Intercultural Communication Competence in upper primary students: International collaboration case studies using Web 2.0 technologies

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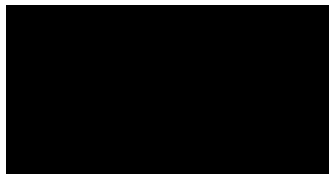
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ABSTRACT

Globalisation has seen our world become increasingly interconnected through the rapid expansion of digital technologies. Intercultural communication competence is a key aspect of global competence for young people to develop their skills, values and behaviours as global citizens. The rapid expansion of the social web (Web 2.0) enables teachers to create rich authentic learning experiences that foster the development of students' intercultural communication competence through synchronous and asynchronous web tools. The inclusion of these learning experiences engage students beyond the traditional classroom, enabling them to improve and advance 21st Century skills of collaboration, critical and creative thinking, perseverance, interpretation and problem solving.

Intercultural communication competence encapsulates the ability to interact with people from another culture in appropriate and effective ways, involving not only language skills but also knowledge and a willingness to learn other cultures. Through a social constructivist approach, students' intercultural interactions with web tools and each other promote the extension of human capabilities.

Current research predominantly focuses on the development of intercultural communication competence with students in tertiary institutions through telecollaboration or computer-mediated collaboration. Developing intercultural competence is a lifelong journey. This research study explored what intercultural communication competences developed in upper primary students in Australia when communicating and collaborating with same-age students internationally and interculturally through authentic learning environments facilitated by Web 2.0 tools. Additionally, the study explored if Web 2.0 tools could be used to facilitate collaborative projects online with students in upper primary from two different countries, with different native languages.

This research study utilised participatory action research methodology through exploratory case studies, combining techniques of case study approach with the use of multiple cases. Cross-case analysis using qualitative methodology was employed. Three case studies were undertaken. Upper primary students from an independent school in Western Australia collaborated with two cohorts of students from a school in Spain as separate case studies (case study one and two), and one cohort of students from a rural school in Thailand (case study three). Qualitative data included open-ended questionnaires and documentation data. Triangulation of the data occurred through teacher questionnaires, email correspondence and the researcher's journal notes, creating a chain of evidence. The qualitative data set was analysed through progressive focus into emerging themes and codes to illustrate the students in Australia's perspective. Through data reduction, categories emerged in the three dimensions of intercultural communication competence or the use of Web 2.0 tools to collaborate interculturally.

Results showed that students' ICC was enhanced in all three dimensions of intercultural adroitness (behaviour), awareness (cognitive) and sensitivity (affective), the relative rank order of importance of these dimensions the same across all three cases. Intercultural behaviours emerged as the most frequent whilst intercultural sensitivity the lowest. Ethnocentric thinking and behaving, the tendency to evaluate, anxiety, persevering through language barriers, expectations and the importance of cultural distinctiveness were barriers exhibited through the intercultural communications. The structural and cultural characteristics of ICT in the schools participating enabled the international, intercultural collaborations to occur. Increase to the consistency, quality and quantity of student responses as well as collaborative skills, requires reflection and improvement.

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DEFINITION OF TERMS AND ABBREVIATIONS

The following terms, abbreviations and their meanings have been defined specifically for the purposes of this study. Acronyms, abbreviations and initialisms used in the thesis are also included.

Cohort	the whole group of students in a particular year group, in a school. This can often contain multiple classes of the same year level.
Collaborate	when people work together for a common purpose.
Collaboration	a group of two or more people working together to achieve or create the same thing.
Computer- mediated collaboration	technology facilitating working together with others.
Cross-cultural (study)	is "one in which researchers compare a particular concept in two or more cultures whose members are having intra-cultural experiences" (Koester & Lustig, 2015, p. 20). This is not the approach used in this study.
Culture	shared patterns of behaviours and interactions, sensitivity, cognitive constructs, and affective understanding that are learned through a process of socialisation (Lustig & Koester, 1999).
Digital technologies	are electronic devices, tools, resources and systems that store, process or generate data. Examples include multimedia, mobile phones, social media and online games.
Experiential learning	is learning by doing. It shifts the design of the learning from being teacher-centred to student centred; the student learns through experience and reflection on what they are doing.
Global competence	the disposition and capacity to understand and act on globally significant issues. Together, the knowledge, skills, attitudes and behaviours required to flourish in today's interconnected world embodies global competence (UNESCO, 2014).
Globalisation	involves the process of integration and interaction among people through the spread of technology, jobs, products or information across national cultures and borders.
Google Classroom	is a free web-based Learning Management System where collaboration can occur between students, and students and their teachers. Teachers can create classes where they can invite students into the class and share materials and resources, communicate messages and announcements, distribute assignments and projects which students can submit electronically, and publish feedback and grades to students individually.
Google Docs/Applications	a free web tool that allows people to word process, collaborate online and share documents on the Internet synchronously and asynchronously.

Information Communication Technologies (ICT)	the utilisation of computers or digital devices to transmit, retrieve, store and manipulate data or information, which can often occur in the context of an educational institution, business or other enterprise.
Intercultural	takes place between cultures or is derived from different cultures.
Intercultural communication competence (ICC)	intercultural communication competence is broad learning goal broken down into the areas of knowledge, skills and attitude. It encapsulates the ability to interact with people from another culture in ways that are both appropriate and effective, which involves not only adequate language skills and knowledge about the culture, but a willingness to understand their culture (Barker, 2016).
Intercultural adroitness (behaviour)	intercultural adroitness addresses the skills and behaviours that are required in order for intercultural interactions to be effective (G. Chen & Starosta, 1998).
Intercultural awareness (cognitive)	the cognitive aspects of intercultural communication competence refer to the understanding of cultural conventions that affect how we think and behave (G. Chen & Starosta, 1998).
Intercultural sensitivity (affective)	the affective aspect of intercultural communication competence signifies the student's readiness to appreciate and understand cultural differences in intercultural communication (G. Chen & Starosta, 1998).
Intercultural understanding	encompasses the knowledge, skills, behaviours and dispositions that assists people to live and work successfully in the 21st Century, drawing on their growing knowledge, understanding and critical awareness of their own and others' cultural perspectives and practices (Australian Curriculum Assessment and Reporting Authority, 2015; Bullivant, 1993).
Native language	the language one has been exposed to from birth or within the critical period of development, often referred to as one's first language.
OECD	is the Organisation for Economic Co-operation and Development. An intergovernmental economic organisation founded in 1961 with 36 member countries. Their focus is to stimulate world trade and economic progress.
PISA	is the Organisation for Economic Co-operation and Development's (OECD's) international assessment, which is conducted with 15 year-old students all over the world every three years in mathematics, reading and science to identify how well students master key subjects to prepare for real-life situations in the adult world (Organisation for Economic Co-operation and Development, 2018).
Primary student	a child who is in the first formal years of his/her schooling. Children are usually between the ages of five years old and eleven years old and spend five to six years in primary school (Years/Grades 1 to 6) depending on the structure of the school. Primary schooling can sometimes be known as elementary

	schooling. It follows preschool and precedes secondary schooling.
Telecollaboration	the use of digital tools or computers for language learners to connect with people from different backgrounds; a kind of virtual exchange where language learners can communicate to enhance learning.
Web 1.0	refers to the first development stage on the World Wide Web entirely made up of simple static websites that were accessible via hyperlinks where information was read only.
Web 2.0	is known as the social web which fosters user engagement, interaction and creation. Platforms such as YouTube, Twitter and Instagram depend on user interactions and submissions to drive their content.
Web 2.0 tools	are Internet tools that allow people to go beyond receiving information on the web, to interact and create, often in collaboration with others. Well-known social media sites such as Twitter and Facebook are examples of these tools. In the education context, tools such as Google Classroom, Edmodo, Kid Blogs, et cetera are examples of Web 2.0 tools.
World Wide Web (WWW)	is an information system accessible over the Internet, interlinking by hypertext documents and other web resources that are identified by Uniform Resource Locators.
Year (Yr.)	used to describe an aged-based cohort or school year in a school in Australia.

CHAPTER 1 INTRODUCTION

Overview

The world is becoming increasingly globalised through the interconnectivity of the World Wide Web (WWW) in business, education, and industry (Benzie, 2010; Ferguson, Pérez-Llantada, & Plo, 2011). A growing need for multicultural perspectives and understanding has been identified in order to function effectively in a cosmopolitan international society (Dörnyei, 2014). To put this in perspective, in 2019, the Fortune Global 500, the world's 500 largest companies were represented by 34 countries, employing over 69.3 million people worldwide (Fortune Media IP Limited, 2019). Further, the rapid and continual evolution of digital technologies require graduates to be technologically savvy; with knowledge of foreign languages and intercultural competence a growing prerequisite (Swartz, Barbosa, & Crawford, 2019).

In Australia, a range of immigration policies were implemented throughout the 1900s to grow the nation's population, resulting in an increase in migration. Additionally, people seeking greater opportunity or refuge from their own country has seen multicultural communities rapidly expanding. Globalisation has been described as a multifaceted and contentious social phenomenon entailing social, spatial and historical relations. Through the emergence of the digital age in the recent timeframe of the 21st Century, communication and rapid global transportation has cultivated increased social and spatial relations, resulting in the growing interconnectedness of individuals, people and social groups all over the world (Heywood, 2014).

Interest in intercultural competence has continued to grow in numerous sectors and countries around the world. Disciplinary accrediting bodies in the fields of business, education, social work and engineering are now including intercultural competence as part of their achievement standards (Deardorff, 2015). For the first time in 2018, a global competence measure was included by international student assessment body, PISA (Program in International Assessment), which is promoted through the Organisation for Economic Cooperation and Development (OECD). Meanwhile, in the human-rights contexts and beyond, global organisations such as UNESCO are addressing intercultural competences (Leeds-Hurwitz, 2013). In the 21st Century, intercultural communication skills are paramount to communicate appropriately and effectively with people between cultures both in person and online. It is integral that students develop and grow these competences from a young age in order to be effective global citizens.

This chapter commences with the background which initiated the research study followed by the aim, rationale and the study's significance in its field. An explanation describes the scope of the study followed by a statement of the problem. An overarching question is stated followed

by the guiding questions of the investigation. The chapter concludes with an overview of the thesis structure followed by a summary of the chapter.

Background

Intercultural competence has been investigated through research literature for the past five decades with a wide variety of terms used depending on the context, approach and discipline (Spitzberg & Changon, 2009). Intercultural communication competence (ICC) is a process that constantly evolves through the development of open attitudes, skills of discovery, interaction with others, critical awareness and cultural knowledge (Byram, 1997). Developing ICC is recognised as a lifelong developmental process whereby there is no point where one becomes fully interculturally competent; the important thing is to focus on the developmental process (Deardorff, 2015). Therefore, this was the focus of this study; the development of ICC in upper primary aged students in Australia as a result of collaborating with same age students from another country and culture to complete learning tasks using Web 2.0 tools.

Intercultural learning through online collaborations facilitated by the WWW have created a wide range of opportunities for intercultural exchange. Significant developments in technology see telecollaboration, collaborative platforms, social media and apps, and learning management systems facilitating intercultural dialogue within and beyond institutional settings (Lee, 2009; Müller-Hartmann, 2000; O'Dowd & Ritter, 2006; Swartz et al., 2019). The levels of technological sophistication students at all points of education have access to provide greater opportunities for teachers to develop intercultural understanding through global collaborative online projects. Increasingly, individuals from differing cultural backgrounds and contexts can be brought together to work as members of various groups within schools, higher education institutions and the workplace. The pace of change in the labour market has accelerated rapidly over the past few years, with major transformations occurring within the global market driven by technological advances. By the time students in primary school graduate and enter the workforce, new jobs will be created with companies harnessing new and emerging technologies, expanding into new markets for a global consumer base (World Economic Forum, 2018). As a result, higher degrees of intercultural communication skills will be required alongside continual upskilling in rapidly evolving technologies.

The global labour markets have become increasingly interconnected with graduates from university interacting with colleagues from a diverse range of cultures (Swartz et al., 2019). With the workforce progressively becoming mobile, students are likely to have a range of different jobs and even career types over their lifetime. From business leaders to academics and government officials around the world, there is increasing concern on whether graduates entering the workforce are being adequately prepared to contribute and collaborate in multicultural spaces,

with specific areas recognising the importance of intercultural competence in their employees (De Boer, Stump, Carter-Johnson, & Breslow, 2012).

Whilst existing and current research increased our understanding of intercultural learning online, the majority of findings have focused on Web 1.0 tools such as email, discussion board and text chat. With Web 2.0 tools such as podcasts, blogs and social media sites such as Twitter, Facebook and Instagram significantly increasing in popularity over the past few years, there is an integral need for research on the application of Web 2.0 tools to facilitate intercultural exchange (Guth & Helm, 2010; Lomicka & Lord, 2009). Most research studies utilising Web 2.0 tools to facilitate learning through intercultural global online collaboration, to develop ICC, are predominantly focused on tertiary level students.

Aim

This research study investigated what intercultural communication competences upper primary school students in Australia develop when utilising experiential learning by participating in an intercultural collaborative project online, facilitated by Web 2.0 tools. The investigation explored what dimensions of ICC were exhibited and if Web 2.0 tools were effective in facilitating the collaboration internationally and interculturally. The importance of the developmental process, as referred to by Deardorff (2015), by collaborating online with students from another country and culture, was the focus of the study. The cognitive goals of the study were to improve students' ICC through experiential learning by using intercultural collaboration to foster opportunities for them to increase their awareness of, and openness to, other cultures through reflection and comparison. The aim was for students to develop authentic ICC through experience by communicating interculturally to the collaborate and complete learning tasks.

This study was conducted in two phases through experiential learning. The first phase identified what ICC developed in upper primary students in Australia when collaborating online with students from another country and culture. It is important to note that each school involved in the study had different native (first) languages. The school in Australia's native language was English; the school in Spain's native language was Catalan followed by Spanish; and the school in Thailand's native language was Thai. The proficiency of each school's English language skills will be further discussed in Chapters 4 and 5 when introducing each case study. The second phase of the study identified if Web 2.0 tools could be used to facilitate collaborative projects online effectively when students have different native languages. This study involved upper primary school students in Australia communicating interculturally to develop their ICC by collaborating online to complete learning tasks with students from two different countries using Web 2.0 tools. The outcome of this study could be used to enhance educators' understanding of how to increase primary students' ICC through experiential learning using Web 2.0 technology.

Rationale

As a research area, intercultural communication has a short history of about 60 years with E. Hall (1959) considered the father of this field. In this field, the study of ICC has been prominent. The importance of this research study is identified through the central inclusion of intercultural understanding and communication within curriculum from different countries and an intensifying requirement for proficiency in these skills in an increasingly modern globalised workplace (Alptekin, 2002; Deardorff, 2014; Thorne, 2003; World Economic Forum, 2015). Through interacting interculturally, with people from different cultural backgrounds, people can find their place within diversified societies and multicultural environments (Aba, 2016; Kim, 2001). The Organisation for Economic Co-operation and Development (2015) conducted their first PISA assessment of digital skills, measuring 15-year-old students from 79 countries and economies on reading, mathematics and science. Results indicated the need for schools to take advantage of the potential technology can provide in the classroom to address the digital divide, developing students with the skills they need to be effective in today's connected world. Educators need to recognise the significance in using digital technologies to develop ICC through intercultural global projects, particularly in primary schools, by integrating these projects into their teaching and learning programs. Hofstede, Hofstede, and Minkov (2010) assert that, "Culture is learned, not inherited. It derives from one's social environment, not from one's genes" (p. 1). Commencing the development of ICC earlier in their schooling, rather than later, emphasises the importance of these skills as well as advancing and improving them over a longer period of time, which was the focus of this study.

Significance

ICC is complex to define because of its intangibility and subtleness, involving many psychological dimensions (e.g. social, emotional, cognitive) with questions of "do we even know what the term really means?" (Bok, 2009, p. x) The implementation of intercultural skills to communicate with people from diverse backgrounds is imperative through the emerging concept of multicultural environments and globalisation; the essential requirements of our professional and personal lives (Dusi, Messetti, & Steinbach, 2014). In this globalised environment, the level of human interaction across cultures is expanding rapidly, where differences caused by geography, space and borders have diminished and intercultural competence is vital (Peterson, 2009; Wiebe & Kabata, 2010)

Whilst numerous studies have analysed parts of intercultural understanding in educational settings (Barrett, Byram, Lázár, Mompoint-Gaillard, & Philippou, 2013; Crose, 2011; Deardorff, 2006; King & Baxter Magolda, 2005; King, Perez, & Shim, 2013; Peng, Wu, & Wang, 2009; Taylor, 2013; Walton, Priest, & Paradies, 2013), the absence of validated assessment tools for students in primary and secondary school has created difficulty in evaluating the effectiveness of programs and initiatives to develop ICC (Deardorff, 2009, 2014; Perry & Southwell, 2011).

Most research studies in the literature address culture as a secondary goal, not a primary goal and employ technology for language skills such as listening, speaking, vocabulary, writing and reading rather than cultural understanding (Chwo, Marek, & Wu, 2016; Stockwell, 2014). Whilst intercultural competence has received considerable research over the past few decades, there is a lack of research in the area of ICC development through social technologies (Web 2.0) with primary aged students.

The significance of this research study is the development of these ICCs when collaborating through Web 2.0 tools, social technologies, which could not be investigated prior to their emergence in the early 2000s. The significance in this study also lies in its international nature, taking place across three continents where studies involving multiple cultures and language differences have not been conducted with primary students. As such, particular emphasis lies in the age group of participants as research has focused on students from senior school upwards, though, predominantly undertaken in tertiary institutions such as universities. The intercultural interactions investigated through this research study are multicultural, task-based, interactive, and technology-oriented. When factors such as these are integrated, students' motivation increases, translating into increased outcomes and confidence (W.-C. V. Wu, Yen, & Marek, 2011). The purpose of this study was to contribute to the research literature on ICC and how ICC can be developed through social technologies, Web 2.0 tools, with a younger age group.

Statement of the problem

Primary schools need better ways to increase students' ICC. Schools need to take advantage of the potential technology can provide in developing students' global competence to ensure their success in an increasingly connected world (Organisation for Economic Co-operation and Development, 2015, 2019b). Technology allows businesses to expand internationally and web tools have allowed synchronous and asynchronous contact through applications and social media tools, increasing the importance in being culturally sensitive and aware. Essential to spurring innovation, productivity and growth; promoting inclusive labour markets ensures every person is developing skills for an increasingly globalised and digital world (Organisation for Economic Co-operation and Development, 2016). Primary schools need to learn from the dynamic way in which businesses have utilised technology and implement innovative ways to increase students' ICC authentically. Traditional learning environments within schools cannot provide the authentic experiential learning that technology of the social web facilitates in developing students' intercultural communication skills as it lacks the ability to be interconnected dynamically, internationally.

Research questions

The research questions for this study emerged from the statement of the problem. The first research question for the study was:

Do upper primary students in Australia exhibit ICC development through participation in an online international collaborative project using Web 2.0 tools?

Because ICC is multi-dimensional, the following sub-questions were developed:

1.1 What intercultural adroitness competences are exhibited?
1.2 What intercultural awareness competences are exhibited?
1.3 What intercultural sensitivity competences are exhibited?

The second research question for the study was:

2. *To what extent can Web 2.0 tools be used to effectively facilitate collaborative projects online with students in upper primary from different countries?*

Question 3 refers to the behavioural dimension of intercultural communication that indicates an individual's ability to reach communication goals while interacting with students from other cultures (G. Chen & Starosta, 2000). The ICC dimensions will be discussed in the Literature Review in the following chapter.

