
Strongly Disagree	7 (3%)	9 (4%)	18 (8%)	11 (5%)
Mean	M = 3.94	M = 4.02	M = 3.40	M = 3.79

Evidence for O2.4: Australian teachers were asked about their observations of students' learning outcomes. They responded to specific questions in the Teacher Feedback 2014 questionnaire, using 5-point rating scales ranging from Strongly Agree (5) to Strongly Disagree (1). The results showed: (see Table 7.4.4 and Figure 7.4.3):

- 1) **100%** of the teachers said videoconferencing with Asian peers develops *global thinking* for Australian students.
- 2) **81%** of the teachers said Australian students learned *authentic* Asian culture from Asian students.
- 3) **86%** of the teachers said videoconferencing with Asian students develops Australian students' *understanding* of Asian culture.
- 4) **90%** of the teachers said videoconferencing with Asian students develops Australian students' *confidence* in speaking.
- 5) **100%** of the teachers said videoconferencing with Asian students develops Australian students' *communication skills* by thinking of listeners' perspectives.
- 6) **91%** of the teachers said videoconferencing with Asian students *increases* Australian students' interest in learning more about Asian culture.
- 7) **76%** of the teachers said videoconferencing with Asian peers arouses interest in learning an Asian language.
- 8) **95%** of the teachers said Australian students enjoyed synchronous interaction with Asian peers.
- 9) **76%** of the teachers said Australian students developed ICT skills, especially Power Point skills.
- 10) **None of the teachers disagreed to** the student learning outcomes relating to global thinking, authentic Asian culture, confidence in speaking, communication skills, increased motivation, synchronous interaction, and ICT skills.

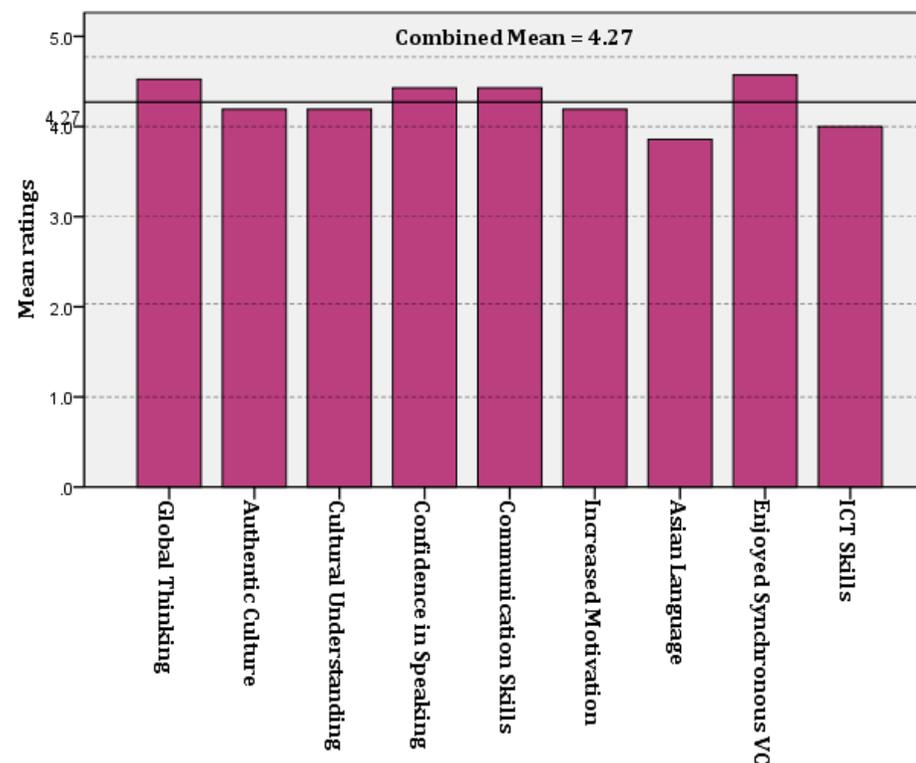


Figure 7.4.3 Teacher observations of student learning outcomes of videoconferencing with Asian students

Table 7.4.5 Australian teacher observations of how this project benefits Australian students

Teacher observations of Student Learning Outcomes	Strongly Agree	Agee	So So	Disagree	Strongly Disagree	Mean
1) Develop global thinking	11 (52%)	10 (48%)	-	-	-	4.52
2) Learn authentic Asian culture from Asian peers ...	8 (38%)	9 (43%)	4 (19%)	-	-	4.19
3) Develop cultural understanding	8 (38%)	10 (48%)	2 (10%)	1 (5%)	-	4.19
4) Develop confidence in speaking	11 (52%)	8 (38%)	2 (10%)	-	-	4.43
5) Develop communication skills	9 (43%)	12 (57%)	-	-	-	4.43
6) Increase motivation for Asian culture	6 (29%)	13 (62%)	2 (10%)	-	-	4.19
7) Develop interest in learning an Asian language	5 (24%)	11 (52%)	2 (10%)	3 (14%)	-	3.86
8) Enjoy synchronous interaction with Asian peers ...	13 (62%)	7 (33%)	1 (5%)	-	-	4.57
9) Develop ICT skills - PPT slides	5 (24%)	11 (52%)	4 (24%)	-	-	4.00
TOTAL Mean	8 (40%)	10 (48%)	2 (10%)	0.4 (2%)	-	4.29

Objective 3: What positive changes does the Asia ConneXions project make for Australian teachers' pedagogical skills and knowledge and teaching resources for teaching about Asia utilizing videoconferencing?

Outcomes 3.

The 'Teacher Feedback 2014' questionnaire was administered to the 22 Australian teachers, who used 5-point rating scales for their responses to the use of videoconferencing for teaching the Asian culture and/or the Asian language. The resulting outcomes are shown below.

O3.1 72% of the Australian teachers said the use of videoconferencing was *effective* for teaching the Asian culture or the Asian language, compared to teaching it without videoconferencing.

O3.2 82% of the Australian teachers said that they will use videoconferencing *next year* for teaching the Asian culture and/or the Asian language, which is a *behavioural* indicator confirming the effectiveness of the use of videoconferencing for teaching.

O3.3 88% of the Australian teachers said that videoconferencing with Asian peers *benefits* Australian students by providing global experiences and authentic Asian studies, developing cultural understanding of Asia, confidence in speaking, and communication skills, increasing motivation for the Asian culture and an Asian language, and enabling synchronous interaction with Asian peers.

O3.4 77% of the Australian teachers said videoconferencing enables *student-centred learning*, which has a *pedagogical implication*.

Evidence

Participants: The number of the Australian teachers who provided Teacher Feedback at the end of 2014 was 22.

Evidence for O3.1, O3.2, O3.3, and O3.4: Table 7.4.5 and Figure 7.4.4 show:

- 1) **72%** of the Australian teachers said that the use of videoconferencing is *effective* for teaching the Asian culture and the Asian language.
- 2) **82%** of the Australian teachers said that they will use videoconferencing *next year* for teaching the Asian culture and the Asian language.
- 3) **88%** of the Australian teachers said the *benefits* of their students' videoconferencing with Asian students, which developed Australian students' global thinking, cultural understanding through authentic learning, confidence in speaking, communication skills, motivation for Asian studies and languages, and enjoyment of synchronous interaction with Asian students.
- 4) **77%** of the Australian teachers said videoconferencing enables *student-centred* learning, as students lead Q&A and teach and learn from each other.
- 5) The combined scores showed that **80%** of the Australian teachers think videoconferencing is an *effective pedagogical tool* that benefits students.

Table 7.4.6 Australian teacher pedagogical outcomes of the use of videoconferencing for teaching: Numbers of teachers and percentages

Rating scale	Effective	Behavioral Next Year	Benefits	Student- Centred	Combined
Strongly Agree	8 (36%)	10 (46%)	8 (40%)	6 (29%)	8 (36%)
Agree	8 (36%)	8 (36%)	10 (48%)	10 (48%)	10 (44%)
So So	5 (23%)	4 (18%)	2 (10%)	5 (24%)	4 (19%)
Disagree	1 (5%)	-	0.4 (2%)	-	0 (1%)
Strongly Disagree	-	-	-	-	-
Mean	M = 4.02	M = 4.25	M = 4.26	M = 4.05	M = 4.13

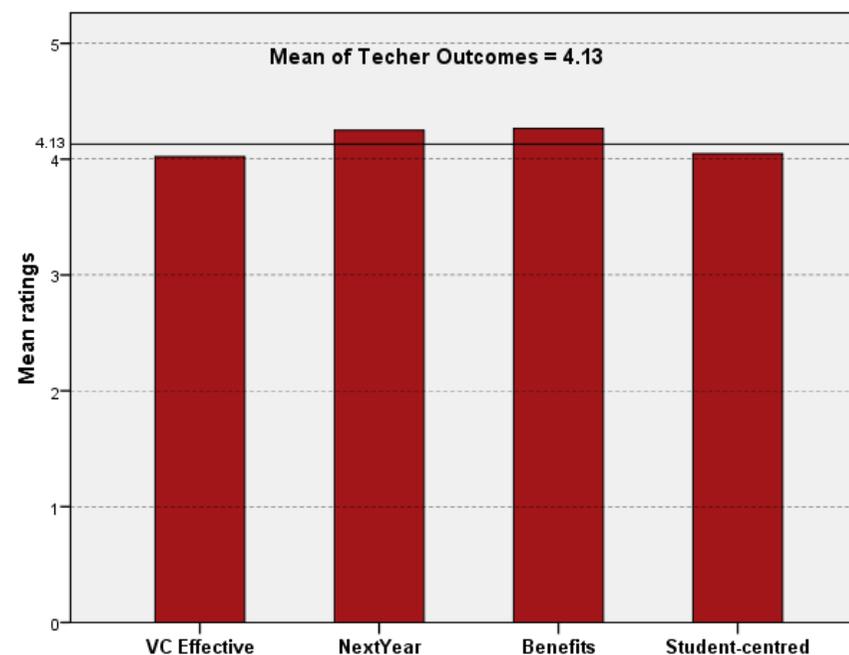


Figure 7.4.4 Australian teacher pedagogical outcomes of the use of videoconferencing for teaching the Asian culture and the Asian language

Objective 4. What positive changes does the Asia ConneXions project make for Asian students' learning about Australia?

Outcomes (O)

O4.1 40% of the Asian students from South Korea, Japan, China, and Indonesia said they are *confident* in knowing about Australian culture. The Asian students developed a moderate level of confidence in knowing about Australian culture (confidence level, M = 3.35).

O4.2 49% of the Asian students demonstrated their confidence in knowing Australian culture by their *behaviours*, such as 1) actively participating in videoconferencing with Australian peers (51% agreed); 2) explaining about Australian culture to their family members and friends (42% agreed); 3) wanting to visit Australia in the future if they can afford it (76% agreed); and 4) developing friendship with an Australian student (30% agreed).

O4.3 73% of the Asian students expressed their positive *affective* responses to their videoconferencing experiences with Australian peers by confirming that 1) they enjoyed learning about Australian culture from their Australian peers (78% agreed); 2) they enjoyed teaching about their own Asian culture to their Australian peers (70%); and 3) they want to learn more about Australian culture (72%).

O4.4 71% of the Asian teachers said videoconferencing with Australian students *benefits* Asian students by 1) providing global experiences to rural/regional students (70% agreed); 2) by providing opportunities to learn authentic Australian culture from Australian students (83% agreed); 3) developing cultural understanding of Australia (49% agreed); 4) developing confidence in speaking English, especially in front of an international audience (78% agreed); 5) developing communication skills (76% agreed); 6) Increasing motivation to learn more about Australian culture (69% agreed); 7) increasing motivation to study English harder (86%); 8) synchronously interacting with Australian peers (75% agreed); and 9) developing ICT skills, especially PPT skills (54% agreed).

Evidence

Data collection: Data were collected from students and teachers in the participating schools of the four Asian countries. The 'Student Post-Survey 2014' aimed at each of the different countries were translated into Korean, Japanese, Chinese, and Indonesian by native language speakers. Thus, students of the Asian countries answered the questionnaire in their own mother tongue. Asian teachers in the countries administered the Student Post-Survey 2014, and sent the responses either by pdf attachments or by postal mail. The Teacher Feedback 2014 questionnaire did not need translations because the teachers are fluent English speakers. Thus, the English version was distributed to the individual teachers in the Asian schools by email, who returned their responses in return emails. Data from the Post-Survey and Teacher Feedback were collected in November and December, 2014.

Data were collected from the following students and teachers in the four Asian countries:

- Asian students, **461** (363 Koreans, 44 Japanese, 9 Chinese, 45 Indonesian)
- Asian teachers, **37** (20 Korean, 9 Japanese, 3 Chinese, 6 Indonesian)

Evidence for O4.1: Asian students were asked to indicate how much they agree with the statement, 'I know about Australian culture', using a 5-point rating scale ranging from 5 (strongly agree) to 1 (strongly disagree). The results showed (see Table 7.4.7 and Figure 7.4.5):

- 1) **40%** of the Asian students agreed that they know about Australian culture.
- 2) Asian students developed a moderate level of *confidence* in knowing about Australian culture. The Total Mean score of their confidence levels = 3.35.
- 3) The Asian students' moderate confidence levels of $M = 3.35$ is *very similar* to that of Australian students, which was $M = 3.39$.

Table 7.4.7 Asian students' confidence levels in knowing about Australian culture

Rating scale	Confidence levels
Strongly Agree	35 (7%)
Agree	153 (33%)
So So	229 (49%)
Disagree	44 (9%)
Strongly Disagree	10 (2%)
Mean	M = 3.35

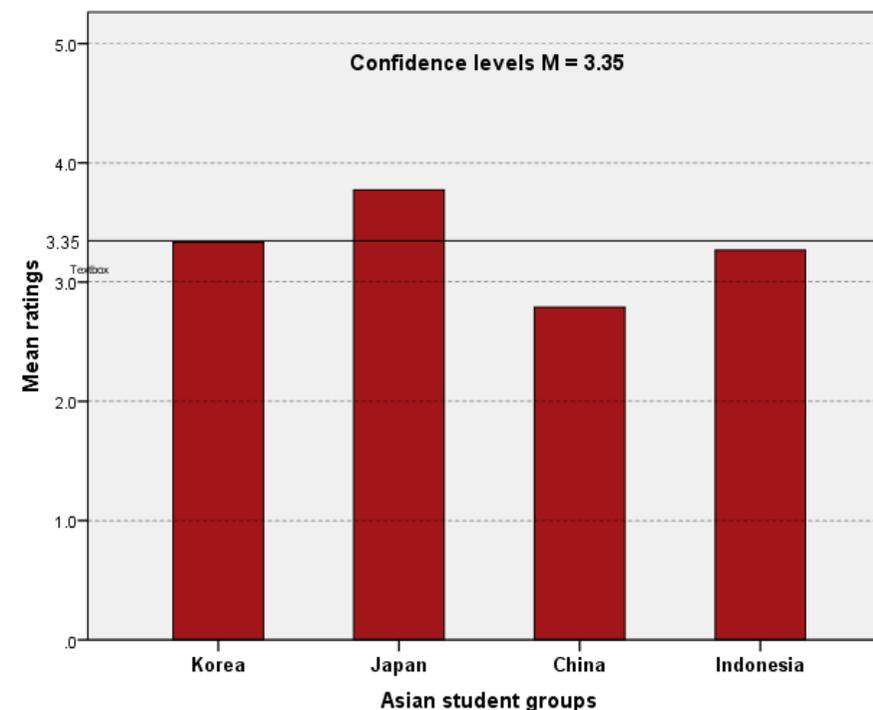


Figure 7.4.5 Asian students' confidence levels in knowing about Australian culture

Evidence for O4.2:

Asian students were asked if they actively participated in videoconferencing with their Australian peers; if they explained what they know about Australian culture to their family members and/or friends; whether they would visit Australia in the future if they can afford it; and if they have an Australian friend through this project. The results showed (see Table 7.4.7 and Figure 7.4.6):

- 1) **51%** of the Asian students said they actively participated in videoconferencing with Australian peers.
- 2) **42%** of the Asian students said they explained about Australian culture to their family members and/or friends.
- 3) **76%** of the Asian students said they will visit Australia in the future if they can afford it.
- 4) **30%** of the Asian students said they now have an Australian friend in Australia through this project.
- 5) In summary, **49%** of the Asian students demonstrated their interest in and understanding of Australian culture through the behavioural indicators. Combined Mean = 3.29
- 6) When comparing with the results from Australian students' behavioural indicators, Asian students showed higher levels of interest in visiting Australia in the future and lower levels for having an Australian friend. However, the Combined Mean scores were the same between Asian and Australian students, i.e., **M = 3.29** for both. Also, Agreement levels for the behavioural indicators were very similar; **51%** for Australian students, and **49%** for Asian students.