To answer these research questions, the study was undertaken in two phases. The first phase of this study investigated the ICC primary school students' exhibited following online collaborations with students from different countries in line with the *intercultural understanding* general capability in the Australian Curriculum (Australian Curriculum Assessment and Reporting Authority, 2015). The second phase investigated the use of Web 2.0 tools with primary students, identifying if these tools could be used to collaborate internationally and interculturally on learning tasks. The use of Web 2.0 tools allowed students to collaborate on a project, learning academically whilst providing them with firsthand intercultural perspectives and interactions they would not experience in their local classroom environment. The Web 2.0 tools provide an environment for the students for the collaboration to occur with the focus on the students, not the tools.

Thesis overview

This thesis has been divided into seven chapters. Following the introduction chapter (Chapter 1) is a review of the literature (Chapter 2), methodology (Chapter 3), the two case studies with the school in Spain (Chapter 4), and the case study with the school in Thailand (Chapter 5). Cross-case analysis and discussion in relation to the literature (Chapter 6) is followed by conclusions (Chapter 7), with references and appendices completing the thesis.

The literature review (Chapter 2) provides an overview of global competence, the increase in multiculturalism in Australian culture, culture, and the educational implications of culture in the classroom. This is followed by an exploration of the literature on intercultural understanding, intercultural competence, intercultural communication and then stems into the barriers in intercultural communication. ICC and its dimensions, the educational implications of ICC and intercultural communication differences follows. Web 2.0 and its evolution are explained, followed by ICT in schools, social constructivist theory and metacognition, authentic learning environments, intercultural collaboration, collaboration online, intercultural communication online and Google classroom as a platform for collaboration. The chapter concludes with a Conceptual Framework as relevant to the investigation.

Chapter 3 includes the context of the study of the school in Australia whilst explaining the qualitative case study approach that was adopted for the two phases of the study. Chapter 4 describes the context of the school in Spain, its students and their technological proficiency, then separates into the two separate case study collaborations with the school. The qualitative data results are preceded by a description of the learning task and student groupings. The chapter concludes with a summary of the results from both case studies with the school in Spain.

Chapter 5 describes the context of the school in Thailand, the third case study, its students and their technological proficiency. This is followed by a description of the learning task and student groupings. Qualitative data results follow; the chapter concludes with a summary of the results. Chapter 6 contains a cross-case analysis and discussion of the results in line with the literature. Conclusions are drawn in Chapter 7 from the findings.

Summary

The purpose of this study was to investigate what intercultural communication competences upper primary school students in Australia develop when utilising experiential learning, participating in intercultural collaborative projects which are facilitated by Web 2.0 tools. The significance of this study is the age of the students whereby studies have previously focused on secondary and tertiary level students. It was expected that the upper primary students' ICC dimensions would increase by participating in this authentic learning experiences.

Chapter 1 introduced the research study, providing a context for the investigation through the background section. The aim, rationale, significance, scope of the study and statement of the problem led to the research questions guiding the study. An overview of the thesis structure outlined the contents of subsequent chapters. The following chapter describes the literature relevant to the research. A focus on ICC and the social web (Web 2.0) was a basis for the proposed Conceptual Framework and methodological approach.

CHAPTER 2 LITERATURE REVIEW

Overview

The purpose of this Literature Review is to investigate and examine the relevant literature pertinent to the research reported in this thesis. The chapter commences with the exploration of global competence and its requirement to be an effective global citizen in the 21st Century. Immigration worldwide has led to increased multiculturalism in Australia, which provides the context and purpose of the study. Culture is examined, defined and explained stemming into the educational implications of culture in the classroom. Intercultural understanding and its place in the Australian Curriculum is covered before moving into the definition of intercultural competence and intercultural communication, delving into the barriers in intercultural communication. Intercultural communication competence (ICC) and its dimensions are explained utilising Chen and Starosta's (1998) three dimensions of intercultural adroitness (behavioural ability), intercultural awareness (cognitive ability) and intercultural sensitivity (affective ability). The educational implications of ICC are explained, leading into intercultural communication differences. Web 2.0, the social web, is defined along with its characteristics and potential to develop ICC. ICT in schools is followed by the social constructivist learning theory and the self-regulated nature of metacognition, explaining how it can be used through online collaborative learning. The importance of authentic learning environments and their implementation are defined and described through criteria, along with its application to this research study. Intercultural collaboration is analysed with a focus on telecollaboration studies as a method of developing intercultural competence. Collaboration online is followed by intercultural communication online and its contextual requirements in order to foster successful engagement. A review of Google Classroom as a platform for collaboration includes the International Society for Technology in Education's Student Standards (2016) which outline the competences for students to be an effective global collaborator. A proposed Conceptual Framework is presented with links to the literature.

Global competence

Students of the 21st Century live in a diverse, rapidly changing interconnected world. Emerging digital, demographic, cultural, economic and environmental forces are shaping their lives around the world with intercultural encounters increasing daily (Jackson & Schleicher, 2018). World Savvy (2020) defines global competence as the ability to engage young people in a more diverse, interconnected world both locally and globally by developing their skills, values, and behaviours, engaging them as citizens and collaborative problem solvers ready for the workforce. The digital revolution, prospect of climate instability, globalisation and mass migration are prompting new concerns, requiring a new kind of graduate (Boix Mansilla & Jackson, 2011). Not only must students benefit from and appreciate cultural differences, they must learn to participate effectively and affectively as the world continues to become more interconnected.

Developing an intercultural and global outlook is a life-long process that education can influence and shape (Barrett et al., 2013; Boix Mansilla & Jackson, 2011; Deardorff, 2009; Leeds-Hurwitz, 2013; Organisation for Economic Co-operation and Development, 2018; UNESCO, 2014, 2016). In order for people to thrive in a world that is rapidly evolving, without leaving societies behind, it is important that global competences are developed and reinforced. Intensifying momentum has been noted across business, government and academic sectors in that those entering the workforce are able to effectively communicate interculturally (De Boer et al., 2012). Due to complex and dynamic global interdependencies and with increasing connectivity and openness, it is important that citizens develop the skills and ability to understand and analyse intercultural and global issues, beyond the competitiveness of new skills required for a new world of work (Çiftçi & Savaş, 2018; Organisation for Economic Co-operation and Development, 2018).

The phenomenon of globalisation is driven by technology and the movement of people, ideas and goods. It sees the exchange and movement of goods, services, cultural practices, technologies or capital increase with one of its effects increasing and promoting interactions between different populations and regions around the globe (Schwab, 2018). Driven by the Fourth Industrial Revolution, Globalisation 4.0 is the potential to significantly impact global productivity using advanced technologies such as big data, the internet of things, autonomous vehicles, artificial intelligence and 3D printing (Ho, 2019). Globalisation 4.0 has been stimulated by the rapid universal spread of digital technologies; a time we are entering into whereby the reliance of digital connectivity and related flow of services and ideas has seen the nature of exchange between organisations and countries becoming fundamentally different. Though Globalisation 4.0 is in its infancy, we are immeasurably unprepared. Adhering to an outdated mindset and altering our existing institutions and processes will not do; we need to avoid the kind of disruptions that are occurring today. Institutions and processes need to be redesigned from the

ground up to capitalise on new opportunities awaiting us. The extraordinary pace of technological change means our systems of communication, transportation distribution, health and energy, to name a few, will be completely transformed with a new model of education, targeting the upskilling of workers beyond new frameworks nationally and internationally (Schwab, 2018).

Boix Mansilla and Jackson (2011) were part of the EdSteps Global Competence Task Force who compiled their expertise, collaborating and advancing the definition of global competence, which set the foundation for their book. The Task Force evaluated best practice in developing global competence and conducted research at Project Zero, Harvard Graduate School of Education. Their research examined, deliberated and refined a definition for global competence and explored the abilities and capacities embodied by a globally competent student. Their definition builds on influential work within a broad range of organisations working to advance critical thinking skills and global knowledge, proposing the following definition; "Global competence is the capacity and disposition to understand and act on issues of global significance" (p. xiii). In order to be able to be globally competent, one must be able to interact interculturally.

In 2019, the world had 272 million international migrants, increasing almost 51 million since 2010. This number represents 3.5% of the global population; Australia having around eight million migrants of a population of 25 million in residence (UN., 2019). This has resulted in the demographics of neighbourhoods and classrooms changing similarly. PISA conducted its first international assessment of global competence in 2018 with over half a million 15-year-olds from 80 economies and countries taking the test. Results were released on the 3rd of December 2019 offering "the first comprehensive overview of education systems' success in equipping young people to address global developments and collaborate productively across cultural differences in their everyday lives" (Organisation for Economic Co-operation and Development, 2018, p. 38).

The PISA 2018 assessment of reading utilised digital texts. Results from this assessment suggested improvements to our education are not keeping up with the rising demands digital technologies are creating (Organisation for Economic Co-operation and Development, 2019a). The report goes on to say, "At work, at home and in the community, people will need a deep understanding of how others live, in different cultures and traditions, and how others think, whether as scientists or artists" (Organisation for Economic Co-operation and Development, 2019a, p. 14). The assessment of global competence conducted by PISA in 2018 explored some of these capacities with results from the assessment being published in 2020. Results revealed the degree to which digital technologies are transforming the world outside school with an increase of an hour spent online outside of school on weekdays since 2012, as well as three and a half hours on weekends (Organisation for Economic Co-operation and Development, 2019b).Whilst these numbers seem low by 2020 standards, we must remember this is an international assessment covering different socio-economic groups across countries.

Increase in multiculturalism in Australia

As one of the most culturally diverse nations in the world, 29.4% of Australia's population were born overseas, an increasing number that is the highest proportion in over a century (Australian Bureau of Statistics, 2019). Recent figures from the Australian Bureau of Statistics (2019) show that in the year spanning June 2017 to June 2018, 526,000 people arrived in Australia to live, of which 62 % were temporary visa holders. This included 30% (157,800) who were international students across education providers. At the end of 2018, there were 26, 801 international students enrolled in primary and secondary schools across Australia, a 4.4% increase from 2017 with the top four countries international students were immigrating from being: China, India, Nepal and Malaysia (Department of Education and Training, 2018). As a result of increased international migration, progressively diverse multiculturalism has occurred within schools in Australia.

As an example, through Western Australia's close proximity to Asia, as well as sharing the same time zone, trade, migration, employment, agriculture, tourism and technology means constant international, intercultural connections. The West Australian government's Diversity WA strategy contains a specific strategy in increasing the state's Asian engagement with key Asian markets to "diversify its economy and create skilled jobs for West Australians" (Government of Western Australia, 2019, July, p. 21). This includes "maximising investment and trade opportunities, building Asian literacy and capability, enhancing people to people ties, and supporting business networks and communities to capitalize on the opportunities offered by deeper, more focused engagement with Asia" (Government of Western Australia, 2019, July, p. 21). Through increasing these connections, it is more important than ever to be developing intercultural understanding and intercultural communication competence with students in our schools to ensure they can effectively integrate into an internationally interconnected workforce.

Research into how aspects of intercultural understanding can be integrated into learning and teaching pedagogy and programs, developing global citizenship in students, has been prompted by the growing internationalisation of Australian education (Arkoudis, Baik, Marginson, & Cassidy, 2012; Perry & Southwell, 2011; Sercu, 2004, 2010). Whilst multiculturalism is on the rise in Australia, assimilation and integration across cultures is strained, often in our schools. Mansouri and Jenkins (2010) conducted an Australian study that indicated two-thirds of negative intercultural interactions reported by school-aged students were occurring in schools. They, along with Leeds-Hurwitz (2013), highlight schools as ideal communities in which to develop students' global citizenship and positive intercultural relations due to their small-scale versions of society. The literature informed this research study in identifying the need for students to be effective communicators interculturally as they enter workforce as well as in their own communities and schools where multiculturalism is increasing. The intercultural

collaborations were set up through schools, as small-scale versions of society, due to the students' age and the potential referred to in the literature.

Culture

The term culture is broadly used, often without consideration for the complex implication of its meanings. Through this study, the word culture will be used numerous times. Whilst scholars have endeavoured to define culture in many different ways (Hofstede, 2001), culture has different meanings to different people (Gudykunst & Kim, 1997). Samovar and Porter (1991) explain that culture is not a singular concept and requires different definitions:

> We define culture as the deposit of knowledge, experience, beliefs, values, attitudes, meanings, hierarchies, religion, notions of time, roles, spatial relations, concepts of the universe, and material objects and possessions acquired by a group of people in the course of generations through individual and group striving. (p. 51)

Hofstede (2001), a pioneer in the field of culture, defines it as "the collective programming of the mind that distinguishes the members of one group or category of people from another… The mind stands for the head, heart, and hands – that is, for thinking, feeling, and acting, with consequences for beliefs, attitudes, and skills" (pp. 9-10).

McLaren (1998) describes Krober and Kluckhohn's 1954 study where they collected 300 different meanings of culture, experiencing difficulty in defining it as a single definition. Lustig and Koester (1999) define culture through five approaches, outlining how culture is pertinent to communication: "(1) Culture is learned, (2) Culture is a set of shared interpretations, (3) Culture involves beliefs, values, and norms, (4) Culture affects behaviour (5) Culture involves large groups of people" (pp. 30-33).

Culture is learned

According to Bassist, Gelles, and Levine (1991), "Culture itself is passed from one generation to the next through socialism – through children's stories and games, poems, religious rituals, jokes and other learning activities" (p. 66). Hofstede et al. (2010) discuss culture as "mental software, where the collective programming of the mind distinguishes the members of one group or category of people from another. The phenomenon being collective as it is learned through people living or having lived within the same social environment" (p. 6) inferring that culture is learnt through socialisation from an early age through childhood and into adulthood. S. Chen, Hsu, and Caropreso (2006) further agree that culture itself is learned, not inherited. Stephan and Stephan (1996) reinforce this by stating, "culture is the sum of all learned behaviour in a society" (p. 117), whilst Samovar and Porter (2004) explain that people learn and internalise behaviours from those who are in the same group which turns them into a habit.

Culture is a set of shared interpretations

Lederach (1995) defines culture as the "shared schemes and knowledge created by a set of people for interpreting, perceiving, expressing, and responding to the social realities around them" (p. 9). Banks and McGee (1989) discuss the social scientists view of culture today consisting of ideational, symbolic and intangible aspects of human societies. They assert that the essence of culture is not in its artefacts, tools or other cultural elements but in how the members of the group use, interpret and perceive them. Rather than the tangible aspects and material objects of humanised societies, it is the symbols, interpretations, perspectives and values that distinguish one culture from another in modern societies.

Culture involves beliefs, values, and norms and affects behaviour

To be considered culture, a certain way of life would be shared by a large group of people (Jandt, 2004). Culture is a way in which people live with shared values and beliefs, embedded in their thoughts, insight and behaviours when experiencing certain events which can be influenced, challenged and changed based on their experiences (Banks, 2004; Banks & McGee, 1989; Bullivant, 1993). Brislin (1993) explains that, "culture consists of ideals, values and assumptions about life that are widely shared amongst people and that guide specific behaviours" (p. 4). Invisible aspects of culture, norms, are often visible through people's behaviour. Norms, values and beliefs as well as language and symbols may be learned through others in the group, such as peers, teachers, parents and religious institutions through communicating; transmitting successfully requiring the understanding of both verbal and nonverbal messages (Damanhouri, 2018; Gudykunst & Kim, 1997). Chamberlain (2005) agrees, defining culture as the representation of "values, norms, and traditions that affect how individuals of a particular group perceive, think, interact, behave, and make judgments about their world" (p. 197). They can also be learned through history, myths, proverbs, mass media, art, legends and folktales (Samovar & Porter, 2004). Gudykunst and Kim (1997) explore how intangible culture can be visible through people's behaviour, including our values, beliefs and norms. (Brislin, 1993) describes them as guiding principles to be socially acceptable in your behaviour.

Culture involves large groups of people

Collier (2006) defines a group, encompassing a variety of groups, based on people's "nationality, ethnicity, gender, profession, geography, organization, physical ability or disability, community, type of relationship, or other factors" (p. 54) whilst Jandt (2004) defines it as "a community or population sufficiently large enough to be self-sustaining, that is, large enough to produce new generations of members without relying on outside peoples" (p. 7). For this study, groups are named according to their geography, this being the location in which they attend school. The cultural background for each school will be discussed in the contextual sections in Chapter 3.

In schools, culture itself becomes the context for teaching and learning experiences, reflecting a set of common values, events, attitudes, behaviours and beliefs for a particular group of individuals. For the purpose of this research, culture was defined through Lustig and Koester's (1999) five aspect approach as the shared patterns of behaviours and interactions, sensitivity, cognitive constructs, and affective understanding that are learned through a process of socialisation. In this context, the technology facilitated authentic learning experiences. These shared patterns identify the members of a cultural group whilst also distinguishing those of another group.

Educational implications: Culture in the classroom

In education, discussions about culture highlight the importance of students as global learners and often use the term, global competence. Global competence is a challenge to impart in a traditional classroom setting because it encompasses a broad range of both traits and skills thus, this research has been undertaken beyond the traditional classroom setting through an online platform. The authentic learning environment this online platform created will be addressed further on in the chapter.

There is still considerable debate about the main components of intercultural competence despite decades of theorising and research (Deardorff, 2006; Dinges & Baldwin, 1996). Generally, definitions of intercultural competence recognise three key areas: attitudes (respect, openness, and curiosity), knowledge (cultural understanding, language) and skills (effective communication, appropriate behaviour), (Deardorff, 2006, 2014; Hunter, 2004). To be a global citizen, one has an understanding of the broader international context and competence in the three key areas of attitude, knowledge and skills to operate effectively in international and multicultural settings (Abrahamse et al., 2015). Some authors refer to being able to operate effectively in multicultural settings as ICC. Definitions of intercultural understanding highlight the development of this as an ongoing process, which encompasses the three dimensions of knowledge, affective and awareness when interacting with people from differing cultural backgrounds (Perry & Southwell, 2011; Walton et al., 2013). The ongoing process in developing intercultural competence and understanding emphasises the importance of developing this competence from an early age. The literature on the development of intercultural competence and understanding as a life-long process informed this research study through the focus on creating authentic opportunities for primary school students to develop these competences by participating in international, intercultural collaborations.

Intercultural understanding

Intercultural understanding is one of seven general capabilities that play a significant role in achieving the goals set out in the Melbourne Declaration on Educational Goals for Young Australians (Ministerial Council on Education Employment Training and Youth Affairs, 2008).

The Declaration was agreed upon in 2008 by Education Ministers from each state in Australia, where goals are set for young people in Australia to be supported to become successful learners, confident and creative individuals, and active and informed citizens. In December 2018, the Federal Education Minister, Dan Tehan announced that the government would update this declaration to ensure the quality and rigour of education in Australia would provide students with the knowledge and skills to make sense of national and international challenges we face as a nation (Carter, 2018). The declaration acknowledged major changes in the world which are placing new demands on Australian education. Global education and international mobility have increased rapidly in the past decade with new and exciting opportunities emerging, which heighten the need to nurture an appreciation of and respect for social, cultural and religious diversity, and a sense of global citizenship (Ministerial Council on Education Employment Training and Youth Affairs, 2008). The declaration also acknowledged the rapid and continuing advances in information and communication technologies (ICT) and the way in which we share, use, develop and process information and technology, recognising the need for young people to be highly skilled in the use of ICT and for schools to increase their effectiveness significantly over the next decade.

The Alice Springs (Mpartnwe) Education Declaration was made in December 2019 and agreed upon by Education Ministers from each state in Australia. The Declaration set out the vision for education in Australia, building on past declarations signed in Melbourne, Adelaide and Hobart, which have guided the journey of improving educational outcomes for young Australians over the past three decades. In developing this Declaration, the ministers have listened to the voice of young people, educators, parents and the broader community to hear their voice in what is important to them. Interestingly, though the context has dramatically changed over the past decade with cultural, technological and global changes, the educational goals set out in the new Declaration barely changed. Statements that support intercultural learning include supporting students to "… understand their responsibilities as global citizens and know how to affect positive change" (Education Council, 2019, p. 8). The Declaration also states the need for our young people to be "… informed and responsible global and local members of the community who value and celebrate cultural and linguistic differences, and engage in the global community, particularly with our neighbours in the Indo-Pacific region" (p. 10). Further, the Declaration asserts that the role of curriculum is to support "… students to become responsible local and global members of the community in an interconnected world and to engage with complex ethical issues and concepts such as sustainability … [and] practical skills development in areas such as ICT, critical and creative thinking, intercultural understanding and problem solving" (p. 17).

The Australian Curriculum was built upon the Melbourne Declaration on Educational Goals for Young Australians, recognising the importance of intercultural understanding as a key dimension. As a general capability, *intercultural understanding* encompasses knowledge, skills,

behaviours and dispositions that, when applied with the curriculum content of learning areas, assist students to live and work successfully in the 21st Century, drawing on students' growing knowledge, understanding and critical awareness of their own and others' cultural perspectives and practices (Australian Curriculum Assessment and Reporting Authority, 2015; Bullivant, 1993).

The Australian Curriculum's general capability of intercultural understanding is organised into three interrelated organising elements: recognising culture and developing respect, interacting and empathising with others, and reflecting on intercultural experiences and taking responsibility. The learning continuum provides outcomes under these organising elements for students to be mapped against commencing with Foundation (Kindergarten) level at Level 1 and continuing up to Year 10 at Level 6.

The general capability of intercultural understanding from the Australian curriculum informed the investigation in this research study. The study focused on the development of intercultural understanding in primary school students and its elements of *interacting and empathising with others* and *reflecting on intercultural experiences and taking responsibility* through online international, intercultural collaborations with students of the same age. The sub elements of *interacting and empathising with others* addressed in this research study were *communicate across cultures, consider and develop multiple perspectives*, and *empathise with others*. The sub element of *reflecting on intercultural experiences and taking responsibility* addressed in this research study was *reflect on intercultural experiences*. This research study focused on the development of these elements in the primary students through authentic learning experiences, these being the international, intercultural online collaborations. Without these authentic learning experiences, these intercultural understanding elements cannot be taught directly by the teacher in the classroom. This research study sought to utilise these collaborations as a reliable resource to facilitate the development of these elements in the students. The students' outcomes from the interventions, these being the online collaborations, were reflected upon in line with the elements of intercultural understanding from the Australian curriculum. A full extract can be seen in Appendix A. Students should typically be exhibiting Level 4 by the end of Year 6 as shown in Table 2.1 (Australian Curriculum Assessment and Reporting Authority, 2015).

Whilst there are many educational websites that provide international connections for teachers and students to communicate and complete projects together, there is a gap in the research literature where primary school students are involved. To date, research had been conducted in secondary or tertiary institutions. Suggested reasons for this gap in the research are: the perceived threat to young people on the Internet; access to consistent use of technology in primary schools according to available hardware; intercultural understanding not being valued by educators; a crowded curriculum with the additional pressures of national testing; and the ease of

conducting research outside the school context with an audience who require parental approval, therefore resulting in greater ethical constraints. This study was designed to address this gap in the literature.

Table 2.1
Intercultural Understanding – Australian Curriculum

Sub element of intercultural understanding	Level 4 Typically, by the end of Year 6 students:
Interacting and empathising with others element	
Communicate across cultures	identify factors that contribute to understanding in intercultural communication and discuss some strategies to avoid misunderstanding
Consider and develop multiple perspectives	explain perspectives that differ to expand their understanding of an issue
Empathise with others	imagine and describe the situations of others in local, national and global contexts
Reflecting on intercultural experiences and taking responsibility element	
Reflect on intercultural experiences	explain what and how they have learnt from a wide range of intercultural interactions and experiences

Intercultural competence

A significant amount of research has been undertaken over the past half century on the concept of intercultural competence and its interchangeable terms, with more than 20 different frameworks and definitions discussed by Spitzberg and Changon (2009). Intercultural competence is becoming an increasingly important competency as the diverse world in which we live rapidly integrates, which is particularly relevant to employability and as we work through global challenges confronting us (Deardorff, 2014). The growth in attention on intercultural competence is being driven by social and economic factors, with the internationalisation movement central to many tertiary institutions and businesses, and key to 21st Century skills.

Liddicoat and Scarino (2013) explain that, "Intercultural competence means being aware that cultures are relative. That is, being aware that there is no one *normal* way of doing things, but that all behaviors are culturally variable" (p. 23). Intercultural competence is the ability to generate appropriate behaviours in one or more different cultures, appreciating them and transcending ethnocentrism (J. Bennett, Bennett, & Allen, 2003; M. Bennett, 2004, 2009) J. Bennett (2009) describes intercultural competence as "a set of cognitive, affective and behavioral skills and characteristics that support effective and appropriate interaction in a variety of cultural contexts" (p. 95). Due to its complexity, there is no shared definition of ICC (Dusi et al., 2014).

Deardorff (2014) summarises emerging themes from over half a century of research, publications and conferences on intercultural competence:

1. Intercultural competence is a complex, broad learning goal and must be broken down into more discrete, measurable learning objectives representing specific knowledge, attitude or skills areas.
2. The attainment of intercultural competence is a lifelong developmental process which means there is no point at which one becomes fully interculturally competent.
3. Language fluency is necessary but in itself insufficient to represent intercultural competence.
4. Intercultural competence must be intentionally addressed throughout the curriculum and through experiential learning (such as study abroad, service learning, and so on).
5. Faculty need a clearer understanding of intercultural competence in order to more adequately address this in their courses (regardless of discipline) and in order to guide students in developing intercultural competence. (p. 1)

Blell and Doff (2014) assert that it seems impossible whilst culture exists as a closed concept, to define intercultural competence as it "can no longer be seen as a monolithic and static construct" (p. 78) calling for a movement beyond teaching about culture where we go past categorising cultures through descriptions of nationality, appearance, or religion. Blell and Doff call to "recognize hybridity as a central criterion for transcultural constructedness (e.g., hybrid identity, hybrid language, hybrid living and working space)" (pp. 83-84) calling on the "critical transcultural awareness [that] must be built up in the sense of being critically aware of both the options and limitations of plurality and diversity of human beings" (p. 84). For this reason, the students in this research study are referred to as the students in Australia, the students in Spain and the students in Thailand rather than categorising them by their nationality the Australian students, the Spanish students, the Thai students.

Deardorff (2006, 2014) describes the process of intercultural competence development, noting that it is a state of permanent change and can never be fully achieved in an individual. It is an "ongoing process of intercultural competence development, which means it is a continual process of improvement, and as such, one may never achieve ultimate intercultural competence" (p. 257). Therefore, when assessed using a scale, intercultural competence can never be fully reached; we must focus on the developmental process (Deardorff, 2015). Blell and Doff (2014) explain that in order for students to master intercultural encounters they need to have, "on the one hand, extended global knowledge particularly about asymmetrical social and cultural distribution processes and, on the other, appropriate skills to flexibly change and coordinate appropriate perspectives" (p. 84)

Progressing further from the UNESCO (2006) *Guidelines on Intercultural Education document*, Leeds-Hurwitz (2013) developed a more comprehensive operational and conceptual framework on developing intercultural competences with a shift towards actively enacting an individual's intercultural understanding – the move from understanding to competences reflecting

another development in the discourse of intercultural education. The operational plan builds upon the concepts of intercultural competence and is depicted visually as branches on the trunk of a tree. The tree depicts a symbolic view where all concepts are nurtured by the same moral and intellectual sap showing an organic system of concepts; one of many ways possible to demonstrate the relationships between ideas. At the roots of the tree lies *culture* and *communication,* whilst *intercultural dialogue, human rights* and *cultural diversity* form its trunk. All theoretical concepts have relevant potential through all of the operational steps at a minimum, with no match at a specific branch. Five steps are represented as branches; each complementary to each other and essential to the development of intercultural competence. Whilst *clarifying* has received the most attention to date, in order to play a part in a broad range of contexts, intercultural competences must be actively *promoted*, *taught* and *enacted*. *Supporting* the spread of intercultural competences is the fifth branch. Various manners of the articulation or understanding of intercultural competences in concrete contexts are represented by the leaves. Whilst some organisations have already begun some of these processes represented in the branches, more are required across all five steps.

We are not born interculturally competent; this competence develops through life and education experiences. The scope of intercultural competences is much broader than the formal education schools provide in nurturing skills and abilities. Teachers must expand learning opportunities to a new generation of cybercitizens where global conversations may not have been imagined. The scope outlined here links to this research study where the students were provided with expanded learning opportunities to develop their intercultural competence by collaborating through authentic experiences on learning tasks with students from a different country and culture.

Intercultural communication

Intercultural communication has been described by Gudykunst (2003) and Jandt (2004) as interactions occurring face-to-face, however, Barnett and Lee (2003) assert that international organisations and mass media are also significant in fostering or enabling this communication. Hofstede (2001) asserts that the foundation of intercultural communication is when people from two different cultures encounter and interact with each other, communicating interculturally. Cross-cultural communication is defined as the "comparison of face-to-face communication across cultures" (Gudykunst, 2003, p. vii). Whilst research on intercultural communication focuses on the communication between people from different cultures, cross-cultural communication tends to be comparative. This research study focuses on intercultural communication. Barnett and Lee (2003) define intercultural communication as cultural information being exchanged between people from different cultures; the two people, parties or groups involved in the intercultural communication being from significantly different cultures (Barnett & Lee, 2003; Lustig & Koester, 1999; Samovar & Porter, 2004). McDaniel, Samovar, and Porter (2006) refer to intercultural communication occurring "whenever a message produced

in one culture must be processed in another culture" (p. 7), though, in some cases the interpretation of the message may carry a different meaning than intended (Samovar & Porter, 1997). Lustig and Koester (2007) refine the definition to "a symbolic, interpretive, transactional, contextual process in which people created shared meanings" (p. 46); ICC a key part of intercultural communication research (Wiseman, 2002).

Barriers in intercultural communication

Variances in people communicating interculturally can lead to possible barriers, impeding intercultural communication (Jandt, 2004). The examination of intercultural communication barriers by (Barna, 1997) identified a list of six stumbling blocks as the main causes of misunderstanding and frustration in intercultural communication; assumption of similarities, language differences, nonverbal misinterpretations, preconceptions and stereotypes, tendency to evaluate, and high anxiety. Ethnocentrism is also referred to as a barrier (Gudykunst, 1991; Gudykunst & Kim, 1997; Jandt, 2004; Linde, 1997; Lustig & Koester, 1999). These stumbling blocks will be utilised for the purposes of this research study when discussing problems that have arisen through the intercultural communications.

Assuming similarity instead of differences

When socialising, it is natural for people to be drawn to others with whom we have commonalities (Jandt, 2004; Samovar & Porter, 2004). However, when communicating interculturally, this can cause problems as looking for *similarities* can lead to the exclusion of those who possess cultural distinctiveness (Samovar & Porter, 2004). Jandt (2004) explains the assumption of similarity between cultures can result in you becoming distracted, unaware of the important *differences*. Alternatively, assuming difference can result in the same affect, not recognising valuable things that cultures have in common. The best way to approach the intercultural communication is to assume nothing and enter the communication with an open mind.

Language differences

Though one of the most obvious barriers, *language* is quite possibly not the most fundamental when communicating interculturally. Deardorff (2014) explains that whilst language fluency is needed, it is insufficient to signify intercultural competence in itself. Individuals who feel they do not have a perfect command of another's language or do not share a common language may experience some difficulties when communicating; misunderstandings likely when there is no common language (Keles, 2013). Jandt (2010) discusses two ways in which language creates a barrier in intercultural communication: language as nationalism and translation problems between languages.

Translation problems between languages can occur because of experiential equivalence, conceptual equivalence, idiomatic equivalence and vocabulary equivalence (Jandt, 2001, 2010). Experiential equivalence relates to the existence of experiences or objects in one culture that do not exist in another, resulting in difficulties in translating this into the language of the other culture. Conceptual equivalence is similar to experiential equivalence, though referring to concepts and ideas that are not understood, recognised and comprehended in the same ways in different cultures. Communication issues can occur through idiomatic equivalence whereby the native language speakers understand; however, non-native speakers can experience difficulties in translating and understanding the idiom which can result in a meaningless or unusual reaction. Vocabulary equivalence ensues when there are not corresponding words in one language that match precisely with the meaning in the other language. This is compounded when translating between languages is attempted. Though, a language in common does not guarantee understanding; many individuals have different understandings of the meanings of words (Jandt, 2001, 2010). Barna (1997) describes the worst language problem as "the tenacity with which someone will cling to just one meaning or a word or phrase in the new language, regardless of connotation or context" (p. 340).

Language as nationalism connects people together through relationships whereby language reflects what they eat, see and think (Jandt, 2010). Language has a direct correlation with culture and is defined as "a set of symbols shared by a community to communicate meaning and experience" (p. 128). Language throughout history has evolved to be vital and central to national identity; linguistic imperialism creating a barrier when people with more power force the use of a particular language on others within the nation. Though, nationalist regimes that rule the Serbian, Croatian and Muslim parts of Bosnia have changed spellings and added new pronunciations as well as new words to distinguish their national identity and language (Jandt, 2010). In this research study, the national language of Australia is English and was utilised throughout the case studies. The native language of Spain is Spanish, though, the students in the school in Spain's first language was Catalan, in line with the region they reside in, and their third language, English learnt at school. The case studies with the school in Spain were conducted using English as the language of communication. As their Science lessons were conducted using the English language, this contributed to the choice of language as the basis for intercultural communication. The native language of Thailand is Thai, the only language the students in Thailand are fluent in. Though, they have begun to learn the letter-sound correlation of the English language and some simple word-picture correlations. An online translation tool was required for the case study with the students in Thailand, translating between English for the students in Australia and Thai for the students in Thailand.

Nonverbal misinterpretations

McNeil (2000) interprets both nonverbal and verbal communication as inseparable under the concept of communication with intercultural and nonverbal communication. Two critical areas of communication study, the interrelationship between nonverbal and intercultural communication has captured the interest of many scholars (Shi & Fan, 2010). Nonverbal communications are messages without words, sent through eye contact, proximity, expectations regarding time, gestures, the meaning of silence, et cetera which can easily be misinterpreted. McNeil (2000) explains that two-thirds of communication is nonverbal, an essential part of the face-to-face interaction process. Nonverbal communications take different forms such as facial movements, eye contact, use of time and space, personal space and gestures; the use of gesture and eye contact very powerful in their meaning and varying significantly across cultures as it is ambiguous and culture bound. As meanings associated with these contrast between cultures, the possibility of *nonverbal misinterpretations* can occur (Jandt, 2001, 2010).

Jandt (2001) describes some of the ways in which nonverbal messages can be misinterpreted such as the use of a handshake as an appropriate greeting in some cultures, whilst others an embrace or a bow. Whilst some cultures such as Northern Europeans or Asians use no gaze at all or only a peripheral gaze when conversing with others, Southern Europeans or Arabs look into the eyes when speaking. Use of time in how long one should be kept waiting varies as well as silence, which in some cultures indicates a lack of interest or shyness (Australians) or respect (Chinese people). In regard to touch, different cultures have different meanings. In Western countries, touching the top of a child's head can be commonly seen as affectionate whilst in Thailand, this is deemed rude for strangers to do; the top of their head a home of the soul and the spirit. This research study utilised predominantly asynchronous communication, with one synchronous connection through Google Hangouts conducted for the first two case studies with the school in Spain. It was only through this synchronous connection that non-verbal communication could be interpreted. Through the data analysis, these behaviours were noted in the students' reflections and correlated with the researcher's journal notes from observations during the synchronous sessions.

Preconceptions and stereotypes

Samovar and Porter (1991) describe *prejudice* as similar to stereotypes in that they can be negative or positive, though generally referred to as biased, unfair intolerant opinions or attitudes towards another group or individual simply because they belong to a specific group, be that nationality, religion or race. This involves individuals or groups basing their *preconceptions* on unfounded beliefs, attitudes or opinions according to superficial characteristics, not basing them on one's individual merit. "Prejudice refers to negative attitudes towards other people that are based on faulty and inflexible stereotypes" (Lustig & Koester, 1999, p. 153) whilst Bolgatz

(2005) asserts, "It is the judgements we make about others without sufficient evidence to substantiate the opinions" (p. 27).

Barna (1997) describes stereotypes as "overgeneralized, second-hand beliefs that provide a conceptual basis from which we *make sense* out of what goes on around us, whether or not they are accurate or fit the circumstance" (p. 341). Brislin (1993) and Lustig and Koester (1999) agree, the lack of acknowledgement of one's individualities overlooked. Stereotyping as a barrier in intercultural communication is due to its overgeneralised, exaggerated or oversimplified nature (Samovar & Porter, 2004) with clear links to ethnocentrism, where one assumes they are superior to another (McLaren, 1998; Neuliep, 2006). People are often misled by the expectations that stereotypes create, leading us to misinterpret messages we receive from others who are different whilst those who are different are led to misinterpret the message they receive from us (Gudykunst, 1991). The problems that stereotypes could create through communicating interculturally might be the assumption that stereotyping beliefs are true when aren't. Beliefs that are prevalent are assumed to apply to one person; one who stereotypes may affect another person's behaviour because of the former's beliefs and the continual adoption of stereotypical beliefs could result in reinforcement of these beliefs (Jandt, 2004). Stereotyping can place those who are stereotyped at risk, becoming a self-fulfilling prophecy.

Tendency to evaluate

The *tendency to evaluate* is a barrier to understanding; to disapprove or approve the actions or statements of the person or group from a different culture or ethnic group rather than trying to "comprehend completely the thoughts and feelings expressed from the world view of the other" (Barna, 1997, p. 342). Whilst in one's way of life their culture seems natural, right and proper, the bias this can create prevents open-mindedness (G. Chen & Starosta, 2000). That is, to look at the other person's point of view, looking at their behaviour patterns and attitudes. Barna refers to an example whereby the opinion of a siesta in the middle of the day could be perceived by one from a differing culture as a habit that displays laziness. However, upon listening and learning the temperatures of the place in which this is occurring, one would recognise that this in fact, is a logical idea. The difficulty lies in resisting the tendency to immediately evaluate. As asserted by Sherif, Sherif, and Nebergall (1965), "A person's commitment to his religion, politics, values of his family, and his stand on the virtue of his way of life are ingredients in his self-picture – intimately felt and cherished" (p. vi). Once fully comprehended, one can assess whether there is a clash in ideology or values. Discussion should follow to alleviate conflict or adjust behaviours to form a consensus on respecting others' values, considering why the other person is communicating or behaving a certain way. The development of one's sense of right and wrong is continued; the focus is to listen empathetically to achieve a fair and complete understanding rather than judge one whom is different to oneself (Barna, 1997).

High anxiety

Anxiety can be felt when encountering or interacting interculturally; a natural focus on feeling not sure what to do and what the behaviour of the people they are about to interact with might be, which can lead to a diminished presence in the communication (Jandt, 2004). This can be defined as the degree to which the individuals of a culture feel threatened or vulnerable by ambiguous or unknown situations, articulated as uncertainty avoidance by Hofstede and Hofstede (2005). This can lead to the avoidance of situations where people have to face strangers (Neuliep, 2006). Where one's uncertainty is not diminished, avoidance of the situation tends to occur.