Table 7.4.8 Behavioural indicators of the impact of videoconferencing with Australian peers on Asian students: Frequencies and percentages

Rating scale	Active VC	Explained	Visit AUS	Friend AUS	Combined Mean
Strongly Agree	68 (15%)	75 (16%)	200 (43%)	69 (15%)	103 (22%)
Agree	167 (36%)	123 (26%)	156 (33%)	69 (15%)	129 (27%)
So So	177 (39%)	110 (23%)	76 (16%)	53 (11%)	104 (22%)
Disagree	41 (9%)	97 (21%)	24 (5%)	70 (15%)	58 (12%)
Strongly Disagree	7 (2%)	65 (14%)	13 (3%)	209 (44%)	74 (16%)
Mean	M = 3.55	M = 3.11	M = 4.09	M = 2.41	M = 3.29

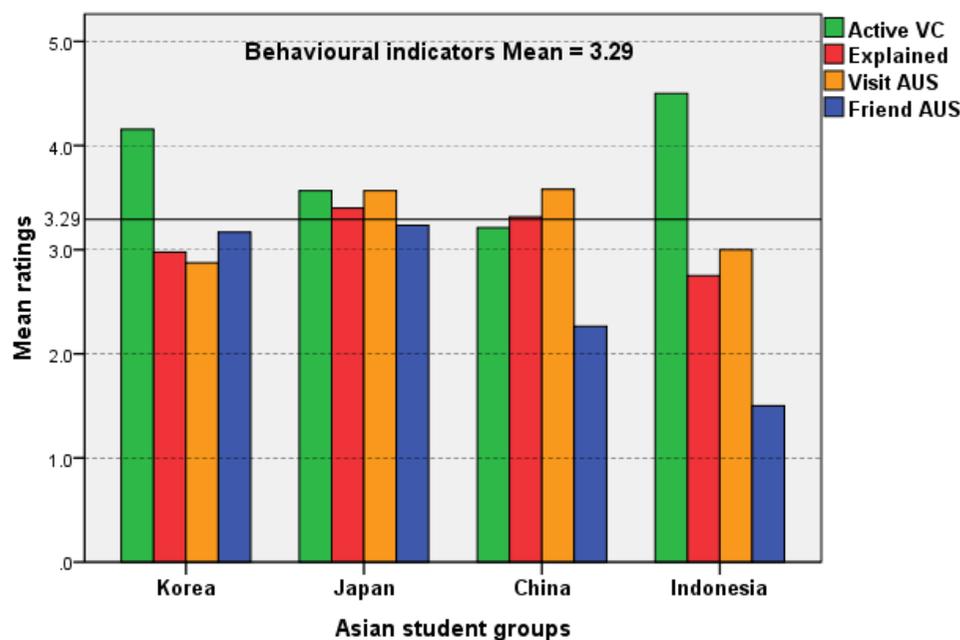


Figure 7.4.6 Behavioural indicators of the impact of videoconferencing with Australian students on Asian students

Evidence for O4.3: Asian students were asked if they enjoyed learning about Australian culture; if they enjoyed teaching their own Asian culture to their Australian peers; and if they want to learn more about Australian culture. The results showed (see Table 7.4.8 and Figure 7.4.7):

- 1) **78%** of the Asian students said they enjoyed learning about Australian culture from their Australian peers.
- 2) **70%** of the Asian students said they enjoyed teaching about their own Asian culture to their Australian peers.
- 3) **72%** of the Asian students said they want to learn more about Australian culture.
- 4) In summary, **73%** of the Asian students expressed positive experiences of videoconferencing with Australian peers. Combined Mean = 4.02
- 5) The Asian students' affective responses were *similar* to those of Australian students, which showed 72%, 73%, and 52% for the three affective aspects, respectively, and the Combined Mean of 3.79 (slightly lower than the Asian students').

Table 7.4.9 Affective responses to videoconferencing with Australian peers: Frequencies and percentages

Rating scale	Enjoyed Learning	Enjoyed Teaching	Learn More	Combined Mean
Strongly Agree	173 (37%)	156 (34%)	134 (29%)	154 (33%)
Agree	191 (41%)	166 (36%)	204 (43%)	187 (40%)
So So	85 (18%)	124 (27%)	115 (24%)	108 (23%)
Disagree	16 (3%)	14 (3%)	15 (3%)	15 (3%)
Strongly Disagree	4 (1%)	4 (1%)	3 (1%)	4 (1%)
Mean	M = 4.10	M = 3.99	M = 3.96	M = 4.02

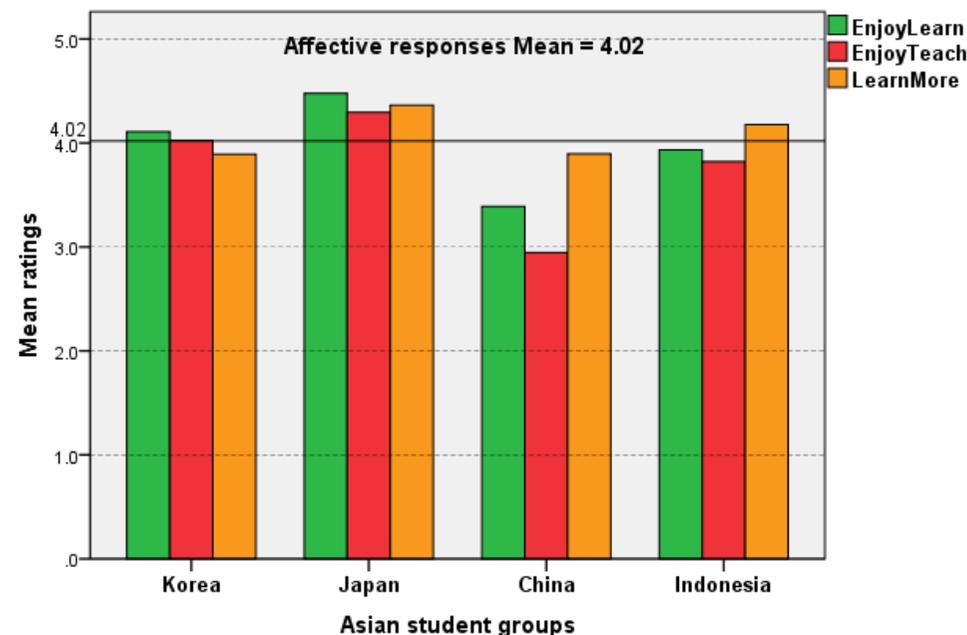


Figure 7.4.7 Asian students' affective responses to videoconferencing with Australian students

Evidence for O4.4: Asian teachers were asked about their observations of students' learning outcomes. They responded to specific questions in the Teacher Feedback 2014, using 5-point rating scales ranging from Strongly Agree (5) to Strongly Disagree (1). The results showed: (see Table 7.4.9 and Figure 7.4.9):

- 1) **70%** of the teachers said videoconferencing with Australian peers develops *global thinking* for Asian students.
- 2) **83%** of the teachers said Asian learned *authentic* Australian culture from Australian peers.
- 3) **49%** of the teachers said videoconferencing with Australian peers develops Asian' *cultural* understanding of Australian culture.
- 4) **78%** of the teachers said videoconferencing with Australian students develops Asian' *confidence* in speaking.
- 5) **76%** of the teachers said videoconferencing with Australian peers develops Asian' *communication* skills by thinking of listeners' perspectives.
- 6) **69%** of the teachers said videoconferencing with Australian students *increases* Asian' interest in learning more about Australian culture.
- 7) **86%** of the teachers said videoconferencing with Australian students motivates Asian students to *study English harder*.
- 8) **75%** of the teachers said Asian students enjoyed synchronous interaction with Australian students through videoconferencing.
- 9) **54%** of the teachers said students developed ICT skills, especially Power Point skills, through this project.
- 10) In summary, **71%** of the teachers said that videoconferencing with Australian students benefit Asian students.