Ethnocentrism

Ethnocentrism, otherwise known as cultural relativism, is a barrier in intercultural communication, referring to the belief that one thinks their culture is superior to that of the others', judging them by the standards of their own culture (Jandt, 2004; Linde, 1997; Lustig & Koester, 1999). Gudykunst (1991) explains that, "Ethnocentrism is a bias toward the ingroup that causes us to evaluate different patterns of behaviour negatively, rather than to try to understand them" (p. 67) and has been linked to a lower cultural sensitivity (Hammer, Bennett, & Wiseman, 2003; Lin, Rancer, & Lim, 2003). Effective intercultural communication can be hindered by ethnocentrism as instead of magnifying the similarities, it tends to heighten the emphasis on the differences in cultures (Lustig & Koester, 1999). As discussed previously, differences can discourage people from interacting with other cultures when uncertainty is at play, which could lead a lack of understanding of the cultural differences between cultures (Gudykunst & Kim, 1997).

Novinger (2001) explains that one may judge another's differences as "impolite, irresponsible, inferior" (p. 20). Ethnocentric minds judging others' differences as inferior to their own (Gudykunst & Kim, 1997) can lead to ethnocentric perceptions that may influence an individual's perception. Learning and understanding other cultures can help individuals to not only understand and appreciate their own culture but those of others as well (Neuliep, Hintz, & McCroskey, 2005; Wiseman, Hammer, & Nishida, 1989). It means "that we must try to understand other people's behavior in the context of their culture before we judge it" (Jandt, 2004, p. 78). Cultural misunderstandings due to ethnocentrism can occur if not recognised, demonstrating limited human thinking and behaving.

With ethnocentrism at one end of the continuum, ethno relativism is at the other end. M. Bennett (1986) developed a model through the core concept of difference with six stages: denial, defence, minimisation, acceptance, adaptation and integration. Cultural differences must be recognised to exist amongst individuals in order to move from ethnocentrism to ethno relativism. The first stage assumes that everyone is the same as us with the second stage characterised by the feeling of superiority of one's culture over another. Whilst differences are recognised in the third

stage, they are trivialised with the basic assumption that all humans are alike. Respect and acceptance of cultural differences features in the fourth stage followed by the recognition of this evolving into an observable behaviour in the fifth; individual's exhibiting a pluralistic style of thought and cultural empathy. The adaptation to cultural difference and enjoying experiencing these differences, the final stage at the ethno relativism end of the continuum.

Intercultural communication competence

The concept of ICC encapsulates the ability to interact with people from another culture in ways that are both appropriate and effective, This involves not only adequate language skills and knowledge about the culture, but a willingness to understand their culture (Barker, 2016). Holopainen and Björkman (2005) further emphasise the importance of a willingness to be involved whilst Kim (2001) acknowledges competence in cultural norms and language for intercultural communication to be effective. Wiseman (2002) explains that ICC is gained through conscious and consistent attempts, not naturally occurring to humans. Matveev and Meerz (n.d.) and Matveev and Nelson (2004) assert the cultural exchange necessary in everyday actions warrants the competence of intercultural knowledge and ability as essential tools for our society. As a broader definition, containing several existing theoretical models, ICC is referred to as the motivation, knowledge and skills to interact appropriately and effectively with people from other cultures (G. Chen, 1989; Spitzberg & Changon, 2009; Wiseman, 2003) with Fantini (2006) asserting, ICC is "a complex of abilities needed to perform effectively and appropriately when interacting with others who are linguistically and culturally different from oneself" (p. 12) . Spitzberg (1991) asserts, "Effectiveness is the successful accomplishment of valued goals, objectives, or rewards relative to costs. Appropriateness means that the valued rules, norms and expectancies of the relationship are not violated significantly" (p. 354). The work of Spitzberg (Spitzberg, 2013; Spitzberg & Changon, 2009; Spitzberg & Cupach, 2011) explored social judgement; competence considered an impression rather than a behaviour. Rather than something one does, competence being something one is perceived to be; an impression with desired outcomes achieved.

Intercultural competence, as a term in academic discourse, is often used interchangeably with terms *intercultural sensitivity* (M. Bennett, 1986)*, intercultural literacies* (Starke-Meyerring, 2005) and more recently, the term *cultural intelligence (CQ)* (Earley, Ang, & Tan, 2006; Wang, Benner, & Kim, 2015). Tamam (2010) found some components of ICC that had previously been regarded as culture-general were presenting as culture-specific, whilst the influence of culture-specific communication relationships on the process of developing ICC have not been fully considered. Of consequence, at this stage ICC frameworks cannot be seamlessly transferrable across cultures.

Research has predominantly focused on values rather than communication patterns, identifying dimensions of intercultural variables (Hofstede, 1984; House, Hanges, Javidan, Dorfman, & Gupta, 2004). Casmir (1999) highlights the significance in communication differences interculturally, respecting verbal and non-verbal means, which emphasise the dynamic and evolving nature of cultures through communication. Berry (2009) asserts that intercultural interaction leads to transformations in both groups, recommending the examination of the nature of the relationships between the two groups in terms of level of respect, compatibility and equality. Of most importance is the examination of how intercultural differences are perceived by people involved in the intercultural communication. Learners must be able to understand interpretations and ambiguities of which most would stem from personal experience (Byram, 1997). Therefore, it is imperative that we examine how learners' motivation, attitudes and own cultural identity play a role in developing ICC. Chun (2011) explains, "Intercultural communication competence involves an understanding not only of the culture and language being studied, but also the readiness to suspend disbelief and judgment about the other culture and willingness to reflect on one's own culture" (p. 393). Establishing and maintaining relationships is as important as the efficiency in exchanging information interculturally between people, with the ability to relate and understand each other significant in the communication process (Byram, 1997).

Dimensions of intercultural communication competence

ICC is an umbrella concept which is conceptualised as the behavioural, cognitive and affective ability of interactants in the process of effective and appropriate intercultural communication (G. Chen & Starosta, 2000). G. Chen (2010) and G. Chen and Starosta (1997, 1998, 2000) conceptualised this as intercultural adroitness (behaviour), awareness (cognitive) and sensitivity (affective) respectively. This aligns with definition of intercultural competence as described by J. Bennett (2009). As the majority of the existing ICC theories and models were developed by European and American scholars, one must be aware that the dominant paradigm of research into ICC is not free from the cultural, academic or linguistic biases of Eurocentrism (Miike, 2003, 2012). G. Chen and Starosta (1998) definitions of the three dimensions of ICC were utilised for the purposes of this study.

Intercultural adroitness (behavioural)

The behavioural aspect of ICC encapsulates the ability for communicators to function in the host society. G. Chen (1989) described intercultural adroitness as focusing on "communication skills, such as behavioral flexibility, interactional management, and verbal and nonverbal skills, in intercultural interaction settings" (p. 49). Kim (2001) explained, "Through the use of culturally sanctioned communication patterns, people perceive themselves, and are perceived by others, as socially 'normal' or 'healthy' individuals" (p. 49). The behavioural aspects of ICC primarily capture effectiveness, though G. Chen (2013) felt in order to describe the ability

to successfully apply intercultural sensitivity and awareness, the term adroitness was preferred. Drawing on and utilising reflective behavioural skills to behave *appropriately* and *effectively* during intercultural interactions and situations, adapting as necessary, is imperative in ICC (Arasaratnam & Doerfel, 2005; Deardorff, 2014).

Intercultural awareness (cognitive)

The cognitive aspect of ICC encapsulates the ability for communicators to accurately interpret and perceive verbal messages and non-verbal cues. This requires knowledge of cultural features, including beliefs, values, family roles, societal patterns and social interaction norms. The ability to construct messages and relate to the other person so they can understand describes the cognitive complexity of intercultural awareness (Arasaratnam & Doerfel, 2005). The cognitive aspects of ICC are conceptualised as intercultural awareness (G. Chen, 2010, 2013), which is culture specific when measured (G. Chen & Young, 2012).

Intercultural sensitivity (affective)

The affective aspect of ICC encapsulates both the motivation and ability for communicators to empathise, appreciate, and be responsive and respectful to the aesthetic and emotional experience of members of the host-culture; being accepting of intercultural differences and the emotional connection one has to another culture (Arasaratnam & Doerfel, 2005; G. Chen & Starosta, 1998). The affective aspects of ICC were conceptualised as intercultural sensitivity (G. Chen & Starosta, 2000). The measurement of intercultural sensitivity is culture-general and includes attributes such as open-mindedness, self-monitoring, empathy, interaction confidence, interaction enjoyment, interaction engagement and attentiveness. The affective aspect of ICC refers to the concept of intercultural sensitivity which signifies the individual's readiness to understand and appreciate cultural differences in intercultural communication (G. Chen & Starosta, 1998). G. Chen and Starosta (2000) refer to sensitivity as an individual's capacity to comprehend and appreciate cultural differences. Their research centres largely on the sensitivity dimension and included the construction of the Intercultural Sensitivity Scale (ISS). G. Chen (1997) states that:

> Intercultural sensitivity can be conceptualized as an individual's ability to develop a positive emotion towards understanding and appreciating cultural differences that promotes an appropriate and effective behaviour in intercultural communication. This definition shows that intercultural sensitivity is a dynamic concept. It reveals that interculturally sensitive persons must have a desire to motivate themselves to understand, appreciate, and accept differences among cultures, and to produce a positive outcome from intercultural interactions. (p. 6)

G. Chen and Starosta (1996) define cultural sensitivity as being associated with greater potential for exercising intercultural competence. Individuals who develop their awareness and sensitivity towards cultures other than their own increase their knowledge, skills and attitudes to

communicate effectively in various intercultural encounters over time. The more interculturally sensitive a person is, the more interculturally competent the person can be (J. Bennett, 1993; G. Chen, 1997; G. Chen & Starosta, 1998). This is a constructivist assumption in that one's potential in intercultural competence increases as they participate in more sophisticated and complex experiences of cultural difference. In principle, the ability to enrich one's self-awareness and the quality of appreciating, understanding and accommodating cultural differences leads to effective and appropriate behaviour in intercultural communication. This is what is termed intercultural sensitivity (J. Bennett, 1993). An individual who is culturally sensitive has the capacity to recognise, acknowledge and respect cultural differences and is therefore considered culturally competent. ICC assessment aims to evaluate an individual's knowledge, skills and attitudes at a given time, however, intercultural competence is a process that evolves throughout one's lifetime (Deardorff, 2006). Individuals need to develop and adjust over time to become or remain culturally competent in constantly changing societies.

Increased attention to intercultural sensitivity in the multicultural and globalising society through the past decades has caused confusion relating to the concept (G. Chen & Starosta, 2000). As a component of ICC, the understanding of intercultural sensitivity is yet to be widely understood. G. Chen and Starosta (1996, 1998) identify the confusion embedded in the misperception of three concepts: ICC, intercultural sensitivity and intercultural awareness. These concepts, while closely related, are separate concepts. Positive correlations are indicated between ICC and intercultural sensitivity.

Intercultural validation and further examination on the interrelationships between the three ICC components is required (G. Chen, 2013; Deardorff, 2006; Spitzberg, 1991). For example, G. Chen (2010) questioned whether a communicator who is interculturally aware is effective without being interculturally sensitive. Generally, it is unclear how individuals truly develop ICC in specific intercultural contexts with current models assuming it is acquired regardless of the specific cultures involved. Whilst Western cultural norms are argued to be implicit in ICC instruments and models (Deardorff, 2009; Tamam, 2010; Witteborn, 2003) some components of the G. Chen (1989) ICC model are culture-specific (Tili & Barker, 2015).

Educational implications of intercultural communication competence

Academic institutions are exploring the potential for multicultural education with the capabilities of modern ICT, which will enable students to develop intercultural knowledge, skills and competences through practical applications that are required to be successful in our globalised society. Not only do students need to develop a sense of multiculturalism but the skills of effective communication, collaboration and social interaction in order to interact appropriately with individuals from differing cultures (S. Chen et al., 2006). Educators involved in collaborative projects benefit from professional learning immensely, through mutually creating new learning approaches and the exchange of knowledge across disciplines and institutions (Bégin-Caouette,

2013). Despite the demands of intercultural collaborative projects for both the educators and the students, Starke-Meyerring and Andrews (2006) emphasise the willingness to embrace ambiguity and enjoy the experience, and the need to have fun despite uncertainty by all parties involved. Following their own global classroom project, T. Herrington and Tretyakov (2005) describe the difficulties online collaborations create in pushing educators and students outside their comfort zones, explaining that chaos will be inevitable but should be a welcome part of intercultural collaborative projects. The literature informed this research study through the inclusion of schools whose ICT cultural characteristics aligned; the nature of teachers to be innovative and supportive of implementing new pedagogies to enhance students learning outcomes required. The cultural characteristics of schools will be addressed later in this chapter in the ICT in schools section.

Intercultural communication differences

ICC relies on the assumption that the development of competences in one setting, support future intercultural encounters. Whilst evidence supports this premise (Fail, Thompson, & Walker, 2004; Kim, 2008; Lyttle, Barker, & Cornwell, 2011), in order for new culture-specific behaviours and awareness to be acquired, an active learning process is necessary (Barker, 2016). For the purpose of this study, the researcher used the term *intercultural* as the study involved interaction amongst people from different cultures. The word *competence* was used to refer to the intercultural communication ability of the student/s whilst *understanding* referred to the student's mindset.

Web 2.0

Changes from Web 1.0 to 2.0 have adjusted and varied the way humans behave, interact and acquire knowledge. Although the Internet has been used since the early 1980s to connect with others, the last decade has seen social networking services proliferate; their use becoming widespread practice, particularly amongst young people (L. Johnson, Levine, Smith, & Smythe, 2009). According to G. Chen (2013) the development of technology over the last two decades, particularly in the area of communication technology, is the main reason the world now faces intercultural communication on a daily basis.

Web 1.0 was developed as a web or system of cognition, the first generation of the web, which was considered a read-only web: static and mono directional. It began as a place where businesses could broadcast their information to people with limited content contributions or user interactions, where you could only search the information and read it (Aghaei, Nematbakhsh, & Farsani, 2012). The developments of Web 2.0 technologies are moving faster than the development of theoretical frameworks for their utilisation in education and training. Web 2.0 is tied to human communication and learning, allowing learners to share and create content in an instantaneous and dynamic manner through social networking. The environments allow networks to provide the possibility of anytime, anywhere seamless learning, where sites can be customised

by users. Web 2.0 tools foster interaction, collaboration and contribution by allowing user generated content to reflect the collective intelligence of the users through co-creating, co-editing and co-constructing knowledge (Aghaei et al., 2012; Gundawardena et al., 2009). Web 3.0 is known as the semantic web, thought up by the inventor of the World Wide Web Tim Berners-Lee. Web 3.0 uses various data sets to acquire new information steams by integrating, linking and analysing data. It can "improve data management, support accessibility of mobile internet, stimulate creativity and innovation, encourage factor of globalization phenomena, enhance customers' satisfaction and help to organize collaboration in social web" (Aghaei et al., 2012, p. 5). The motive behind Web 4.0 was the interaction between machines and humans in symbiosis. Based on multiple technologies, models and social relationships, a new evolution of the Web paradigm, the concept is not unanimous and clear in the literature as it is composed by several dimensions. Whilst there is no precise idea, the web is moving towards becoming an intelligent web, utilising artificial intelligence (Almeida, 2017).

The characteristics of Web 2.0 make it the ideal context in which to observe the development of ICC as students can interact, network and collaborate with others beyond the traditional classroom setting, through social constructivist engagement. The use of social networking technology can foster strong feelings of social connectedness when employed for pedagogical use (Hung & Yeuen, 2010). As people are familiar with the interfaces and features of social media platforms, they create excellent opportunities to promote understanding through connecting people of diverse cultures (P. H. Wu & Marek, 2016).

The Organisation for Economic Co-operation and Development (2019a) describes how the world has been transformed through the use of digital tools outside school;

> Everywhere, digital technologies are offering firms new business models and opportunities to enter the markets and transform their production processes. They can make us live longer and healthier, help us with boring or dangerous tasks, and allow us to travel into virtual worlds. People who cannot navigate through the digital landscape can no longer participate fully in our social, economic and cultural life. (p. 13)

ICC has received increasing consideration as components of 21st Century skills, as interactive social technologies increase opportunities to engage, interact and communicate with people across cultural, linguistic and geographic boundaries (Helm & Guth, 2010; Ware & Rivas, 2012). The potentially significant impact of social networking on intercultural dialogue across geographical locations is what teachers need to make their students aware of in order to make the intercultural exchange compelling beyond the use of social media to learn (Lee & Markey, 2014). The literature informed this research study through the inclusion of Web 2.0 tools, social technologies, as a way to facilitate collaborations and intercultural communication geographically with primary school students in different countries. The use of these tools enabled the students to

collaborate dynamically and co-create, co-edit and co-construct knowledge across different international time zones.

ICT in schools

Around the world new challenges are faced by education systems as they adapt to the rapid and dynamic developments in technology, as society evolves towards a knowledge or information society (Anderson, 2008; Eickelmann, 2011; Voogt & Knezek, 2008). Results from recent PISA assessments on global competence in our students revealed the degree to which digital technologies are transforming our world outside school (Organisation for Economic Co-operation and Development, 2019b). Information and Communication Technologies (ICT) enable us to collect, store, create and use information and knowledge. They enable us to benefit from knowledge products and distribute these, connect with people and resources all over the world, and collaborate to create knowledge through a social constructivist approach (Loveless & Dore, 2002).

Contextual characteristics, innovation capacity and performance levels differ between schools (Otto & Albion, 2002). School systems and their schools recognise new competences and skills are required for students to work in the information age, preparing them for life; the importance of digital literacy at the forefront as we head into the Fourth Industrial Revolution (Fraillon, Schulz, & Ainley, 2013; Organisation for Economic Co-operation and Development, 2019b; Voogt, Erstad, Dede, & Mishra, 2013; World Economic Forum, 2020).

Multiple studies found that whilst ICT works in some schools, it barely does in others. This is dependent on structural school characteristics such as infrastructure provisions, ICT planning and digital hardware resources available such as computers (Bradley & Russell, 1997; Palagolla & Wickramarachchi, 2019) and ICT support such as specialised staff (Lawson & Comber, 1999). Research into the integration of ICT in education has focused on the *structural characteristics* of schools without addressing the *cultural characteristics* such as the educational philosophy shared by staff at the school, supportive leadership and innovation, resulting in different school profiles (Palagolla & Wickramarachchi, 2019; Tondeur, Devos, Van Houtte, van Braak, & Valcke, 2009). One of the underlying facets of school culture as outlined by Devos, Bouckenooghe, Engels, Hotton, and Aelterman (2007) is innovativeness which "reflects to what extent school members adapt themselves to change, and have an open attitude towards educational innovations" (p. 44). Tondeur et al. (2009) explain the complications of integrating ICT into educational learning systems through their research. Schools need the fine balance between cultural and structural characteristics, outcomes revealing a higher level of ICT integration.

Tondeur (2020, Jan 4) summarised research conducted across two years in four pilot schools in Kenya, designed to support teachers in learning how to integrate technology into their curriculum. Findings from the study confirm that the integration of technology in schools requires

more than adequate hardware and software and comprises of comprehending the dynamic and interactive relationship and its factors between ICT, its application and the content of the curriculum. Gerick, Eickelmann, and Bos (2017) investigated school-level predictors for the use of ICT in schools across four countries: Australia, Germany, Norway and the Czech Republic with results demonstrating variance between education systems and the development of their students' computer information literacy (CIL). Whilst no significant effects were noted between the correlation of students' CIL and the teachers' use of ICT in schools in Australia, Norway and the Czech Republic, they did show statistically significant correlations in Germany. In Australia and Norway, teachers' participation in professional development was related to students' acquisition of CIL. The self-efficacy of teaching staff played a significant role in Czech Republic and in Germany, the use of ICT in teaching found pedagogical IT support to be crucial. The most important factor for the integration of ICT in teaching in all four countries was teaching staff characteristics, in particular, the self-efficacy of the staff in the school and in their ability to use ICT confidently in their teaching (Gerick et al., 2017).

When identifying schools for this research study, the literature informed the study by considering the structural and cultural characteristics in each school prior to confirming their involvement. These characteristics, as evident in the literature reviewed in this section, are required in order for the collaborations to be undertaken successfully. In this research study, school structural characteristics were dependent in terms of infrastructure provisions, digital hardware resources such as computers, access to the Internet as well as access to ICT specialised support staff. Without these structural characteristics the international, intercultural collaborations through Web 2.0 tools could not have occurred. Cultural characteristics were also considered in terms of the educational philosophy of the teachers, including their innovativeness which was evident through the initial stages in preparing each of the collaborations prior to implementing these with the students. Information on the structural characteristics of each school is outlined to provide contextual background information for each case study in Chapters 4 and 5.

Social constructivist theory and metacognition

The social constructivist theory analyses the centrality of culture to human life leading to the development of culture in its own right (Shuter, 1990; Vygotsky, 1978). Social constructivists view the social construction of knowledge through interaction mediated by socio-cultural dialogue or language as learning (Bonk & Cunningham, 1998; Vygotsky, 1978). As individuals learn to interact socially, they develop their understanding of social norms and their ability to evaluate each other's actions according to systems of shared values and beliefs (DeFleur & Ball-Rokeach, 1982). To understand intercultural communication involves studying the links between communication and culture (S. Chen et al., 2006). Web 2.0 technologies facilitate social constructivism through the communication and collaboration of students from different countries and cultures in synchronous and asynchronous environments.

Vygotsky (1978) argues that when people interact with tools and each other this allows for the extension of human capabilities. Therefore, social networking tools that we use change how we think, how we learn, and how we interact with each other. This in turn, when communicating with students from a different culture, exposes students to new interpretations derived from differing cultural understandings, perspectives, interactions and rituals. The use of online technologies promotes active and engaged learning, where participants construct knowledge through their interaction and exploration with other students (Kamel Boulos & Wheeler, 2007). In today's digital age, students construct knowledge and produce creative artefacts using a variety of technologies to demonstrate their learning (International Society for Technology in Education, 2016). The rapid growth of free online technologies and web tools such as blogs, wikis, Edmodo, app building and website construction has increased their consideration for use in the classroom (Richardson, 2009). With technology implemented as a constructivist tool, students are supported in processing information, collaborating and creating representations of conceptual knowledge (Jonassen, Peck, & Wilson, 1999).

Social constructivist theory explains that through students managing the construction of knowledge at their own pace, the self-regulated nature of metacognition is supported (Michalsky, Zion, & Mevarech, 2007). Driscoll (2002) defines metacognition as one's awareness of thinking and the self-regulatory behaviour that accompanies this awareness whilst S. D. Johnson (1996) asserts that metacognition is an integral factor in problem solving, learning and intelligence, explaining that:

> Metacognition involves the planning that takes place before we begin a thinking activity, regulation of our thinking as we work through the activity, and evaluation of the appropriateness of our thinking after completing the activity. This type of thinking includes strategies such as self-monitoring, advance planning, self-checking, questioning, summarizing, predicting, generating alternatives, and evaluating. (p. 3)

Web 2.0 technologies provide the opportunity for students as learners to reflect on their ideas, organise resources, provide evaluative feedback to others, and build communities of knowledge. Online communication through global Internet connectivity allows teachers to develop opportunities for students from different cultures or backgrounds to collaborate on learning tasks. Students should learn to effectively interact with people from different cultures, developing appropriate communication and collaboration skills (S. Chen, Caropreso, & Yang, 2012). The literature informed this research study through the use of Web 2.0 tools to facilitate the international, intercultural collaborations; a social constructivist approach incorporated whereby students constructed their knowledge through the intercultural communications facilitated by digital technology to collaborate on their learning tasks.

Authentic learning environments

The value of integrating and utilising engaging authentic learning environments has been acknowledged in the literature, aligning with the research into how the human mind changes information into valuable, transferrable knowledge (Duffy, Lowyck, & Jonassen, 1993; J. Herrington, Reeves, & Oliver, 2014; J. Herrington, Reeves, Oliver, & Woo, 2004; Honebein, Duffy, & Fishman, 1993; Lombardi, 2007; McLellan, 1997). In a rapidly evolving world, where multiple careers will be experienced and the half-life of information is short, authentic learning is more important than ever (Lombardi, 2007). Over three decades ago, Resnick (1987) highlighted the differences in how we learn outside of school and in school; school learning most often unrelated to skills required outside of school. S. D. Johnson (1996) explains that "A rich learning environment filled with authentic problems and real situations is critical for developing intellectual skills" (p. 8). A. J. Herrington and Herrington (2007) explain that, "The growing influence of constructivism as a philosophical approach to learning, and a wide range of research studies and papers investigating alternative models of teaching and learning over the last decade, have prompted many teachers in universities to implement more 'authentic' teaching and learning environments" (p. 69). Not only has this been a focus in universities, but in schools as the emphasis on developing 21st Century competences in students in order for them to be effective global citizens has emphatically grown (World Economic Forum, 2020).

Lombardi (2007) describes the complex communication that authentic learning grows, beyond the foundational skills core subjects instil, a more complex set of competences that go beyond "being technically competent to being able to get thing done, demonstrate ethics and integrity, and work well with others [in] …persuading, explaining, negotiating, gaining trust, and building understanding" (p. 10). A. J. Herrington and Herrington (2007) and J. Herrington et al. (2014) explain the importance of exploring different perspectives across the learning environment, enabling and encouraging students to seek alternative viewpoints which, in turn, leads to a deeper and more sustained exploration of the problem or issue of focus. Barab, Squire, and Dueber (2000) assert that authenticity occurs "not in the learner, the task, or the environment, but in the dynamic interactions among these various components… authenticity manifests in the flow itself, and is not an objective feature of any one component in isolation" (p. 38).

J. Herrington, Oliver, and Reeves (2003) explain that:

> …in the last decade or more, under the influence of constructivist philosophy and approaches such as situated learning, anchored instruction and problem-based learning, many teachers have tried to make learning more relevant to students by creating opportunities for them to apply their learning in realistic, if simulated, situations. Many educators and trainers have attempted to recreate the essence of real situations in order to design authentic learning experiences for students. (p. 2116)

Theorists and writers have suggested specific design criteria for authentic learning. From these characteristics, J. Herrington et al. (2004) composed a checklist, that can be adapted to suit subject domains, identifying 10 specific learning design principles of the authentic learning experience. These principles (below) were used to design authentic learning experiences for this research study as seen in Appendix B:

1. Authentic activities require real world relevance.
2. Authentic activities are ill-defined, requiring students to define the tasks and subtasks needed to complete the activity.
3. Authentic activities comprise of complex tasks to be investigated by students over a sustained period of time.
4. Authentic activities provide the opportunity for students to examine that task from different perspectives, using a variety of resources.
5. Authentic activities provide the opportunity to collaborate.
6. Authentic activities provide the opportunity to reflect.
7. Authentic activities can be integrated and applied across different subject areas and lead beyond domain-specific outcomes.
8. Authentic activities are seamlessly integrated with assessment.
9. Authentic activities create polished products valuable on their own right rather than as preparation for something else.
10. Authentic activities allow competing solutions and diversity of outcomes. (pp. 6-7)

The case studies in this research study employed authentic learning principles whereby the students developed their ICC by participating in collaborative learning tasks online with students from a different country and culture. Experiential authentic learning was fostered through the students' development of ICCs by experiencing first-hand through their interactions, employing intercultural adroitness, intercultural awareness and intercultural sensitivity to successfully navigate the challenges they faced. Learning in this instance was through experience in an authentic learning environment rather than through the binary notion of teaching intercultural communication with no real-world application. The success of the students was in their ability to communicate interculturally with their group members to complete the learning task, of which relationship building with their counterparts was integral to the process.

Intercultural collaboration

Computer-mediated communication has enabled a broad range of opportunities for intercultural exchange in intercultural learning (Lee & Markey, 2014). Telecollaboration has been occurring in universities since the early 1990s to assist students who weren't mobile (who had not received training or study abroad) to acquire the international skills required to be successful in a globalised world. Higher education policies have increasingly focused on internationalisation; a global dimension integrated into the design and content of learning, teaching and curriculum (European Commission, 2013). The focus on telecollaborative projects has been language acquisition and practice with language education systems endeavouring to prepare students with the necessary skills to engage and participate effectively in intercultural communicative practices through global networks (Alptekin, 2002; Thorne, 2003). University

students participate in intercultural collaborative projects online to communicate in their language of choice with people from diverse linguistic cultures internationally, where they have the chance to develop their language skills and ICC in a virtual environment (Godwin-Jones, 2013). Guth and Helm (2010) explain that:

> Telecollaboration is generally understood to be internet-based intercultural exchange between people of different cultural/national backgrounds, set up in an institutional context with the aim of developing both language skills and intercultural communicative competence (as defined by Byram (1997) through structured tasks (p. 14).

Sadler and Dooly (2016) frame telecollaborative learning as "an embedded dialogic process that supports geographically distanced collaborative work through social interaction, involving a/synchronous communication technology so that participants coproduce mutual objective(s) and share knowledge-building" (p. 402). Digital tools such as discussion forums, audio and video conferencing, instant messaging and email services are mainly drawn upon for telecollaborative projects (Chun, 2015; Guth & Helm, 2010; Lee & Markey, 2014) and are therefore flexible in where they can take place, for example at home, in the classroom, computer lab, et cetera. Therefore, through different designs of telecollaboration, digital literacies, intracultural and intercultural learning and language learning are enriched (Guth & Helm, 2010; Lee & Markey, 2014; Schenker, 2012). O'Dowd (2016) asserts that developments in telecollaboration have gained greater importance recently, with intercultural and language learning through technology-orientated environments requiring further practice and research, as stressed in existing studies (Lee & Markey, 2014; O'Dowd, 2007; Perry & Southwell, 2011).

Though there have been beneficial effects of telecollaboration, difficulties have also been conveyed such as scheduling conflicts, misalignment of academic calendars and the constraints of institutions (Belz & Müller-Hartmann, 2003; Lee, 2009) and intercultural misunderstandings (O'Dowd & Ritter, 2006; Ware & Kramsch, 2005). Essential to further developing intercultural competence and the promotion of students' active engagement are effective tasks (Lee, 2012; Müller-Hartmann, 2000; O'Dowd & Ware, 2009) whilst educators also face challenges in training students to interact effectively with people from a different culture who are distant group members, whilst raising their awareness of intercultural learning (Basharina, Guardado, & Morgan, 2008; O'Dowd & Eberbach, 2004).

A most recent study was conducted in 2017 with three universities from Scotland, Germany and Portugal. Students collaborated with their international group members over a six-week project with the intention of increasing their ICC. Surveys were used to measure intercultural sensitivity and communication pre- and post- the project. Reports from students demonstrated a heightened awareness in the difficulties of intercultural communication. Though the project and its outcomes were generally appreciated, results emerged signifying an increased

dislike of intercultural interaction. Further collaborations are required to investigate contradictory results from the study (Swartz et al., 2019).

Collaboration online

In collaboration with the Pearson Foundation and Microsoft Partners in Learning, Gallup created a 21st Century skills index, with seven skills identified to prepare and equip young people for the challenges and demands of work in today's knowledge-based, technology-driven, globalised environment: knowledge construction, global awareness, real-world problem-solving, collaboration, skilled communication, self-regulation and technology used in learning. This survey signified that numerous collaborative skills required for the workplace now, and in the future, require facilitation online (Levy & Sidhu, 2013). Synchronous and asynchronous communication and tools through the social web, Web 2.0, are technological supports in today's authentic learning environments which include resource sharing, knowledge construction and collaborative online investigations (Lombardi, 2007). A report by the World Economic Forum (2015) in collaboration with The Boston Consulting Group found that:

> …education technology can be uniquely deployed to facilitate the teaching of 21st-century skills such as communication, creativity, persistence and collaboration. Given the early stages of technology adoption, however, we acknowledge that its full potential to have an impact on student learning in primary and secondary education is yet to be realized. (p. 1)

With job disruption increasing socioeconomic polarisation and demanding new skillsets, it is more important than ever that our school systems prepare students for the workforces of the future as global citizens (World Economic Forum, 2020). In a whitepaper created as an outcome of a global consultative process initiated by the World Economic Forum, eight characteristics critical to learning experiences and content for quality education for the Fourth Industrial Revolution were compiled; global citizenship skills featuring as number one and technology skills as number three. Interpersonal skills, which included empathy, negotiation and emotional intelligence came in at number four whilst problem-based and collaborative learning featured at number seven (World Economic Forum, 2020). The future of work is increasingly taking place online with colleagues near and far, working asynchronously and synchronously, as networks widen in order to innovate as our fields of work rapidly change (Brabazon, Dear, Greene, & Purdy, 2009; Keary & Redfern, 2012; Watts Perotti, Wall, & McLaughlin, 2010). Lombardi (2007) refers to the emergence of technological tools where based on experimentation and action, authentic learning experiences can be offered, "Learners are able to gain a deeper sense of a discipline as a special culture shaped by specific ways of seeing and interpreting the world. They begin to grasp the subtle, interpersonal, and unwritten knowledge that members in a community of practice use (often unconsciously) on a daily basis" (p. 2). Integral to students' success when they enter the workforce upon leaving school, is the ability to not only be technologically proficient but interculturally competent in communicating. In order for this to be achieved,

students need to be exposed to a variety of opportunities to develop these skills and competences in schools. The literature informed this research study by providing students with the opportunity to develop intercultural competences and understanding through intercultural, international online collaborations. The experiences in this research study were designed to be asynchronous and synchronous through Web 2.0 tools to develop students' 21st Century skills authentically.

Intercultural communication online

When communicating online, the tool or medium sets the structure and context with the specific configuration determining how the communication occurs (Zorn, 2005). Barriers that may hinder people in engaging comfortably including:

- the reduction of communication by written communication (no gesturing, talking, looking, and other paraverbal cues)
- the need to write affords time and effort
- communicating in a foreign language (in an international context often English is the common language)
- asynchrony, lack of quick feedback
- limitations of provided medium
- struggling with technology due to a lack of technological competence (p. 10)

Though online digital platforms and artefacts have the potential to facilitate communication, the literature alludes to evidence in that communication occurring online through digital tools can lack in quality and quantity, resulting in inappropriate and insufficient communication (Allwood & Schroeder, 2000; Bretag, 2006; Thorne, 2003; Thorne & Payne, 2005). Though, the cause of these shortcomings in terms of it being the digital platforms and artefacts or the participants' general knowledge and abilities, is not clear. The lack of focus on establishing and maintaining relationships, with increased focus on tasks, can create critical incidents when communicating interculturally. This can drive participants away when they are used to establishing positive relationships. In creating online communities, social and technical aspects through human computer and social interaction should be planned for, intertwined in the developmental process in order to create a good community (Preece, 2000; Zorn, 2005).

In a study by Allwood and Schroeder (2000), the exploration of internet-mediated communication and/or learning investigated the features of communication such as languages used, length of contributions, types of introductions, et cetera. Conclusions from their study found that in a setting of participants with diverse linguistic backgrounds, English was the dominant language; contributions were small with only a few participants extending their participation with many contributions; the contributions made were fairly short, focusing on greetings and identifying themselves and others; effort was concentrated on communication management, conversations lacked in contrast to those in the real world in terms of orderliness; and those with difficulties in using English or whom do not speak the language were at a certain disadvantage. When communicating interculturally online, the risk of misunderstanding is exemplified, the

attribution of each participant's behaviour leaving room for misbehaviour, as this only exists in written form or is expressed by refusing to write, a non-verbal behaviour (Zorn, 2005). When fostering intercultural communication through technology-mediated contexts and structures, aspects such as technological abilities, access, communication interactions, procedures, values cultural styles need to be considered.

Google Classroom as a platform for collaboration

Educators have access to a range of social media tools that provide students with the opportunity to actively learn (Poore, 2013). Tasks that rely on this mode for completion, foster critical thinking, creativity, discussion and collaboration (McMeans, 2015). In order to develop 21st Century skills and competences, students need to be able to think critically, creatively, gain and share information, and collaborate (Crane, 2008). Utilising technology to create virtual communities for intercultural communication requires a culturally sensitive design that enables barrier free communication, mutual exchange and equal access opportunities whereby the focus reflects on more than the use of writing, symbols, colours and language (Zorn, 2005).

When working with students of primary school age, a multitude of issues relating to privacy prevent the use of social media in the classroom (Poore, 2013). When communicating, the specific design of software can hinder or guide the flow. Zorn (2005) explains, "It is never technology alone that furthers or hinders intercultural communication. Technical obstacles can be overcome, but also technical brilliance alone cannot make a good community" (p. 9). Google Classroom is one of many innovative web services provided by the Internet search engine company, Google. It is an innovative tool that allows teachers to manage their classrooms efficiently, whilst maximising student learning. Google Classroom and the apps within it are available for schools and universities to utilise for no charge through Google for Education, and often considered the free alternative of the Microsoft Office suite.

Google Apps, now known as the G Suite, are interactive platforms that allows multiple users to work on the same document simultaneously, synchronously and asynchronously, with teachers able to differentiate their content by inviting students into different files and view a timeline of which student has contributed what, increasing the accountability of each student in the collaborative learning process. G Suite contains applications such as a word processor (Google Docs) and Presentation tool (Slides). The collaborative functionality of the apps significantly enhances the functions beyond the traditional presentation, word processing and spreadsheet tools. As explained by Cummings (2016), Google Classroom is a "Web 2.0 technology that can be used to 'flip' the online classroom by creating asynchronous workshops in social environments where immediacy and social presence can be maximized" (p. 81). Though there are a range of different collaborative tools available on the world wide web, Google remains the front runner in this market (W. Hall, Nousala, & Vines, 2010). Google Classroom fosters global collaboration in

line with the International Society for Technology in Education (2016) Standards for Students with the seventh standard addressing the competences of students as a global collaborator:

> Students use digital tools to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally. Students:
> a) Use digital tools to connect with learners from a variety of backgrounds and cultures, engaging with them in ways that broaden mutual understanding and learning.
> b) Use collaborative technologies to work with others, including peers, experts or community members, to examine issues and problems from multiple viewpoints.
> c) Contribute constructively to project teams, assuming various roles and responsibilities to work effectively toward a common goal.
> d) Explore local and global issues and use collaborative technologies to work with others to investigate solutions. (p. 2)

Google Classroom was chosen to facilitate the collaborations for this research study in line with the International Society for Technology in Education (2016) Student Standards, with particular emphasis on the seventh standard of a global collaborator, points a-c.

Conceptual Framework

This research study explored what ICCs (independent variable) developed in upper primary school students in Australia (demographics) by participating in an international intercultural collaborative project online facilitated by Web 2.0 tools (dependent variable). The development of ICC in the students in Australia is dependent on their collaborative experience, communicating interculturally online using Web 2.0 technologies to complete a learning task with students in another country, from a different culture. The independent variable of ICC is a construct which is not easy to directly measure or describe. This research study focused on what key themes of ICC are exhibited by the students in Australia as a result of the collaborations.