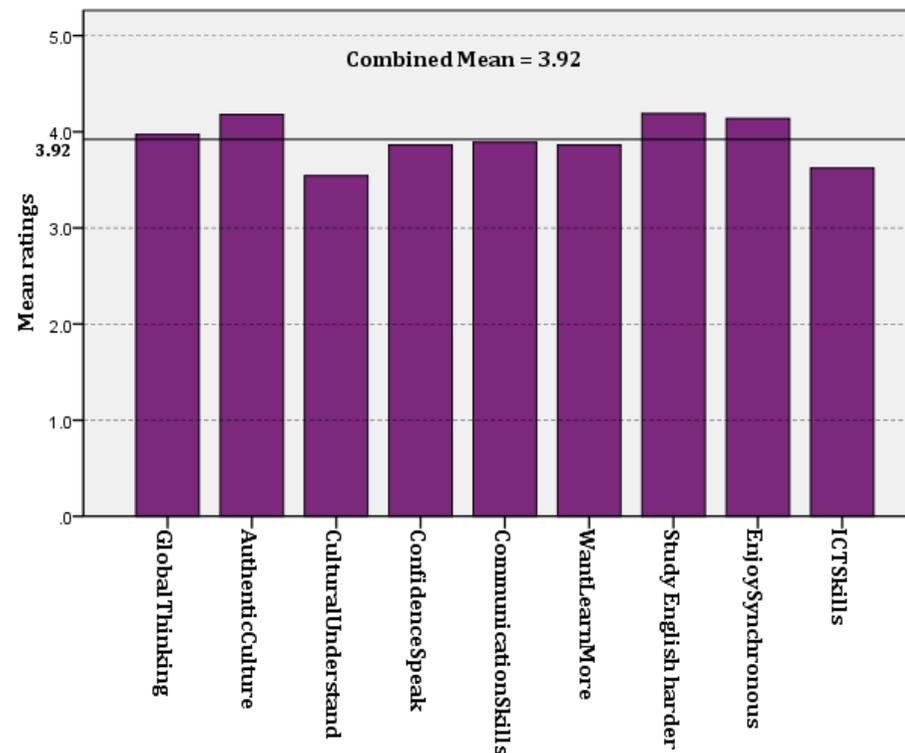


Figure 7.4.8 Asian teacher observations of student learning outcomes of videoconferencing with Australian students

Table 7.4.10 Asian teacher observations of how this project benefits Asian students

Student Learning Outcomes	Strongly Agree	Agee	So So	Disagree	Strongly Disagree	Mean
1) Develop global thinking	10 (28%)	15 (42%)	11 (31%)	-	-	3.97
2) Learn authentic Australian culture	12 (33%)	18 (50%)	1 (3%)	5 (14%)	-	4.18
3) Develop cultural understanding of AUS culture ...	3 (9%)	14 (40%)	16 (46%)	2 (6%)	-	3.54
4) Develop confidence in speaking	4 (11%)	24 (67%)	7 (19%)	1 (3%)	-	3.86
5) Develop communication skills	6 (16%)	22 (60%)	8 (22%)	1 (3%)	-	3.89
6) Increase motivation for Australian culture	7 (19%)	18 (50%)	10 (28%)	1 (3%)	-	3.86
7) Study English harder	12 (32%)	20 (54%)	5 (14%)	-	-	4.19
8) Enjoys synchronous interaction with AUS peers....	15 (42%)	12 (33%)	8 (22%)	1 (3%)	-	4.14
9) Develops ICT skills - Ppt slides	7 (19%)	13 (35%)	13 (35%)	4 (11%)	-	3.62
TOTAL Mean	8 (23%)	17 (48%)	9 (24%)	2 (5%)	-	3.92

Objective 5. What positive changes does the Asia ConneXions project make for Asian teachers' pedagogical skills and knowledge and teaching resources for teaching about Australia?

Outcomes 5.

The 'Teacher Feedback 2014' questionnaire was administered to the 37 Asian teachers, who used 5-point rating scales for their responses to the use of videoconferencing for developing Asian students' English skills and teaching about Australian culture. The outcomes are shown below.

O5.1 82% of the Asian teachers said the use of videoconferencing was *effective* for developing Asian students' English skills and teaching about Australian culture, compared to teaching those without videoconferencing.

O5.2 72% of the Asian teachers said that they will use videoconferencing **next year** for developing Asian students' English skills and teaching about Australian culture, which is a *behavioural* indicator reflecting their confirmation of the effectiveness of videoconferencing is for teaching.

O5.3 76% of the Asian teachers said videoconferencing with Australian students *benefits* Asian students by providing global experiences to rural/regional students and opportunities to learn authentic Australian culture; developing cultural understanding of Australia, confidence in speaking in front of others, and communication skills; and increasing interest in Australian culture and motivation for studying English harder; and providing synchronous interaction with Australian peers.

O5.4 59% of the Asian teachers said that videoconferencing enables *student-centred learning*, which has a *pedagogical implication*.

Evidence

Participants: The number of the Asian teachers who provided Teacher Feedback at the end of 2014 was 37.

Evidence for O5.1, O5.2, O5.3, and O5.4: Table 7.4.11 and Figure 7.4.9 show:

- 1) **82%** of the Asian teachers said that the use of videoconferencing is *effective* for developing Asian students' English skills and teaching about Australian culture.
- 2) **72%** of the Asian teachers said that they will use videoconferencing *next year* for developing Asian students' English skills and teaching about Australian culture.
- 3) **76%** of the Asian teachers said the *benefits* of Asian students' videoconferencing with Australian students, which developed students' global thinking, cultural understanding through authentic learning, confidence in speaking, communication skills, interest in Australian culture, motivation for studying English harder, and enjoyment of synchronous interaction with Australian students.
- 4) **59%** of the Asian teachers indicated a pedagogical implication of the use of videoconferencing which enables *student-centred* learning, as students lead Q&A and teach and learn from each other.
- 5) The combined scores showed that **73%** of the Asian teachers think videoconferencing is an *effective pedagogical tool* that benefits students.

Table 7.4.11 Asian teacher pedagogical outcomes of the use of videoconferencing for teaching: Numbers of teachers and percentages

Rating scale	Effective	Behavioral Next Year	Benefits	Student- Centred	Combined
Strongly Agree	8 (22%)	6 (19%)	8 (23%)	3 (8%)	5 (14%)
Agree	22 (60%)	17 (53%)	17 (53%)	20 (54%)	20 (55%)
So So	6 (16%)	8 (25%)	9 (24%)	11 (30%)	8 (21%)
Disagree	1 (3%)	1 (3%)	2 (5%)	3 (8%)	1 (3%)
Strongly Disagree	-	-	-	-	0.3 (1%)
Mean	M = 4.01	M = 3.88	M = 3.92	M = 3.55	M = 3.84

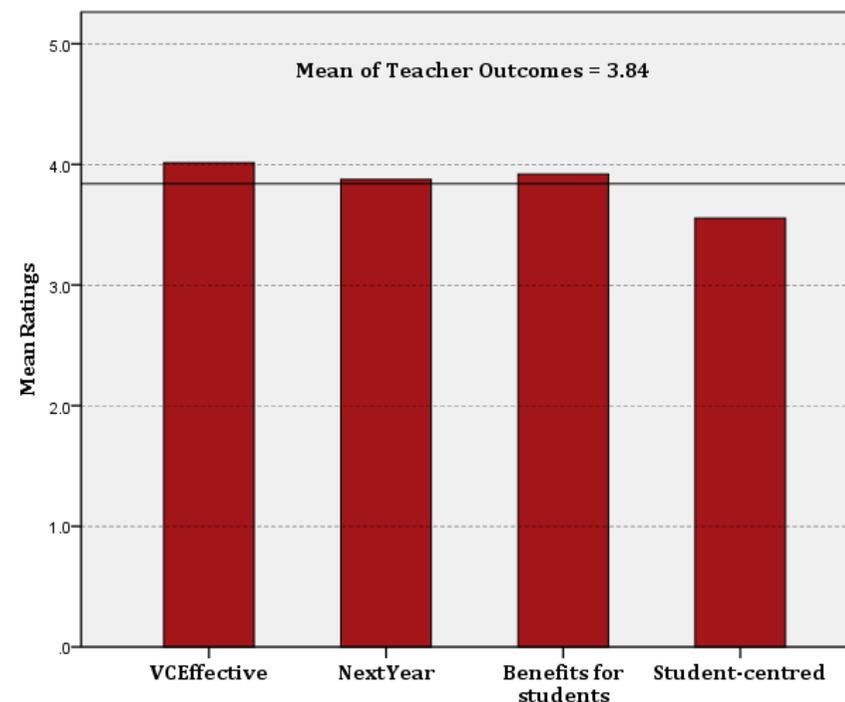


Figure 7.4.9 Asian Teacher pedagogical outcomes of the use of videoconferencing for developing Asian students' English skills and teaching about Australian culture