The Conceptual Framework model (Figure 2.1) illustrates the proposed theory commencing with the participants the study explored the development of ICCs through, the students in upper primary in Australia. The students participated in collaborative learning tasks in small groups with students from another country and a different culture; the collaborations key to the study fostering intercultural communication. The social web, Web 2.0 tools, is used to facilitate the intercultural communication, which includes the use of an online translation tool to communicate interculturally with students from another country where there was no common language. Without the use of the social web and its tools online, and the *structural characteristics* of ICT integration in schools, intercultural communication to connect and collaborate (asynchronously and synchronously) could not occur in a consistent and regular manner in which to maintain flow in learning and communication. Additionally, the *cultural characteristics* of schools involved in terms of educational philosophy and innovativeness are integral to the

dynamic environments fostered through collaborating interculturally and internationally on learning tasks.

Through the global collaboration facilitated online by Web 2.0 tools, intercultural communication occurs between the students in Australia and their international group members. The Web 2.0 tools, Google Classroom and online translation tools are digital technologies that enable the intercultural international collaborations to take place. As the intercultural communication occurs, the three dimensions of ICC develop, these being intercultural adroitness (behaviour), intercultural awareness (cognitive) and intercultural sensitivity (affective). The end result following active participation in the intercultural collaborations (authentic learning environments incorporating a social constructivist approach) are proposed to be increased ICC in the students in Australia.
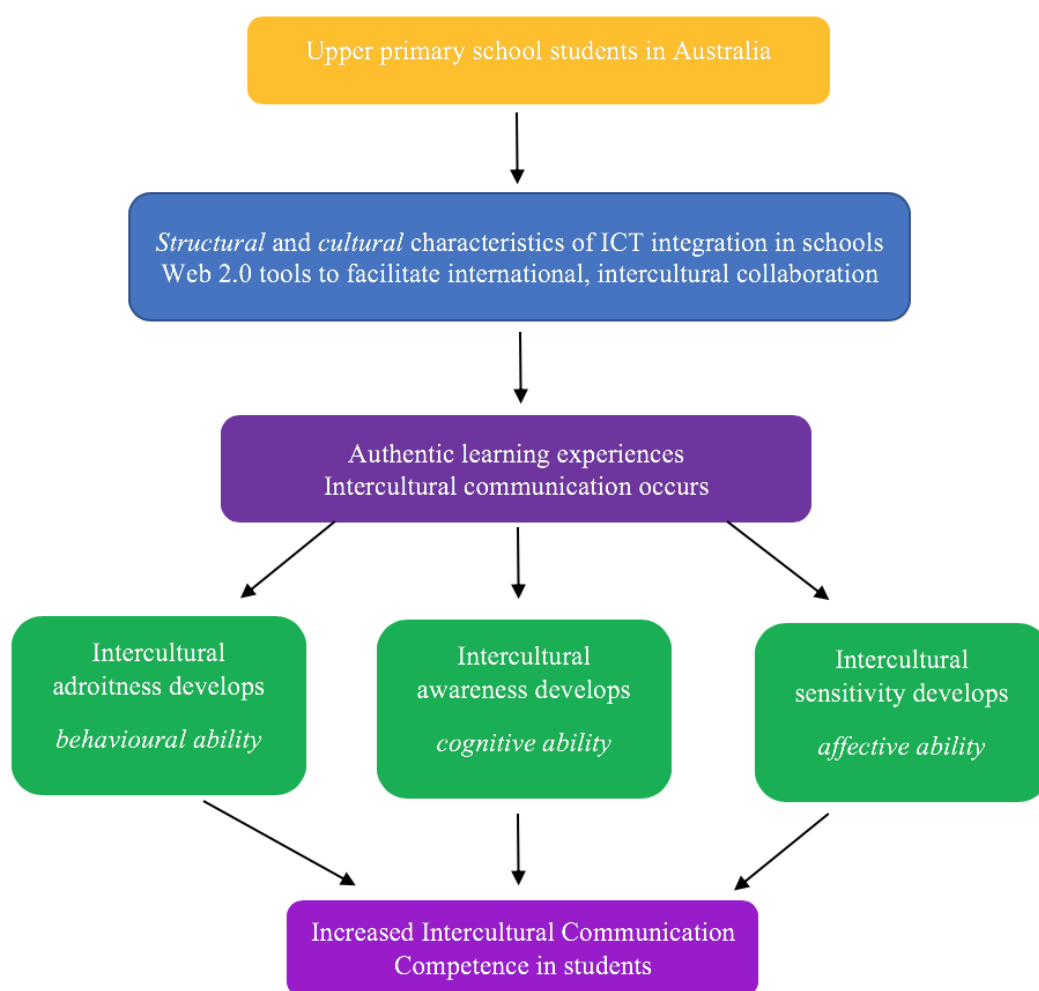
Figure 2.1 Conceptual Framework

The next chapter, Chapter 3, examines the methodology for this study and why the case study approach was used to investigate the development of ICC in upper primary school students in Australia by collaborating online with students from another country and culture using Web 2.0 tools.

CHAPTER 3 METHODOLOGY

Overview

Chapter three introduces and defines the methodology employed for this research study, examining participatory action research through a case study approach, with multiple cases. Qualitative methods were used to investigate the research questions; an interpretive form of inquiry as the focus. The chapter commences with the rationale for the research design. The Australian context of the study is explained along with the technological proficiency of the students in Australia. Next, participants from the three countries (Australia, Spain and Thailand) are described as well as a justification for the number of participants in the study. The ethical protection of participants is outlined including the measures for their participation and consent. The role of the researcher follows, explaining her role at the setting and with the participants as well as methods employed to establish a researcher-participant working relationship. The researcher's experience or biases related to the topic precedes the data collection, data collection tools and schedule of data collection sections. Data analysis procedures and sampling are followed by data coding. The last section of the chapter explains the validity and trustworthiness of the research study. The chapter concludes with a summary and a brief introduction to the following chapters' foci.

Rationale for research design

This research study utilised participatory action research methodology through exploratory case studies, combining techniques of a case study approach with the use of multiple cases. Cross-case analysis using qualitative methodology was employed. Lopes (2011) defines Participatory Action Research (PAR) as "an approach that includes both understanding a situation (creating knowledge) as well as changing or acting upon the situation – using participatory methods, that is, changing the dichotomy between researchers and the researched" (p. 217). As a social inquiry, PAR tends to unite itself with a non-positivist approach; a methodological stance, as a type of cultural imperialism, whose origins reject and critique conventional social science research where the essence of its critique through traditional forms, particularly quantitative methodologies utilised in social science research, methodologically replicate power relations leading to the domination of secondary groups within capitalism (Jordan, 2008). Critiques within PAR have affected the adoption of methodologies, favouring the interpretive or qualitative forms of inquiry that are comprehensible, accessible and directly responsive to the group's needs who use them (Kemmis, McTaggart, & Nixon, 2014). Jordan (2008) asserts that:

> Qualitative approaches are also favored on both technical and ideological grounds for the following reasons:
> - They provide a more rounded and holistic perspective that produces a thick description of complex social processes.
> - They are better suited to small-scale, local studies (in this respect they are less susceptible to colonization by outside experts).
> - They hold the potential for marginalized groups to have greater access to – and thereby have more of a say over – the research process than do quantitative methodologies.
> - Last, used as a part of a participatory process, qualitative methodologies also encourage engagement in nascent forms of reflexivity that stimulate local discursive practices and group activities that constitute PAR. (p. 603)

Qualitative research methods allowed the researcher to explore the what and the how through a constructivist paradigm, which was integral to observing the developmental process of intercultural communication competence (ICC). When exploring an instance in detail, case study methodology is utilised, identifiable through its clear boundaries such as the teaching of a unit of work in a school (Taber, 2014). This approach is commonly used as a research method in education as well as related disciplines such as social science (Gall, Gall, & Borg, 2003; Hatch, 2007; Polit & Beck, 2006). The utilisation of the case study approach assists researchers in maintaining a meaningful, emergent and holistic understanding of phenomena (Yin, 2014).

Qualitative research explores a phenomenon in depth through real scenarios and contexts, to learn about programs in education, focusing on a real entity (case) (Hatch, 2007; Maxwell, 2012; Stake, 2013; Yin, 2011). It is used to investigate a problem from the participants' perspective, establishing emergent themes through an extensive approach when quantitative

methods will not reach the same parameters (Cresswell, 2012) and produces an account based on specific characteristics as an accurate description of the case (Willig, 2013). Participants' perceptions are relied upon in qualitative studies (Yin, 2011) with the implementation of these methods enabling the researcher to identify and discover how participants react and deal with circumstances they face in life (Willig, 2013). Through an inductive process, qualitative methodology allows the researcher to acquire detailed information on a small group of participants or cases, inquiring through gathering data (Cresswell, 2013). Case study research was deemed appropriate for this research study as it allowed the researcher to investigate ICC developing through multiple collaborations (multiple cases) to identify similarities, consistencies between cases and any anomalies that may occur in singular cases. The case study approach was used to delve into the students in Australia's perspectives and use descriptive accounts as rich insight into their perceptions.

With over 100 ICC tools existing (Fantini, 2009; Koester & Lustig, 2015; Paige, 2004; Stuart, 2009), research demonstrates that intercultural competence can be assessed, though in order to gain a broader picture in its development, more than one tool is required (Deardorff, 2009, 2015). Whilst many instruments have been developed to measure ICC skills and knowledge, a model and scale that translates into different cultures satisfactorily is yet to be developed (Arasaratnam & Doerfel, 2005) with more researchers focusing on designing and testing instruments and developing theory in this area (Matsumoto & Hwang, 2013). Deardorff (2015) explains that, "Given the plethora of existing assessments… research on the various tools, methods and measures themselves, in a variety of settings under various conditions with diverse populations and parameters" (p. 4) is required to identify the most effective when assessing an individual's ICC. The majority of examples of tools to measure ICC in the literature are entirely through self-report measures. Koester and Lustig (2015) explain that self-reports may be suitable in:

> … assessing the effectiveness dimension of ICC, as one is often the best judge of one's own strategic purposes. But self-reports almost never provide adequate assessments of the appropriateness dimension of ICC, as this is a shared judgment that others made of an individual, who may be completely unaware of the prevailing expectations that inhere in a specific intercultural interaction. (p. 20)

For this reason, the teachers' and researcher's qualitative data was used to triangulate the students in Australia's qualitative data. Further, instruments developed previously had been utilised with adults in tertiary institutions and not the younger age group of students in upper primary school. Therefore, a quantitative instrument to measure the development of ICC in the upper primary school students in Australia was not employed in this study. An emerging paradigm has seen a change in progressing beyond the use of traditional measures such as self-perspective reporting, emphasising observable behaviours such as "the ability to work successfully in a diverse team and subsequent relationship development" (Deardorff, 2015, p. 4) taking on a more

holistic approach. For this reason, observable behaviours noted through the teachers' and researchers' data, including email correspondence during the collaborations, teacher questionnaires and the researcher's journal notes was used to triangulate the data.

Fullan (2001) refers to our moral duty as teacher researchers, arguing that we should promote a vision of educational institutions as places that have significant power in 'making positive differences to the lives of all citizens" (p. 11) by changing existing values. The case study method stems from the desire to comprehend and appreciate complex social phenomena, in these circumstances, the development of ICC in upper primary school students in Australia. Stake (2013) explains that qualitative researchers conduct research to investigate and improve on the current outcomes in a setting. Yin (2009) explains, "…the case study method allows investigators to retain the holistic and meaningful characteristics of real-life events" (p. 2). As an empirical enquiry, a case study "investigates a contemporary phenomenon within its real-life context, especially when the boundaries between the phenomenon and the context are not clearly evident" (Yin, 2003, p. 13). In this research study, it is believed the contextual conditions were pertinent to the phenomenon of study by using Web 2.0 tools to facilitate the development of ICC in upper primary students. Hamilton (1980) explains, "Studies such as these build upon the analysis of single settings or occurrences. They treat each case as empirically distinct and, in contrast to survey analysis, do not automatically presume that different instances can be thrown together to form a homogenous aggregate" (p. 79). By working with students from one class in Australia across multiple case studies, many variables maintained consistency, such as known consistent and stable factors for successful implementation (Condie, Munro, Seagraves, & Kenesson, 2007; Schnellert & Keengwe, 2012; Tondeur et al., 2009).

Exploratory case studies utilise *what* questions with the goal "to develop pertinent hypotheses and propositions for further inquiry" (Yin, 2003, p. 6). Qualitative case studies focus on general research questions rather than quantitative study methods mandated requirement of specific hypotheses (Cresswell, 2012, 2013). Qualitative studies investigate, interpret, explain and develop a theory about a phenomenon or case with data resulting, loosely textual and structured (Ezzy, 2013). To represent the human experience using exact numerical measurements of quantitative studies would have been ineffective for this study due to the age of the students and the lack of valid and reliable quantitative tools available to measure ICC with this age group. Therefore, qualitative methodology was utilised to find emerging themes drawn from participants' experience following the collaborations.

Context of the study

This research study investigated what ICC upper primary students in Australia developed through collaborating interculturally through Web 2.0 tools with students from a different country and culture. Data was collected in the junior school of an independent girls' school, located ten

kilometres from the central business district of a main city in Australia. This school was chosen as the researcher worked in the school as a classroom teacher. Formal approval to conduct research in the junior school was provided by the Principal of the school following a meeting with the head of junior school to discuss the research study and what it involved. The Principal of the school advised that no further permission was required as the school is independent. ECU Ethics permission was granted and explained later in this chapter.

The junior school catered for girls from Kindergarten to Year 6, with approximately 340 students enrolled. The school had a total population of approximately 1100 students. The junior school campus was located on the same campus as the senior school. The Principal led the whole school, along with the K-12 Vice Principal. In the junior school there was a head of school and deputy head. Classes from Kindergarten to Year 4 were single stream. Year 5 was another entry point with two further streams added; Year 6 was also triple stream. Each class had their own teacher, with approximately 26 students per class; all students in the school were girls. Specialist teachers taught music, visual art, library, choir, band and strings, and physical education classes. Additionally, students had the opportunity to take speech and drama lessons with a specialist teacher while every student from Year 4 learnt an instrument with a specialist instrumental peripatetic teacher. Speech and drama lessons and instrumental lessons took place once a week on a rotating roster to ensure students weren't withdrawn from the same class frequently. The classroom teacher had the responsibility for the learning and teaching of the English, Mathematics, Science, Humanities and Social Sciences (HASS), Technologies and Health curriculum with their class. As a religious school, the classroom teachers collaborated with the Reverend to devise learning programs for Beliefs and Values as well as attending a weekly Chapel service. The integration of learning areas was encouraged for Science, HASS and Technologies.

ICT structural components of the school in Australia

Students utilised technology across the school for the learning tasks, developing the skills of the Australian Curriculum and their ICT capabilities. In Kindergarten and Preparatory, students worked with iPads. In Year 1, students began to learn how to use laptops for their learning. From Kindergarten to Year 4 there were three class sets of technological devices: one trolley of iPads and two trolleys of laptops. Each class set contained 27 devices. In Year 5, as it was an entry point with the expansion of two streams, technological skills were a focus, developed by integrating the use of these in learning tasks. Classes in Year 5 and 6 shared three class sets of laptops with 27 laptops per class set, as well as a computer lab with 27 desktop computers. There was also a class set of 27 iPads.

Technological proficiency of students in Australia

In Year 6, students' technological proficiency was at minimum of sound ability, with some students more proficient than others. This means they could at least write and send emails,

download and save documents, utilise the features of Microsoft Word, PowerPoint and some basic features of Microsoft Excel. They could also conduct a Google Search using key terms to find websites to acquire information for research projects. Throughout the first term of the school year, students had used a variety of online web tools to demonstrate their knowledge and understandings for a range of learning tasks. They had also used Google applications for both independent and collaborative group work in class; familiar with its features. Students were proficient in their use of the iPad to create short films using their footage with the application, iMovie. It is estimated that the Year 6 students used technological devices in their learning for approximately one third of their school week.

Classroom teachers utilised a booking system to ensure they had access to technological devices in accordance with their planning. The researcher used the booking system to ensure the Year 6 class had access to a class set of laptops or the computer lab for timetabled lessons of the research task.

Scope of the study

This research study contains three case studies of collaborations between students from different cultures and countries. The students involved in the case studies were from schools in Australia, Spain and Thailand. These countries were chosen as their culture differed from each other which created opportunities for comparison. Each case study investigated ICC development through the students in Australia's perspective. Students involved in the collaborations were in upper primary school, aged between ten and twelve-years-old. The school in Australia had one class of students in Year 6 involved in the study. The school in Thailand had one class of students in Primary 5 (P5) involved. The school in Spain had two cohorts of Year 5 students involved; each cohort of two classes collaborated at a different time of year. The first cohort completed their collaboration over the last three months of their school year and the second cohort completed their collaboration over the first months of their school year. The learning tasks were individualised for each case study and driven by the classroom curriculum. The tasks were not what was unique about the case studies, rather the use of technology to facilitate the development of ICC. Each task was part of the procedure whereby the students had to communicate interculturally to collaborate on their learning in small groups of no more than seven students. The tasks and groups incorporated are explained in the introductory sections for each case study in Chapters 4 and 5. Denzin and Lincoln (2011) assert that a researcher should provide justification for the selection of a case of data to be collected. Through this study the researcher sought to understand what ICC the primary students in Australia exhibited by collaborating online with students from another country, through the three ICC dimensions identified by G. Chen and Starosta (1996) of adroitness, awareness and sensitivity, from their perspective. Teacher questionnaires and feedback through email communication during the collaborations, as well as the researcher's

journal notes, were utilised to triangulate the data. This data assisted in identifying correlations, contradictory results or any additional themes from their observations across the collaboration.

Participants

Participants were selected using a purposeful process. Purposeful selection enables the researcher to access historical information that can support the understanding of the problem and how it is being addressed in the context of the setting (Cresswell, 2012). Selection criteria that remained constant across the three countries was the similarity in age group of the students whom all attend primary (junior) school. As a vulnerable population, ethical considerations and applications will be discussed later in the chapter.

Australia

The participants in Australia were recruited from the researcher's own Year 6 class. They were primary school students aged 10-11 years old, turning 11-12 years old that year. All of the participants were girls as it is an all girls' school. As participants were under the age of 18, invitation letters were sent home to seek permission from parents (see Appendix C). The Year 6 class had 26 students whom were all invited; 26 students returned their letter with permission to participate in the research study. Every parent was given the option to withdraw their child from the study at any time without penalties. Should they have withdrawn their child, alternative learning tasks were created for them to complete so as to not interrupt their learning program. All 26 students remained in the research study for its duration.

Figure 3.1 highlights the family backgrounds of the students in the Australian class. One student from the class of 26 was born overseas. Six of 26 students came from families where the first three generations of their family were born in Australia. Seventeen students' parents were born in Australia meaning the first two generations of their family were Australian born citizens. Nine students had at least one parent who was born overseas. Twenty students had at least one grandparent who was born overseas. This information highlights the multicultural society that Australia has evolved over time.
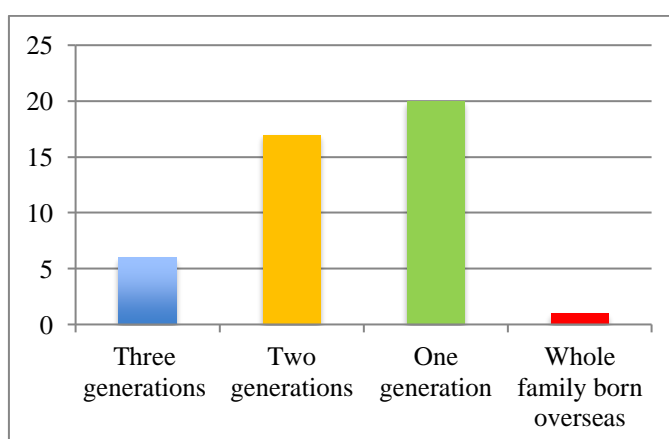
Figure 3.1 Generations born in Australia - students in Australia's families

Spain

The researcher utilised professional learning networks on Twitter to obtain interested classes to be involved in a research project where students collaborated on learning tasks online. A high school educator contacted the researcher interested in the study. The students in his class were eighteen years old, which the researcher deemed an inappropriate age to set up collaborations on learning and not addressing the key age group identified for the focus of the study. The teacher in Spain emailed an expression of interest to his professional network of teachers within the Catalonian region of Spain. From here, five schools expressed their interest over a period of a fortnight. Following email and Skype discussions, further conversations were conducted with the researcher to ascertain the age group was equivalent to the students in Australia, if the collaboration would suit meet their curriculum requirements, if they had the technology to support the collaboration, the technology knowledge themselves to support their students and if the task worked around their school events. One school in Spain was selected where two projects would be implemented on both sides of their school year due to the difference in schooling years in the northern and southern hemispheres, as it fit the criteria aforementioned.

From this school, there were two classes of Year 5 students with 30 students in each class. This created a total of 60 students in Spain for each cohort. The students in Year 5 were 10-11 years old, turning 11-12 years old. The first cohort of 60 Year 5 students was part of the first case study at the end of the school year in Spain. The second cohort of 60 Year 5 students were part of the second case study over the first few months of the new school year in Spain, following the students in Australia's September/October autumn holiday break.

As the students were under the age of 18, invitation letters were sent home to seek permission from parents. A cover letter explaining the content of the university permission letter was created by the teachers in Spain and attached to the front of the university permission letter (see Appendix D). A total of 120 students were invited to participate in the study across the year; 120 students returned their letter with permission to participate in the research study. Every parent was given the option to withdraw from the study at any time without penalties. Should they have withdrawn their child, alternative learning tasks were created for them to complete so as to not interrupt their learning program. All 120 students remained in the research study for its duration.

With the exception of one student who had moved from Germany to live in Spain with his family, all of the students from the school in Spain who were involved in the research study had at least three generations back into their family, originating from Spain.

Thailand

The students in Thailand were recruited from a school in Thailand where the researcher's principal supervisor had previously visited. The researcher's principal supervisor sent an email to the Head Teacher at the school in Thailand following a visit, introduced her to the researcher and

a brief outline of the research. Following returned communication from the Head Teacher confirming her interest and introducing herself, the researcher sent an email beginning to discuss times to visit the school where the collaboration and research could be further planned. In the April Australian school holiday break, the researcher visited the school for three days. During her visit she toured the school campus, observed a range of classes in action, collaborated with the Head Teacher to design the learning task, projected steps to commence the collaboration, introduced the task to the students using visuals of the Google applications with the assistance of the Head Teacher in translating and trained the teachers involved how to use Google applications.

The students chosen to participate in the research study were the P5 class who were 10-11 years old, turning 11-12 that year. As the students were under the age of 18, invitation letters were sent home to seek permission from parents. The letters were translated into Thai prior to the school visit and pre-photocopied in preparation. The P5 class had 20 students who were all invited; 20 students returned their letter with permission to participate in the research study. Every parent was given the option to withdraw their child from the study at any time without penalties. Should they have withdrawn their child, alternative learning tasks were created for them to complete so as to not interrupt their learning program. All 20 students remained in the research study for its duration. All 20 students involved in the research study were born in Thailand. Further, their parents and grandparents were all born in Thailand.

Justification for the number of participants

Through qualitative research, participants had the opportunity to provide insight into their perceptions and understandings of ICC and the use of the social web to collaborate with students from a different country and culture. Suggestions in the number of participants can vary according to research parameters. In validating a case study's purpose, Maxwell (2012) suggests that the criteria for selection and the number of participants are key, where justification of the number can include different factors such as the purpose statement, research questions and gathering of the data. Factors included in the case studies were to ensure a spread of learning abilities was represented across the sample selection of primary students in Australia. This allowed in-depth insight of experiences and perceptions across the learning spectrum, as evidenced in normal classrooms, to understand the development of ICC and use of Web 2.0 tools from their perspective. Hofstede et al. (2010) discusses culture as "mental software, where the collective programming of the mind distinguishes the members of one group or category of people from another. The phenomenon being collective as it is learned through people living or having lived within the same social environment" (p. 6). A further factor was to ensure the research study was intercultural and not reducing culture to mean nationality (Müller et al., 2020), which meant the selection of Australian students' was not based on their family origins. Australia's population has been built on immigration policies through the 1900s; the country continuing to be one of high migration as referred to earlier in the Literature Review. Therefore, we refer to culture as per

Hofstede et al.'s (2010) definition in which the students in Australia have lived within the same social environment. This is of particular importance, as discussed by Blell and Doff (2014), where cultures will change dramatically in the future as migration continues between countries, suggesting that we recognise "hybridity as a central criterion for transcultural constructiveness (e.g. hybrid identity, hybrid language, hybrid living and working space)" (pp. 83-84).

In this research study, samples of six students from the 26 in the class in Australia were selected for the focus group of qualitative data to analyse. Rubin and Rubin (2011) assert that the researcher is not required to recruit a large number of participants to increase the validity of the study, rather, they should ensure an accurate picture is constructed by unearthing different points of view whilst rechecking meanings to validate the findings. By engaging with a conceptual or purposive sample, the selection of participants is based on what they might contribute to the case study (Merriam, 2014). The sample of students selected was not totally random but chosen through convenience sampling. Students were selected who were willing and likely to provide a sample that represent outcomes across all learning abilities.

Ethical protection of participants

When conducting a research study involving the use of human subjects in any form, ethical concerns are inherent. The researcher's responsibility lies in the accurate interpretation and reflection of findings, protecting the participants and safeguarding the ethical protection through specific procedures (Sieber & Tolich, 2013). In qualitative case studies, participants need guaranteed anonymity and protection from harm (Leedy & Ormond, 2010).

Ethics approval was sought from the Research Ethics Team at Edith Cowan University in order to meet the regulatory and legislative requirements for the safe conduct of research with human subjects, particularly due to the age of the participants as minors under 18 years of age. The Research Ethics Team granted the research on 3 November 2015 for a five-year period. The research approved was to be conducted in the researcher's workplace as educational research, involving tasks that are similar or the same as those usually completed by students in a standard education setting.

Additional approval was required in order to undertake research in the schools. Letters to the Principals inviting them to participate voluntarily were written and sent (see Appendix E), with the letter for the Principal of the school in Thailand translated into Thai. The Principal of the school in Spain was proficient in reading and speaking English. For this reason, the letter was not translated into Catalan. The letter explained the purpose of the study and minimised ethical concerns through the assurance of indefinite anonymity. The letter also included the option to withdraw from the study at any time without consequence. All three Principals (Australia, Spain and Thailand) granted permission for the research to be conducted in their schools. Following, approval was required from the teachers involved in the research project from the schools in Spain

and Thailand. As the teachers were proficient in the English language, they were sent letters in English (see Appendix F). All three teachers involved in the study granted permission to be involved in the study.

The Research Ethics Team at Edith Cowan University approved all documents for use relating to the recruitment and participation of participants. The letter and consent form distributed to parents of the students in Australia is detailed in Appendix C. The teachers from the school in Spain wrote a cover letter to their parents, explaining what the letter and consent form meant in Catalan (see Appendix D). As mentioned, this was a cover letter sent home at the front of the researcher's letter and consent form. The letter and consent form were translated into Thai for the students in Thailand. To assure the protection of participants during the process of a research study, Cresswell (2012) defended the requirement of a consent form. All participants were invited for voluntary participation with the assurance of indefinite anonymity and the option to withdraw from the study at any time without consequence. The letter also emphasised the results would be used only for the purposes of the doctoral study. Consent forms were created utilising a preferred university template available at that time.

This research study involved minimal risk to participants involved as the collaborations occurred in a secure environment with teachers monitoring student interactions. The only people who could access the students' work during the collaboration were the teachers of the classes involved. Each student's account could only be accessed via their school email and their password, of which the researcher had a copy, which was stored under password securely on her computer. The psychological risks were minimal as the students were completing educational learning tasks they would normally complete in the classroom and the data collection methods emulated reflections they would complete as part of their learning at school. In this study, no risks of participant safety were anticipated. The identity of participants has not been identified in any presentation or publication with confidentiality ensured by using pseudonyms. When reporting the data, the researcher considered carefully the rights and interests of participants prior to making choices regarding the manner in which it was reported.

Measures for ethical protection of participants and consent

During the data collection, analysis, reporting and storage, procedures for protecting the confidentiality of participants were adhered to, to reduce the risk of harm. Pseudonyms were used following data collection to ensure privacy of the participant following member checking. Qualitative researchers utilise pseudonyms to ensure the identity of participants, the institution and its location are protected (Denzin & Lincoln, 2011). The schools' pseudonym was their country of location and students were allocated a pseudonym to ensure their safety and identity was protected. Therefore, all data that was collected and reported on was free from identifying information that could be used to trace the participant by name.

During the data collection, the students in Australia completed their questionnaires, reflections and journal responses in their classroom where they were provided with a space separate to their peers. This encouraged honesty in their responses through the confidential nature of the data collection. Preliminary measures were put in place where specialist staff such as peripatetic teachers and staff from other classrooms were aware that intrusions or interruptions could not occur during the questionnaire and reflection completion sessions.

Role of the researcher

The researcher's role in this study was to author the qualitative study as well as teach the students at the school in Australia as their classroom teacher, where the setting of the collaboration occurred for these participants. At the time the study was undertaken, the researcher had been teaching Year 6 at the school for six years, with 10 years teaching experience in total in an independent girls' and independent boys' school, a public primary school close to the city as well as two country schools which were classified as hard to staff. The researcher's role within the study was to facilitate the learning task with the students, rather than teach them how to communicate interculturally online, to ensure the results were fair and reliable. Kemmis (2010) describes our responsibility as professionals in education, continually evolving our professional practice as "custodians of the practice for their times and generation" (p. 417). Kemmis (2010) explains:

> As stewards, they (educators) have the responsibility to protect, nurture, support and strengthen the practice for changing times and circumstances, not as something fixed and fully sufficient but as something that must always evolve to meet new historical demands in the interests of changing communities, societies and the good of humankind. (p. 420)

The researcher facilitated the data collection, ensuring member checking by participants occurred followed by peer-review of the data analysis. Triangulation of participants' data (open-ended questionnaires, reflections and documents) occurred through the use of the teachers' post-collaboration questionnaires, email communication correspondence with the researcher during the collaboration and the researcher's journal.

Role of the researcher at the setting and with the participants

Qualitative case studies explore specific conditions to learn about the context of circumstances being investigated (Bogdan & Biklen, 2006). A naturalistic approach was endorsed where the researcher spends time in the study community, moving into their setting (Bogdan & Biklen, 2006). The purpose of naturalistic research is to generate responses to research questions in participants' natural environment (Lincoln & Guba, 1985). The researcher, whom was also the students in Australia's classroom teacher, conducted the research study in the students' regular classroom thus being a naturalistic approach. Hopkins (2002) describes classroom research as:

An act undertaken by teachers, to enhance their own or a colleague's teaching practice, or as a means of evaluating and implementing whole school priorities… it is one way in which teachers can take increased responsibility for their actions and create a more energetic and dynamic environment in which teaching and learning can occur. (p. 1)

Hopkins (2002) goes on to say it is a "kind of research in which teachers look critically at their own classrooms primarily for the purpose of improving their teaching and the quality of education in their schools" (p. 7).

In qualitative study, naturalism is a tradition due to the manner in which the researcher utilises observations and open-ended questions to explore reality as it emerges (Rubin & Rubin, 2011). Researchers employ case study methods to interpret and explore data for decision-making and organisational planning (Marshall & Rossman, 2011). This research study was conducted to investigate what ICC upper primary school students in Australia exhibited by collaborating on learning tasks with students from a different culture and country, using Web 2.0 tools. Findings from this study would inform future learning opportunities and experiences that could be trialled and implemented in future years with the Year 6 cohort and across the school in different year levels, to develop students' ICC authentically. Findings would also contribute to the body of research on the development of ICC by beginning to close the gap in the literature with this particular age group.

Methods of establishing a researcher-participant working relationship

Shuttleworth (2009) describes the Hawthorne Effect, where human subjects change or modify their behaviour as they are aware they are being studied; well-documented in the effects it creates in research experiments in the social sciences. Its name deriving from the location in which it was first encountered, workers' output increased, as they knew they were being observed. As human subjects are utilised in many different types of research, the Hawthorne Effect must be taken into account by the researcher when analysing their results, as it is an unavoidable bias. Shuttleworth (2009) explains, when a group is isolated from others for the purpose of research, they are likely to skew the results by feeling chosen. To eliminate bias during the research study, all of the students in the class participated in the collaboration and completed the questionnaires and self-reflections as part of the learning process. Students who were required to member-check were not notified until the end of the collaboration once the data had been collected. Another means of diminishing this Effect was through the researcher (classroom teacher in Australia) referring to the collaboration as a learning task where the emphasis for the students was on completing the learning task for educational growth as part of their classroom learning and not on how they were collaborating or communicating interculturally or how the web tools were working, which was also being investigated for the study.

Researcher's experience or biases related to the topic

Researchers should be investigative in nature, fostering an awareness of the topic they are studying through effective communication whilst being aware of, and sensitive to, any personal preconceptions (Merriam, 2014). Personal biases brought to research studies create the possibility of invalid research (Yin, 2014). Through the course of the study, the researcher made every effort to avoid personal bias by journaling observations and communicating these observations to the other teachers involved in the study. These self-reflections were in line with the action research cycle, improving the student outcomes of the learning task, separate to the focus of the study (ICC development and the effectiveness of Web 2.0 in facilitating this). The researcher's interest was in creating a transparent and honest narrative where the outcome of the case studies could be used to improve learning and teaching opportunities, where students' might develop their ICC through the social web, increasing teachers' awareness of how it could be implemented, with adaptations to suit their student cohort in their setting.

Data collection

A variety of data collection methods were used in this study to understand what intercultural communication competences develop in primary school students in Australia through collaborating on learning tasks with students from a different country and culture. In order to identify different patterns and themes, a variety of methods occur through a case study. Figure 3.2 shows an overview of data sources used in the study to answer the research questions. The methods used were:

- Open-ended questionnaires for students post collaborations
- Student reflections post Google Hangouts session
- Documentation data from students' collaboration (Google Classroom)
- Student journal - third case study with students in Thailand
- Open-ended questionnaires for teachers post collaboration
- Researcher journal – observations and reflection notes
- Email correspondence between teachers and the researcher

These sources (see Appendices E to H and L) guided the data collection processes and provided the researcher with the opportunity to utilise the participatory action research cycle, reflecting on learning from the previous collaboration, implementing slight adaptions to improve following collaborations. The data collection helped identify emerging themes to develop an understanding from the students in Australia's perspective.

In order to organise collected data, a case study database is used by qualitative researchers (Yin, 2014). A chain of evidence was created through the organisation of these materials, ensuring easy access to data. Field notes composed during the collection of data provides a record of reflections, procedures and an analysis of themes emerging (Leedy & Ormond, 2010). The researcher organised the information from the student questionnaires, student reflections and

documentation, triangulating the data with email correspondence between the teachers and researcher, teacher questionnaires and researcher journal responses, storing them to create a chain of evidence.
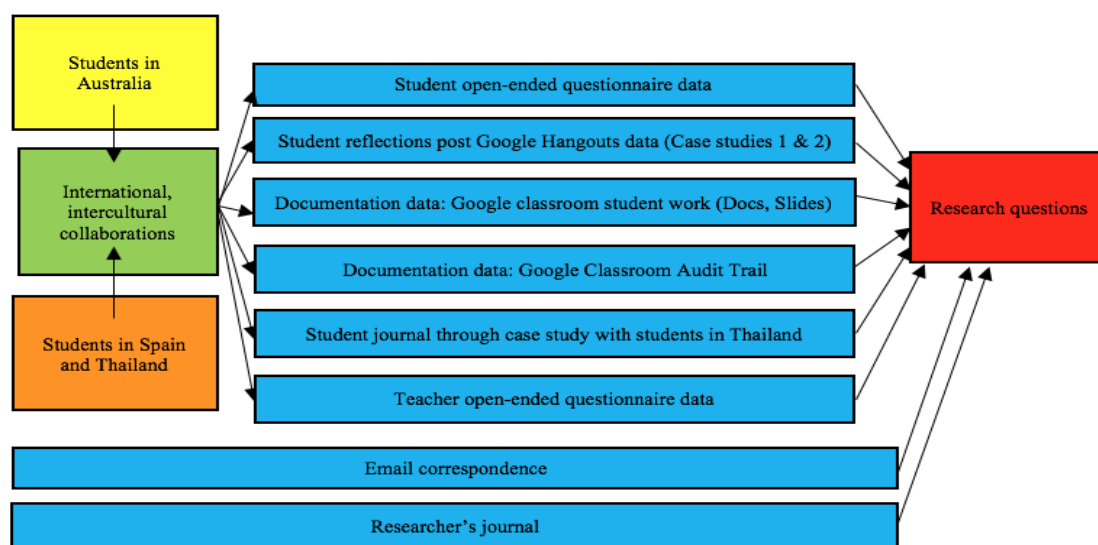
Figure 3.2 Data sources

Data collection tools

The focus of the research study was on the development of ICC in upper primary school students in Australia, through international collaborations using Web 2.0 tools. For this reason, data was collected from the students in Australia participating in the study. The goal of intercultural assessment is to evaluate an individual's knowledge and ability at a given moment in the cultural encounter (Mažeikienė & Virgailaitė-Mečkauskaitė, 2007). Cultural knowledge, attitudes and beliefs are examined through the students' responses.

Three primary sources of data were collected each collaboration; student open-ended questionnaires post collaborations; documents from the online collaborations in Google (Docs, Slides) including the audit trail showing collaborations; student reflections following the Google Hangouts (collaborations with the school in Spain); and student journals used during the collaboration with the school in Thailand. These methods were used as self-reports of personal attributes which are more user friendly for assessment purposes than tests that require behavioural observations by external evaluators (Chiu, Lonner, Matsummoto, & Ward, 2013).

The exploration of a phenomenon through a variety of sources is prominently used in qualitative case study approaches (Maxwell, 2012; Yin, 2010). One of the primary differences between qualitative and quantitative research is that researchers analysing qualitative research data utilise thematic and pattern analysis from data such as interviews, open-ended questionnaires and observations of participants (Marshall & Rossman, 2011). Cohen, Manion, and Morrison (2011) explain, "An open-ended response is a window of opportunity for the respondent to shed light on an issue or course. Thus an open-ended questionnaire has much to recommend it" (p.

393). A series of qualitative open-ended questions were posed to the students in Australia through a post-collaboration questionnaire following each collaboration (see Appendix G) and post-Google Hangouts session through a student reflection (see Appendix H), conducted on conclusion of the collaborations with the school in Spain. Questions related to the study's research questions, facilitating a more detailed explanation of students' perceptions, view and opinions. Open-ended questionnaires were chosen over individual or focus group interviews to eliminate response bias (Yin, 2011) in the students' responses with the researcher who was also the classroom teacher.

Data was collected in the form of collaborative documents in Google Education (Google Docs and Google Slides for each group, as well as student journal responses during the collaboration with the school in Thailand). The Google Education documents were exact, containing exact names and details of each contribution by the students in the editing feature. They were easily retrievable and could be viewed repeatedly. The document was important to the explicit data collection in this research study as it demonstrated intercultural collaboration on learning tasks in action asynchronously, relevant to the purpose of the case study. Students' responses through the electronic journal were another form of documentation during the collaboration with the school in Thailand where the students did not communicate in a common language and used an online translation tool during the collaborative process. The journal was a space for students to reflect on the process, the learning task and any difficulties they might be experiencing away from the collaboration space.