8. Service model costs

Quantify the annual cost of this project to provide it as a service to Australian and Asian schools

- 1) This project involves at least three people: Project Coordinator (Dr Auh, in-kind), Project Assistant (full-time), and Videoconferencing Specialist (in-kind). Project Assistant salary, \$40,000 per year.
- 2) The project team finds schools in Korea, Japan, China, and Indonesia with HD videoconferencing. This requires promoting the project in Korea, Japan, China, and Indonesia, which means travelling to the countries, providing Information Sessions about the Asia ConneXions program, meeting education authorities, and visiting schools. Travel, \$16,000 per year.
- 3) Organise Teacher Meetings with Australian and Asian teachers through videoconferencing, which will be led by the Project Coordinator.
- 4) In Teacher Meetings, Australian and Asian teachers decide exact class dates/times. Then, they negotiate topics for their VC sessions. They also discuss their class structure, use of Ppt slides and Edmodo, and e-pals.
- 5) The Project team makes the Videoconferencing Outlines for Australian and Asian schools with all the details from the Teacher Meetings, and sends it to teachers.
- 6) For each of their videoconferencing sessions (usually 10 – 20 sessions per year), the project team does monitoring to make sure that both sides can come into their Virtual Meeting Rooms (VMRs) without technical difficulties and without human errors (teacher forgetting videoconferencing sessions; or teacher getting sick on that day and not informing his/her partner teacher).
- 7) Selected video recordings are made of videoconferencing highlights. Cost for video editing and technology-related cost, \$20,000 per year.
- 8) The Project team's videoconferencing infrastructure is used for coordinating this project: e.g., AARNet VMRs, Zoom meeting rooms, Cisco EX90 (2 units), Cisco SX20 (2 units), Tandberg 3000 (2 units). Six Zoom Corporate accounts capable of HD VC. The HD videoconferencing infrastructure cost is estimated \$80,000 in-kind.
- 9) International calls to Korea, Japan, China, and Indonesia as well as national calls; Videoconferencing specialist's technical support for video links. Basic operation cost, \$20,000 per year.

➔ Cash needed: Project Assistant salary, \$40,000 + Travel, \$16,000 + technology-related cost, \$10,000 + basic operation cost, \$10,000 = **\$76,000 per year in minimum.**

➔ In-kind contribution from the project team: Videoconferencing infrastructure, \$80,000

If this project gets commercialised, what can be a model for it?

- 1) Charge \$50 per a videoconferencing session.
- 2) Offer in packages: The minimum number of VC sessions is four; and the maximum is sixteen.
 - 4 VC sessions per year: \$200
 - 6 VC sessions per year: \$300
 - 8 VC sessions per year: \$400
 - 10 VC sessions per year: \$500
 - 12 VC sessions per year: \$600

- 14 VC sessions per year: \$700
- 16 VC sessions per year: \$800

3) Suppose we get 30 school pairs want to take this service, and 10 VC sessions in average for each school.

➔ 30 AUS schools + 30 Asian schools = 60 schools in total x \$50 = \$30,000

Will schools pay for videoconferencing with Asian students?

Schools are not likely to pay for videoconferencing with Asian students. If schools are charged, very few schools will be participating in the service because they may think they can do engaging with Asia differently without paying money. When Asian language teachers cannot find school funds for paying for the cost, they will be teaching Asian languages in the traditional way.

Although Australian students meeting Asian students in real-time is exciting, effective for teaching, and fit-for-purpose, HD videoconferencing is not a life-and-death issue. Lack of school funds will force teachers to quit from taking up HD videoconferencing.

Also, there are other issues. Currently this project team receives excellent teacher cooperation, as the team provides excellent support for teachers and students by free. However, if we require schools to pay for the service we provide, teachers are not likely to cooperate with the project team and be responsive to our emails. It will be a pay-and-buy relationship with teachers.

In fact, commercialising the Asia ConneXions project will lose important in-kind contributions from teachers shown in Table 8.3.1. It is more viable in a long term if we offer this project free to schools, and use teachers' and Industry partners' in-kind and cash contributions for applying for ARC Linkage grants.

Table 8.3.1 A comparison of availability of in-kind contributions from teachers for the project

If the project gets commercialised	When the project is provided free
No data collection: Teachers will not be collaborating with the Project team since they paid for the service.	Yes for data collection.
Difficult to get teacher cooperation for videoconferencing demonstrations for events.	Likely to get teacher cooperation for videoconferencing demonstrations for events.
Quality of videoconferencing sessions – difficult to control: e.g., behavioural management and Asian students' limited English skills hindering the quality of engagement during videoconferencing.	Quality of videoconferencing sessions – up to teachers. If they are enthusiastic for videoconferencing and highly motivated, they will be providing high quality engagement with each other.
TechData (a Korean company supporting this project) may not continue cash and in-kind contributions for the project team's ARC Linkage grant applications.	Yes, TechData confirmed their cash and in-kind contributions for the project team's ARC Linkage grant applications.

9. Key Learnings and Future Directions

9.1 Key Learnings

The project team learned seven important lessons from this project.

First, videoconferencing links involve two types of connections: a) technology connection, and b) human connection. Technology-wise successful connection is essential in order to do videoconferencing. But also equally important is human connection, i.e., people have to turn up to meet others. If a teacher forgets about videoconferencing on the scheduled day, or gets sick, does not come to school and does not inform the partner school about cancellation, their videoconferencing will fail on that day, and the partner school will get disappointed. If such connection failures happen three times consecutively, the involved schools are likely to drop out from connecting with each other. Therefore, monitoring all videoconferencing sessions of the 35 school pairs was essential in order to provide successful experiences for videoconferencing. Second, what is the role of teachers in this project? The primary enabler of the educational outcomes of this project is HD videoconferencing. If schools did not have HD videoconferencing available, they could not do HD videoconferencing. Unclear sounds would have hindered Australian students from learning authentic Asian languages from Asian peers. However, enthusiastic and dedicated teachers also played a significant role in helping to achieve the educational outcomes of this project by facilitating students to engage actively with Asian peers.

Third, what are technical requirements for HD videoconferencing? The technical requirements had to be teased out through discussion with the then NBN-EESS program team. The requirements were: a) HD videoconferencing cameras, such as Polycom HDX 6000, Cisco SX20, and LifeSize Express 220 (HD), b) high speed broadband speed ranging from AARNet 1Gbps upload/download to VicSmart 20Mbps solely dedicated to videoconferencing; c) AARNet is equal to the NBN and provides HD videoconferencing; and d) Optic fibre is used for the internet connections, as in VicSmart of the Victorian Department of Education and Training (DET).

Fourth, to match Australian schools with Asian schools using HD videoconferencing, the project team had to find Asian schools with HD facility. This was not easy because HD videoconferencing equipment costs AUD \$20,000 (quite expensive), so Asian schools could not easily purchase it. TechData's (previously Samyang Data Systems) strong support for this project helped the team to connect 20 Australian schools with Korean schools. Cisco Japan helped to find Japanese schools; and Cisco Hong Kong helped to find Hong Kong schools. Collaboration with the industry partners of TechData and Cisco Systems for mutual interest was essential for successfully connecting 30+ Australian schools with schools in Korea, Japan, and China as well as Indonesia and India.

Fifth, the project team was able to connect seven Australian schools with Japanese schools, four with Chinese schools, and three with an Indonesian school, and one with an Indian school.

Six, through this project, the project team and the videoconferencing support teams in TechData in Korea, Cisco Japan, Cisco Hong Kong, and Sekolah Ekawijaya developed high levels of expertise on firewalls and network issues for connecting schools between Australia and the Asian countries of Korea, Japan, China, and Indonesia. For example, NSW public schools cannot come out of their Connected Classrooms network. VIC public schools can call out but cannot receive videoconferencing calls. Thus, the project team had to secure Virtual Meeting Rooms (VMRs) for VIC public schools, where they can meet schools from the Asian countries. Queensland independent schools had difficulties in coming out of their Independent Schools

Association's network to connect to the AARNet VMRs. Through series of videoconferencing connection tests, schools technicians and NSW and VIC Departments' videoconferencing support teams solved firewall and network issues for their schools. Currently the project team holds extensive knowledge and experience for videoconferencing in schools in Australia and the Asian countries.

Finally, promoting the Asia ConneXions project in Korea, Japan, China, and Indonesia required travelling to the countries and meeting education authorities, principals, teachers, and visiting schools. In 2013 and 2014, the project team visited Korea, Japan, and China, which was productive and effective for achieving the project outcomes. We did not visit Indonesia yet, but travelling to Indonesia is in our future plan.

9.2 Sustainability and Future Directions

The most critical issue towards the end of 2014 was securing a way to *sustain* this project beyond the project period (after 30 June, 2015). The project team looked for a similar project elsewhere in order to learn from previous project experiences. Indeed, there is a closely related project from the UK called 'Video Conferencing in the Classroom Project.' The project was conducted in 2001-2002 involving 28 UK primary and secondary schools, which used videoconferencing as a resource to enhance the curriculum by connecting with subject experts from universities. The Final Report of the 'Evaluation for the DfES Video Conferencing in the Classroom Project' (Becta ICT Research, 2004) shows outstanding educational outcomes of using videoconferencing in schools (see p.8).

However, when Tony Lawson and Chris Comber, who led the Evaluation Report, did a follow-up of the UK project schools to see how the videoconferencing technology is sustained in the schools after five years of the project completion, they found that few schools were using videoconferencing (Comber & Lawson, 2012; Lawson & Comber, 2014). The reasons include that 1) the Global Leap, which provided support for teachers for videoconferencing, was no longer funded by the UK Government; and 2) Champion teachers gradually lost enthusiasm for using videoconferencing for teaching because of lack of recognition from school principals and executives. Thus, Lawson and Comber (2014) called videoconferencing in schools as '*Orphan Technology*.' What this suggests is that, if the Asia ConneXions project team finishes this project in June, 2015 and ceases our involvement, the Australian and Asian schools' videoconferencing links will gradually phase out due to lack of teacher support and technology support for videoconferencing.

The project team's original plan for sustaining this project was to secure research grants for investigating the effects of high definition (HD) videoconferencing compared with standard definition (SD) videoconferencing on student and teacher outcomes with support of industry partners' cash and in-kind contributions. Although the topic of HD versus SD is an innovative topic, which no one has done before, securing research grants for it turned out to be difficult. Thus, the project team changed its strategic plan for sustainability. Our strategic plan is to transform this project into a Global Education program for schools and collaborate with key stakeholders, such as the Sydney Opera House and the Australian Nuclear Science and Technology Organisation (ANSTO), to provide new offerings to the Asia ConneXions schools free, while we secure grants from the Australian Government and other grant bodies.

Details of our strategic plan for sustaining this project are as follows:

- 1) The project team will be transforming the current project into Global ConneXions program. We will be building Global ConneXions Centre at UNE, for which my team has

applied for a grant. Through Global ConneXions Centre, my team will be providing Australian students with videoconferencing opportunities for videoconferencing with not only Korea, Japan, China, Indonesia, and India, but also with the US and Canada. Schools in the US and Canada will be recruited through CAPSpace, and I am working closely with Director of Education in Polycom US.

- 2) The project team will be collaborating with the Sydney Opera House Education (SOH) team for delivering the SOH's educational programs to Australian and Korean schools through videoconferencing. The SOH team's role is to offer the SOH educational programs to Australian and Korean schools by free, and my team's role is to provide schools and collect evidence of educational outcomes of the SOH virtual excursions.
- 3) The project team has been collaborating with the Australian Nuclear Science and Technology Organisation (ANSTO) for providing Applied Nuclear Science programs to Australian and Japanese schools through videoconferencing. The outcomes that we are aiming at is to develop informed citizens about the benefits of nuclear science by discussing the use of nuclear energy for nuclear medicine and clean energy.

The project team applied for grants for all of the above three projects, and results will be announced in June – August, 2015. If we get at least one grant, we will be able to manage this project until June 2016. The funding situation will not go away, and my team will have to live with it.

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APPENDICES

Appendix A Schools' Short Names

Note: 1) The Australian school names are ordered in the alphabetical order within each subcategory of NSW, VIC, QLD, WA, and TAS and of Korea, Japan, China, Indonesia, and India. 2) The short names of the Asian schools have 'K' for Korea, 'J' for Japan, 'C' for China, 'Id' for Indonesia, and 'Ia' for India to indicate their country before the schools' short names. E.g., Korea's Yeonje High School → K_Yeonje

Australian schools

NSW

- | | |
|--|---------------|
| 1) Abbotsleigh | → Abbotsleigh |
| 2) Armidale City Public School | → ArmidaleC |
| 3) Ben Venue Public School | → BenVenue |
| 4) Duval High School | → Duval |
| 5) Knox Grammar School | → Knox |
| 6) O'Connor Catholic College | → O'Connor |
| 7) Pymble Ladies College | → Pymble |
| 8) St Joseph's Primary School in Maclean | → StJoseph'sM |
| 9) St Mary's Catholic Primary School in Armidale | → StMary'sC |

VIC

- | | |
|---|----------------|
| 10) Athol Road Primary School | → AtholR |
| 11) Belmont High School | → Belmont |
| 12) Bendigo Senior Secondary College | → Bendigo |
| 13) Birchip P-12 School | → Birchip |
| 14) Blackburn High School | → Blackburn |
| 15) Carranballac P-9 College | → Carranballac |
| 16) Clayton North Primary School | → ClaytonN |
| 17) Dederang Primary School | → Dederang |
| 18) Drouin Secondary College | → Drouin |
| 19) Gilmore Girls College | → Gilmore |
| 20) Grey Street Primary School | → GreyS |
| 21) Kismet Park Primary School | → KismetP |
| 22) Maryborough Education Centre | → Maryborough |
| 23) Mathew Flinders Girls Secondary College | → MathewF |
| 24) Melton Secondary College | → Melton |
| 25) Mountain Gate Primary School | → MountainG |
| 26) Nossal High School | → Nossal |
| 27) Oakleigh South Primary School | → Oakleigh |
| 28) Ringwood North Primary School | → RingwoodN |
| 29) Tyabb Primary School | → Tyabb |
| 30) Tyabb Railway Station Primary School | → TyabbRS |
| 31) Upper Plenty Primary School | → UpperPlenty |
| 32) Wesley College | → Wesley |
| 33) Wodonga Senior Secondary College | → Wodonga |

QLD

- | | |
|----------------------------------|--------------|
| 34) Moreton Bay College | → MoretonB |
| 35) St Andrew's Anglican College | → StAndrew's |

WA

- 36) Scotch College, Perth → ScotchP
 TAS
 37) Calvin Christian School → CalvinC

Asian schools

Korea

- 1) Anyang Shingi Primary School, Gyeonggi province → AShingi
- 2) Busan Daechung Primary School, Busan city → K_BDaechung
- 3) Busan Daebyun Primary School, Busan city → K_Daebyun
- 4) Cheongsol Primary School, Gyeonggi province → K_Cheongsol
- 5) Chilam Primary School, Busan city → K_Chilam
- 6) Chorim Primary School, Gyeonggi province → K_Chorim
- 7) Damyang Goseo Primary School, Jeonnam province → K_DGoseo
- 8) Guhak Primary School, Busan city → K_Guhak
- 9) Hakjang Primary School, Busan city → K_Hakjang
- 10) Imae Middle School, Gyeonggi province → K_Imae
- 11) Jeju Jeil Middle School, Jeju Island → K_JejuJeil
- 12) Jeonnam Sani Primary School, Jeonnam province → K_Sani
- 13) Jungang Middle School, Busan city → K_Jungang
- 14) Jukseong Primary School, Busan city → K_Jukseong
- 15) Kimhae Kyungwon High School, Gyeongnam province → K_KKyungwon
- 16) Majang Primary School, Gyeonggi province → K_Majang
- 17) Saegeum Primary School, Gyeonggi province → K_Saegeum
- 18) Sungduk Middle School, Daejeon city → K_Sungduk
- 19) Wolpyeong Primary School, Busan city → K_Wolpyeong
- 20) Yeonje High School, Busan city → K_Yeonje
- 21) Yonghwa Girls High School, Seoul city → K_Yonghwa
- 22) Yulgeum Primary School, Daegu city → K_Yulgeum

Japan

- 23) Chitose High School, Hokkaido → J_Chitose
- 24) Chosei High School, Chiba prefecture → J_Chosei
- 25) Higurashi Elementary School, Tokyo → J_Higurashi
- 26) Ogawa Elementary & Junior High School, Saga prefecture → J_Ogawa
- 27) Shinwa Junior/Senior High School, Kumamoto → J_Shinwa

China

- 28) Yan Chai Hospital Wong Wha San Secondary School, Hong Kong → C_YCHWWS
- 29) The Chinese Foundation Secondary School, Hong Kong → C_ChineseF
- 30) Munsang College → C_Munsang

Indoensia

- 31) Sekolah Ekawijaya, West Java → Id_Ekawijaya

India

- 32) St Mary's School, Dwarka, New Delhi → Ia_StMary's

Appendix B
Schools List for the Asia ConneXions Deployment Trial
with their technical details for HD videoconferencing

No	Australian School Name	HD Video conferencing equipment	School Broadband Connection speeds download/upload	Class commencement Date	Asian Country	Asian School Name	AUS School system/ Notes
5 schools for Business case: July - Dec, 2012 Video links established in July-Dec 2012, and continue in 2013 and 2014.							
1	Armidale City Public School, NSW	Polycom HDX 6000	Optic fibre, 100 Mbps	2013, March	Korea	Chorim Primary School, Gyeonggi Province	NSW DEC, Business case
2	Ben Venue Public School, NSW	Polycom HDX 6000	Optic fibre, 100 Mbps	2013, March	Korea	Cheongsol Primary School, Gyeonggi Province	NSW DEC, Business case
3	Duval High School, NSW	Polycom HDX 6000	Optic fibre, 100 Mbps	2013, March	Korea	Sungduk Middle School, Daejeon city	NSW DEC, Business case
4	O'Connor Catholic College, NSW	Polycom HDX 6000	Optic fibre, 100 Mbps	2013, March	Japan	Chosei High School, Chiba prefecture	Catholic, Business case
5	Pymble Ladies College, NSW	Cisco SX20 (HD)	AARNET, 1Gbps	2013, Sep	China	The Chinese Foundation Secondary School (Jimmy), Hong Kong China	Independent, Business case
18 new schools for Deployment Trial, Year 1: 2013 Video links established in 2013, and continued in 2014.							
6	Knox Grammar School, NSW	LifeSize Express 220 (HD)	AARNET 1Gbps	2013, Oct	Korea	Jeju Jeil Middle School (Beilharz)	NSW Independent
7	Scotch College, Perth, WA	Cisco SX20 (HD)	AARNET, 1Gbps: D: 300Mbps, U: 200Mbps	2014, March	Korea	Busan Yeonje High School	WA Independent
8	Athol Road Primary School	Polycom HDX 6000	VicSmart, 20Mbps	2013, Oct	Korea	Busan Chilam Primary School	VIC DEECD
9	Clayton North Primary School, VIC	Polycom HDX 6000	VicSmart, 20Mbps	2013, Oct	Korea	Busan Daechung Primary School	VIC DEECD
10	Ringwood North Primary School, VIC	Polycom HDX 6000	VicSmart, 20Mbps	2013, Oct	Korea	Busan Wolpyong Primary School	VIC DEECD

11	Blackburn High School, VIC	Polycom HDX 6000	VicSmart, 50Mbps	2013, Oct	Korea	Yongwha Girls High School (#2)	VIC DEECD
12	Carranballac P-9 College, VIC	Polycom HDX 6000	VicSmart, 50Mbps	2013, Oct	Korea	Busan Jungang Middle School	VIC DEECD
13	Gilmore Girls College, VIC	Polycom HDX 6000	VicSmart, 20Mbps	2013, Oct	Korea	Busan Yeonje High School	VIC DEECD
14	Oakleigh South Primary School, VIC	Polycom HDX 6000	VicSmart, 50Mbps	2013, Oct	Japan	Higurash Elementary School, Tokyo	VIC DEECD
15	Drouin Secondary College, VIC	Polycom HDX 6000	VicSmart, 50Mbps	2013, Oct	Japan	Kumamoto Shinwa Junior/Senior High School	VIC DEECD
16	Melton Secondary School, VIC	Polycom HDX 6000	VicSmart, 50Mbps	2013, Oct	Japan	Chitose High School (Masae), Hokkaido	VIC DEECD
17	Wodonga Senior Secondary College, VIC	Polycom HDX 6000	VicSmart, 50Mbps	2013, Oct	Japan	Chosei High School, Chiba prefecture (JasonR)	VIC DEECD
18	Moreton Bay College QLD	Polycom HDX 6000	UQ SchoolsNet, 100Mbps	2013, Oct	Japan	Chitose High School (Mr Arai), Hokkaido	QLD Independent
19	Abbotsleigh, NSW	Polycom HDX 8000	AARNET, 100Mbps	2013, Sep	China	Yan Chai Hospital Wong Wha San Secondary School (Lennie), Hong Kong China	NSW Independent
20	Mathew Flinders Girls Secondary College	Polycom HDX 6000	VicSmart, 50Mbps	2013, Nov	China	Yan Chai Hospital Wong Wha San Secondary School, Hong Kong China (Fion)	VIC DEECD
21	Belmont High School, VIC	Polycom HDX 6000	VicSmart, 50Mbps	2013, Sep	Indonesia	Sekolah Eka Wijaya, Y7/8/9, West Java	VIC DEECD
22	Maryborough Education Centre, VIC	Polycom HDX 6000	VicSmart, 50Mbps	2013, Oct	Indonesia	Sekolah Eka Wijaya, Y10/11/12, West Java	VIC DEECD
23	Tyabb Primary School, VIC	Polycom HDX 6000	VicSmart, 20Mbps	2013, Oct	Indonesia	Sekolah Eka Wijaya, Y5/6, West Java	VIC DEECD
14 new schools for Deployment Trial, Year 2: 2014							
As of 15 Dec 2014, 37 Australian schools established HD VC links.							
24	St Joseph Primary School, Maclean, NSW Catholic	Cisco SX20	CNET, 20Mbps	2014, March	Korea	Busan Daechung Primary School	NSW Catholic
25	Grey Street Primary School, VIC	Polycom HDX 6000	VicSmart, 20Mbps	2014, March	Korea	Damyang Goseo Primary School, Jeonnam province	VIC DEECD

26	Kismet Park Primary School, VIC	Polycom HDX 6000	VicSmart, 20Mbps	2014, March	Korea	Saegeum Primary School, Gyeonggi province	VIC DEECD
27	Mountain Gate Primary School, VIC	Polycom HDX 6000	VicSmart, 20Mbps	2014, March	Korea	Busan Hakjang Primary School, Busan city	VIC DEECD
28	Upper Plenty Primary School, VIC	Polycom HDX 6000	VicSmart, 20Mbps	2014, March	Korea	Busan Daebyun Primary School, Busan city	VIC DEECD
29	Calvin Christian School, TAS	Polycom HDX 6000	AARNET, 1Gbps	2014, May	Korea	Imae Middle School, Gyeonggi province	TAS Independent
30	Bendigo Senior Secondary College, VIC	Polycom HDX 6000	VicSmart, 100Mbps	2014, May	Korea	Kimhae Kyungwon High School, Gyeongnam province	VIC DEECD
31	Tyabb Railway Station Primary School, VIC	Polycom HDX 6000	VicSmart, 10Mbps	2014, July	Korea	Guhak Primary School, Busan city	VIC DEECD
32	Dederang Primary School, VIC	Polycom HDX 6000	VicSmart, 10Mbps	2014, Sep	Korea	Majang Primary School, Gyeonggi province	VIC DEECD
33	St Mary's Catholic Primary School, NSW	Cisco SX20	ISDN, 512kbps	2014, Dec	India	St Mary's School, Dwarka, New Delhi	NSW Catholic
34	Birchip P-12 School, VIC	Polycom HDX 6000	VicSmart, 10Mbps	2014, Oct	Japan	Ogawa Elementary and Junior High School, Saga prefecture	VIC DEECD
35	St Andrew's Anglican College, QLD	Polycom HDX 6000	AARNet, 1Gbps	2014, Oct	China	Yan Chai Hospital Wong Wha San Secondary School, Hong Kong China	QLD Independent
36	Wesley College, VIC	Polycom HDX 6000	AARNet, 1Gbps	2014, Nov	China	Munsang College, Hong Kong China	VIC Independent
37	Nossal High School, VIC	Polycom HDX 6000	VicSmart, 50Mbps	2014, Oct	Japan	Chosei High School (JRaymond), Chiba prefecture	VIC DEECD
TOTAL	By connected Asian country	By Australian State					
	<ul style="list-style-type: none"> • Korea ConneXion: 20 Australian schools • Japan ConneXion: 8 Australian schools • China ConneXion: 5 Australian schools • Indonesia ConneXion: 3 Australian schools • India ConneXion: 1 Australian school 	<ul style="list-style-type: none"> • NSW: 9 schools • VIC: 24 schools • QLD: 2 schools • WA: 1 school • TAS: 1 school 					

Appendix C

The 46 VIC public schools that are waiting to get connected with their preferred Asian country

Note: The 72 VIC public schools, shown below, were recruited through the Victorian Department of Education's announcement of the Expressions of Interest for the Asia ConneXions project. The 22 schools with red asterisks (*) below were connected with schools in Asia through the BEESS Asia ConneXions project. Thus, 50 schools are waiting to get connected with their preferred Asian countries.

VIC Public Schools	Preferred Asian country	Subject
1) Abbotsford Primary School	China	Mandarin
2) Aberfeldie Primary School	Japan or Indonesia	Social Studies
3) Alexandra Secondary College	Indonesia	Indonesian
4) Araulen Primary School	Indonesia	Indonesian
5) Athol Road Primary School*	Already connected through the BEESS	
6) Balwyn Primary	China	Integrated Studies
7) Beaumaris North Primary School	Japan	Japanese
8) Belmont High School*	Already connected through the BEESS	
9) Bimbadeen Heights Primary School	China	Mandarin
10) Birchip P-12 School*	Already connected through the BEESS	
11) Blackburn High School*	Already connected through the BEESS	
12) Broadford Secondary College	Japan	Japanese
13) Carranballac P-9 College*	Already connected through the BEESS	
14) Caulfield Primary School	Japan	Japanese
15) Clayton North Primary School*	Already connected through the BEESS	
16) Clifton Hill Primary School	China	Mandarin
17) Cobains Primary School	Japan	Integrated Studies
18) Colac South-West Primary School	Indonesia	Indonesian
19) Cowes Primary School	Japan	Japanese
20) Dederang Primary School*	Already connected through the BEESS	
21) Drouin Secondary College*	Already connected through the BEESS	
22) Eltham East Primary School	Japan	Social Studies
23) Elwood College	India	Politics
24) Flemington Primary School	China	Social Studies
25) Gilmore College for Girls*	Already connected through the BEESS	
26) Girgarre Primary School	Indonesia	Integrated Studies
27) Grey St Primary School*	Already connected through the BEESS	
28) Hallam Primary School	Indonesia	Indonesian
29) Hawkesdale P-12 College	China	Mandarin
30) Highlands Primary School	China	Integrated Studies
31) Kismet Park Primary School*	Already connected through the BEESS	
32) Koo Wee Rup SC	China	Mandarin
33) Lardner and District Primary School	China	Asian Studies
34) Livingstone Primary School	China or Japan	Integrated Studies
35) Maiden Gully Primary School	China	Asian Studies
36) Mansfield Secondary College	Indonesia	Indonesian
37) Maryborough Education centre*	Already connected through the BEESS	
38) Matthew Flinders Girls SC*	Already connected through the BEESS	
39) Melton Secondary College*	Already connected through the BEESS	
40) Merrijig Primary School	Japan	Cultural exchange

	Preferred Asian Country	Subject
41) Miners Rest Primary School	Korea	Korean
42) Mitta Mitta Primary School	Any Asian country	Integrated Studies
43) Moonee Ponds West Primary School	Japan	Japanese
44) Mountain Gate Primary School*	Already connected through the BEESS	
45) Narre Warren North Primary School	Indonesia	Integrated Studies
46) Newborough Primary School	Indonesia	Indonesian
47) Oakleigh South Primary School*	Already connected through the BEESS	
48) Pleasant Street Primary School	Japan	Integrated Studies
49) Pomonal Primary School	China	Mandarin
50) Portland Secondary College	Indonesia	Indonesian
51) Riddells Creek Primary School	Japan	Japanese
52) Ringwood North Primary *	Already connected through the BEESS	
53) Skene Street Specialist School	China	Integrated Studies
54) Somerville Primary	Indonesia	Indonesian
55) Somerville Rise Primary School	Indonesia	Indonesian
56) St. Albans East Primary School	Japan	Social Studies
57) Suzanne Cory High School	China	Mandarin
58) Teesdale Primary School	Japan	Social Studies
59) Tyabb Primary School*	Already connected through the BEESS	
60) Tyabb Railway Station Primary School* ..	Already connected through the BEESS	
61) Upper Plenty Primary School*	Already connected through the BEESS	
62) Wales St Primary School	China	Mandarin
63) Waverley Meadows PS	Japan	Japanese
64) Warnambool East Primary School	Japan or China	Integrated Studies
65) Weeroona College Bendigo	Indonesia or Chia	Indonesian or Mandarin
66) Wellington Secondary College	China	Mandarin
67) Wodonga Senior Secondary College*	Already connected through the BEESS	
68) Bendigo Senior Secondary College*	Already connected through the BEESS	
69) Whittlesea Primary School	Indonesia	Integrated Studies
70) Sussex Heights Primary School	Japan	Japanese
71) Winters Flat Primary School	Indonesia	Indonesian
72) Mount Erin College	Indonesia	Indonesian

Appendix D Acronyms and Definitions

AARNet:	Australian Academic Research Network
AUD:	Australia
bandwidth:	the rate of data transfer measured in bits per second.
CHA:	China
HD:	High Definition. The standard HD bandwidth is 768 Kbps. The minimum bandwidth for HD is 512 Kbps. HD bandwidth can easily go up to 1 Mbps.
HS:	High School
IDN:	Indonesia
IDA:	India
IP:	Internet Protocol; the method or protocol by which data are sent from one computer to another on the internet. Each computer (known as host) on the internet has at least one IP address that uniquely identifies it from all other computers on the internet.
ISDN:	Integrated Services Digital Network: An international communications standard for sending voice, video, and data over digital telephone lines or normal telephone wires. ISDN supports data transfer rates of 64Kbps.
JAP:	Japan
KOR:	Korea (South)
MS:	Middle School
NSW DEC:	NSW Department of Education and Community
Optic fibre:	Optic fibre refers to the medium and the technology associated with the transmission of information as light impulses along fibre (or a glass or plastic wire).
PS:	Primary School
PPt:	Power Point
SD:	Standard Definition. The SD bandwidth is 384 Kbps or lower.
VC:	Videoconferencing
VIC DET:	Victorian Department of Education and Training
VIC DEECD:	(Victorian DET's previous name) Victorian Department of Education and Early Childhood Development
VicSmart:	VIC DET's central videoconferencing infrastructure with dedicated bandwidth to videoconferencing for schools; 1Gbps upload/download. http://www.education.vic.gov.au/about/programs/infrastructure/pages/vicsmart.aspx
Videoconferencing:	the video link using hardware solutions.
VMR:	Virtual Meeting Room
Web-conferencing:	the video link using desktop-based software solutions.