A series of secondary data sources were collected to triangulate the students' data. Email correspondence between the teachers and researcher throughout the course of the collaborations was imperative to the participatory action research process when facilitating the learning task through the collaboration. A series of qualitative open-ended questions were posed to the teachers from the schools in Spain and Thailand through a post-collaboration questionnaire following the collaborations (see Appendix I). Questions related to the study's research questions facilitated a more detailed explanation of their perceptions, views and opinions. The researcher's journal provided descriptive notes on the students' reactions, feelings and insights into their behaviours at the time of the observation, vital to the analytical process, which leads into the classification and comparison of data (Yin, 2009). The researcher's journal also provided a record of analytical notes, notes and reflections on meetings with the teachers involved, notes from the site visits to schools and commentary or feedback from other professional sources. Appendix J is an example from the journal showing notes from an informal observation during a lesson where the students were working on the collaborative task

Data collection and schedule

As noted in the previous section, data sources for this investigation were student open-ended post collaboration questionnaires, student documents, student post-Google Hangouts questionnaires, student journal responses, teacher-researcher email correspondence, teacher post-

collaboration open-ended questionnaires and the researcher's journal. Site visits, informal meetings and observations took place prior to the research being conducted. An informal meeting was conducted via Google Hangouts or Skype with the teachers in Spain and Thailand to discuss the possibility of collaborating on a learning task. Site visits allowed the researcher to gain an insight into the school context, meet the teachers in person to discuss and plan the collaborations and learn the school culture, and identify the structural and cultural characteristics of ICT in the school. The observations and conversations from the site visit assisted the researcher in gathering situational analysis data for the purpose of the study.

Data was collected in three main stages over the period of each case study: during the collaborations, following the Google Hangouts with the Spanish school cohorts (on completion of the learning task) and post each collaboration as outlined in Table 3.1.

Table 3.1
Data collection schedule

Collaboration	Data Source	During collaboration 3 months	Post Google Hangouts (Last task in collaboration)	Post collaboration
School in Spain Cohort 1	Student documents	X		X
	Student reflections		X	
	Student questionnaire (students in Australia)			X
	Teacher questionnaire			X
	Teacher/Researcher email correspondence	X		X
	Researcher journal	X	X	X
School in Spain Cohort 2	Student documents	X		X
	Student reflections		X	
	Student questionnaire (students in Australia)			X
	Teacher questionnaire			X
	Teacher/Researcher email correspondence	X		X
	Researcher journal	X	X	X
School in Thailand	Student documents	X		X
	Student journal responses	X		X
	Student questionnaire (students in Australia)			X
	Teacher questionnaire			X
	Teacher/Researcher email correspondence	X		X
	Researcher journal	X		X

Data analysis

Data analysis procedures

Investigating a phenomenon through a case study approach engages the use of multiple lenses through a variety of data sources, such as observations, questionnaires, and documents to establish superior themes (Baxter & Jack, 2008). Case study research comprises of phenomenon with an unknown outcome, investigated using multiple data sources (Yin, 2010). Inductive

reasoning is a process used with qualitative research whereby a researcher inquires through gathering data, which provides convincing evidence for an authentic conclusion (Cresswell, 2013). The analysis of data was conducted with an open mind so as to maximise the benefits that characterise the case study approach. Rather than the verification of a predetermined hypotheses, the discovery of new understanding, concepts and relationships occurs (Merriam, 2014). Qualitative researchers use a case study database during the data analysis process, organising the data to create a chain of evidence in an accessible way (Yin, 2011). The researcher utilised a case study database with the six sources of data to create a chain of evidence for each case.

Data analysis occurred in the first instance on completion of each case study, on a case-by-case basis. The first instance for each case study included the raw initial data of the students in Australia's open-ended post collaboration questionnaires, student documents from the collaborations (Google Docs, Google Slides as well as the audit trail), the student reflections post-Google Hangouts with the school in Spain's cohorts or the student journal responses from during the school in Thailand's collaboration. Progressive focusing, starting by taking a wide-angle lens to gather data and then sift, sort, review and reflect occurred, with salient features of the situations emerging as seen in Figure 3.3, outlining the qualitative data analysis of progressive focusing.
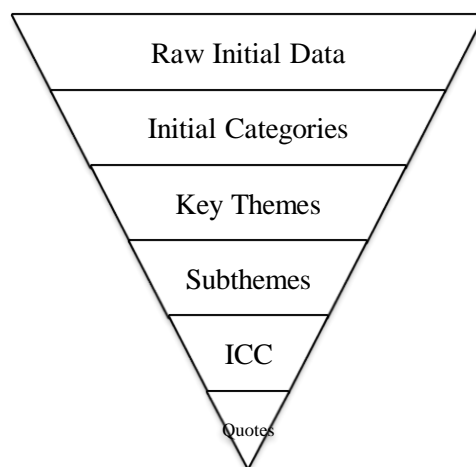
Figure 3.3 Progressive focus of qualitative data analysis

The first instance of analysis included interrogating the raw data from each case study independently. From the raw data initial categories emerged. Following, key themes were identified from the initial categories. Further analysis saw subthemes arise within each key theme. Key themes and sub themes were then categorised into the pre-existing dimensions of ICC (adroitness, awareness and sensitivity) and the use of technology to collaboration online. The three dimensions of ICC used in the data analysis identify if the students' response was exhibiting intercultural adroitness (behavioural response), intercultural awareness (cognitive response) or

intercultural sensitivity (affective response) in line with Chen & Starosta's (1998) definitions. A subset of students were focussed on in the results. The relative proportion of each dimension of ICC was identified for the sub-set of students in each case study, identifying the relative importance that emerged from their responses. The relative proportion of key themes within the use of Web 2.0 tools to collaborate was also identified. Quotes correlating to each key theme under subthemes were used in evidence; those used as evidence were grounded in the data (Marshall & Rossman, 2011). The data analysis and coding process required iteration and reiteration to ensure comprehensiveness and consistency in coding. The iterative process was cyclical through data reduction, display and conclusions that were then verified. Results from the data analysis process were reflected against the *intercultural understanding* general capability of the Australian Curriculum, using the learning continuum as a standard (see Appendix A).

Data triangulation was conducted by analysing teacher questionnaires, student collaborative documents (Google Docs and Slides presentations), email correspondence between the teacher/s and the researcher throughout collaborations, and the researcher's journal entries as evident in the process of data analysis (see Figure 3.4). Data triangulation occurred through analysing each case study's initial results with correlating themes emerging from the teachers' open-ended post collaboration questionnaire, teacher/researcher email correspondence and the researcher's journal responses. The process of triangulation involved contrasting the perceptions of the students with other people in the same situation, in this case the teachers and researcher who was the students in Australia's classroom teacher. This allowed the initial subjective perception or subjectivity to be fleshed out, yielded a certain degree of authenticity and by gathering accounts from different points of view, the triangle took on an epistemological justification (Hopkins, 2002). In terms of this research study, triangulation occurred through the students', teachers' and researcher's perspective (see Figure 3.5), which emulated a continuous cycle of analysis and iteration until the cycle was exhausted.
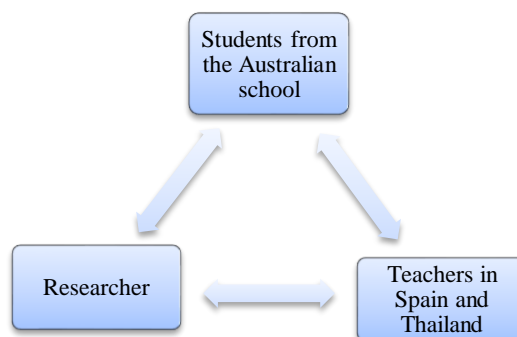
Figure 3.5 Triangulation verification process

Data analysis	Data analysis: Triangulation

Australian school

Case Study One
Spanish School
Cohort 1

* Documents (collaboration)
* Student reflections
 (Google Hangouts)
* Student open-ended questionnaires

* Teacher open-ended questionnaire
* Teacher/researcher email correspondence
* Researcher journal observations/reflections

Case Study Two
Spanish School
Cohort 2

* Documents (collaboration)
* Student reflections
 (Google Hangouts)
* Student open-ended questionnaires

* Teacher open-ended questionnaire
* Teacher/researcher email correspondence
* Researcher journal observations/reflections

Case Study Three
Thai School

* Documents (collaboration)
* Student journals
* Student open-ended questionnaires

* Teacher open-ended questionnaire
* Teacher/researcher email correspondence
* Researcher journal observations/reflections

Cross-case analysis

Figure 3.4 Process of data analysis

Data coding

Cresswell (2015) outlines the need for coding, "Text data are dense data, and it takes a long time to go through them and make sense of them" (p. 152). In this research study, the analysis of data involved open coding for the initial process to identify emerging themes. "Coding is the process of analyzing qualitative text data by taking them apart to see what they yield before putting the data back together again in a meaningful way" (p. 156). For each case study, an Excel document was set up to code text from the initial data as themes emerged. Miles, Huberman, and Saldaña (2014) explain, "Codes are labels that assign symbolic meaning to the descriptive or inferential information compiled during a study" (p. 71). Saldaña (2016) further explains, "A code in qualitative inquiry is most often a word or short phrase that symbolically assigns a summative, salient, essence-capturing and/or evocative attribute for a portion of language-based or visual data" (p. 4).

The challenge initially was creating the definitions for codes as they emerged. Coding must be meaningful when describing the nature of the phenomenon to ensure the effect of analytic or descriptive results are correct (Strauss & Corbin, 1998). Punch (2014) explains the levels of coding:

> First level coding mainly uses these descriptive, low inference codes, which are very useful in summarizing segments of data and which provide the basis for later higher order coding. Later codes may be more interpretive, requiring some degree of inference beyond the data. Thus second level coding tends to focus on pattern codes. A pattern code is more inferential, a sort of "meta-code". Pattern codes pull together material into a smaller number of more meaningful units… a pattern code is a more abstract concept that brings together less abstract, more descriptive codes. (p. 174)

The data analysis method included the student post-collaboration questionnaires, student documents and student reflections or journal responses as the initial analysis in theme and pattern discovery through first level coding, supporting the researcher in identifying themes across multiple participants. In data analysis, the use of coding as a systematic process establishes new emerging theories from the descriptions in the report (Ezzy, 2013). The purpose of this research study was to investigate the primary students in Australia's perspective on the development of ICC and the use of Web 2.0 tools to collaborate online. Sorting and refining data into a form that is easy to access and interpret is imperative to the qualitative data analysis process (Hinchliffe, Crang, Reimer, & Hudson, 1997). Microsoft Excel and Microsoft Word were utilised to code the data and identify themes and patterns using colour coding to differentiate; software the researcher is highly proficient in the use of through previous study and employment purposes.

In the literature categories are also called themes, defined as "broad units of information that consist of several codes aggregated to form a common idea" (p. 186). The second level of coding drew on the themes and patterns that had emerged in the first level of coding. They were categorised into the three dimensions of ICC, these being intercultural adroitness, intercultural

awareness and intercultural sensitivity as well as the category of utilising Web 2.0 tools to collaborate with students from another culture and country online. Data analysis of the teachers from the Spanish and Thai school's post-questionnaires, teacher/researcher email correspondence and the researcher's journal triangulated the students' responses as further evidence.

Through the data analysis process the deductive mode is entered when the researcher reaches saturation, where no new insights are revealed in the findings and results include descriptions of what the participants experienced about the phenomenon (Merriam, 2014). In Chapter 4 and 5 of this thesis, the narrative data was organised through each case study from the students in Australia's perspective into the three dimensions of ICC and the use of Web 2.0 tools to collaborate as per the research questions. Chapter 4 focuses on the two collaborations with the cohorts from the school in Spain as individual case studies with a summary of the two combined at the end of the chapter. Chapter 5 focuses on the school in Thailand's collaboration with a summary at the end of the Chapter. Chapter 6 conducts a cross-case analysis through the three dimensions of ICC and the use of Web 2.0 tools to collaborate online in line with the literature.

Validity and trustworthiness

Researchers must use caution when reporting on case studies and provide grounds for validating generalisations and observations about cases (Stake, 2013) to ensure conclusions aren't drawn from a single stance. The three case studies assisted in avoiding these complexities. Triangulation through the use of complementary methods and data sources formed largely converging conclusions (Merriam, 2009; Miles & Huberman, 1994). The use of three sources of data with the students in Australia as well as the teachers' open-ended questionnaires, teacher/researcher email communication and the researcher's journal increased the trustworthiness of the data, verifying and elaborating on information across the sources. Triangulation strengthened the dependability of the findings as well as enriching the data collection.

To reduce the risk of single researcher bias and increase the dependability, the students in Australia completed open-ended questionnaires instead of interviews to decrease the possibility of the Hawthorne Effect occurring during the interviews, due to the researcher being their classroom teacher. Questionnaires were completed in Google Forms where a clear audit trail was able to be maintained, adhering to the principles of data collected outlined by Yin (2008). Following the collection of data, a significant process employed by qualitative researchers is member checking (Stake, 2013). Peer review and member checking were conducted to validate findings and verify interpretations of the data collected, with procedures conducted with each participant. To ensure the quality of the study, the researcher adopted strategies suggested by Gall, Gall, and Borg (2007):

1. Usefulness: The study is useful for readers, whom may be its participants or its interested group of people, so that readers could learn something from the study.
2. Truthfulness and reporting style: The researcher reports the study honestly and straightforwardly. Reporting should ensure the reader experiences the study vicariously.
3. Contextual completeness: The study includes detailed contextual information from where data are collected.
4. Rich data: When collecting data, the researcher ensures data are in as much detail as possible so as to provide a vivid description.
5. Peer examination: The researcher seeks comments on findings from his/her colleagues.
6. Researcher reflection: The researcher acknowledges own perspectives, assumptions and opinions about the study being undertaken. (pp. 474-476)

The usefulness of this study is for readers to understand what ICC upper primary students exhibit through collaborating with students from a different culture and if Web 2.0 tools can be used to facilitate collaborative projects online with students from two different countries, with different native languages. The researcher reported the information truthfully by not manipulating the data or the process in collecting, analysing and interpreting the data. The data has been reported to vicariously provide the reader with an experience of the study. The context of each case study has been included by the researcher, including information such as the school context, physical setting and environment, number of participants and their backgrounds, technological proficiency, learning tasks, time allowance and the order events occurred. Rich data was collected using open-ended questionnaires, documents the students completed their collaborations through, open-ended reflections, journal responses supplemented with the perspective of the teachers from the schools in Spain and Thailand, and the researcher's journal. Member checking and peer review by teachers from the same year level the researcher worked with in the school and her supervisors occurred to maximise the credibility and quality of the study. The researcher's journal acknowledged the events or important information that was occurring, ensuring her feelings and reactions towards any occurrences were rational and in line with observations, checking with her peers throughout the collaborative process.

Summary

Chapter 3 focused on the rationale and methodological approaches utilised in this qualitative study. It described the context for the study (school in Australia) and the technological proficiency of participants involved from this school. Participants from each case study and their recruitment were outlined, followed by a justification for the number of participants in the study. The measures of ethical protection of participants and consent sought ensued. The next section explained the role of the researcher, both at the setting and with participants, addressing any experience or bias related to the topic. Details were provided on the methods of data collection and the tools employed. Procedures for analysing the data including sampling and data coding

and how the themes were categorised into the three dimensions of ICC followed. Concluding the chapter were methods employed to ensure the results were valid and reliable.

The next two chapters explain the case studies: the two case studies with the school in Spain form Chapter 4 whilst the case study with the school in Thailand forms Chapter 5. Each case study follows a similar structure in the presentation of data in the chapter. The context of each international school is followed by the technological proficiency of the students and the learning task the students worked on through the collaboration. The investigation and results that emerged are categorised into the three dimensions of ICC (G. Chen & Starosta, 1998) followed by the effectiveness in using Web 2.0 tools to collaborate. A cross-case analysis (Chapter 6) draws together the findings to compare the ICC students exhibited through the collaborations as well as an analysis of the use of Web 2.0 tools, these being Google Classroom and online translation tools, in facilitating intercultural international collaborations.

CHAPTER 4 CASE STUDY ONE AND TWO

Overview

Chapter four describes two case studies of collaborations between the students in Australia and students from a school in Spain. The first collaboration commenced in the last three months of the European school year with the Year 5 cohort from the school in Spain. The second collaboration commenced in August with the new Year 5 cohort at the beginning of their school year. The students in Australia who participated were the same for both collaborations. This chapter commences with a description of the school in Spain's context, followed by the technology available in the school and the students from the school in Spain's technological proficiency. The chapter then divides into the two collaborations (case studies). The context of the first collaboration, with Cohort 1, is followed by a description of the learning task and student groupings. Qualitative data outlines the sample selection followed by the findings and results. Findings with emerging themes are categorised into the three intercultural communication competence (ICC) dimensions of intercultural adroitness (behaviour), awareness (cognitive) and sensitivity (affective). The next section describes emerging themes on the effectiveness of the Web 2.0 tools through the collaboration with Cohort 1. Quotes included in the chapter have been left as typed by the students, including any spelling, punctuation and grammatical errors. The chapter then moves onto the second collaboration (case study), with Cohort 2, describing the context followed by the learning task and student groupings. Following the same structure as Cohort 1, qualitative data outlines the sample selection followed by the findings and results. Findings with emerging themes are categorised into the three ICC dimensions of intercultural adroitness (behaviour), awareness (cognitive) and sensitivity (affective). The next section describes emerging themes on the effectiveness of the Web 2.0 tools with Cohort 2. The chapter concludes with a summary of the results found.

Case studies: Spain

School in Spain's context

The school in Spain was located in the province of Girona within the Catalonia region, one hour from the main city of Barcelona. The school was established in the early 1970s by five small training academies and catered for students from nursery school into early childhood, primary school and secondary school on the one campus. The school was non-denominational, fostering democratic attitudes and respect for pluralism. It was neither a public school nor a private school (concertada). The Infantile school catered for children from four months old to five years old, with a population of over 180 students. From one year old, students had learning programs implemented. The primary school catered for children from six years old to 11 years old with a population of over 320 students. The secondary school catered for students aged 12 to 16 years old with a population of over 220 students. When students commenced their last year of schooling, they were 15 turning 16 years old.

The school campus was 45 years old at the time of the study, with new additions frequently occurring. Each class in primary school had its own main teacher, who was called by their first name, for Mathematics, Catalan, Science, Geography, History, and social/emotional, with specialist teachers teaching Music, Physical Education, Information Technology (IT), Languages, and Arts and Crafts. Six hours per week were spent working on trans disciplinary projects. The school promoted multilingual teaching (Catalan, Spanish, English and French) with Catalan the central language used for communication and learning. English was taught more than Spanish. Each year group studies four hours of English per week as a subject as well as two hours of Science using the English language. The importance of the students learning English was apparent through its purposeful teaching from a young age. Students began to learn English from one year old. French commenced once students entered secondary school. The main languages spoken in students' homes were mostly Catalan and Spanish. Catalonia is the destination of many tourists, providing the students with opportunities to speak English.

The school week ran from Monday to Friday with a siesta in the middle of the school day. The school day ran from 9.00 am to 1.00 pm with a two-and-a-half-hour break before recommencing from 3.30 pm to 5.30 pm. During the break students participated in clubs including sports and games or they could be picked up by their parents and dropped off again in time for the afternoon session. Staff meetings were held every Monday and Tuesday for an hour during the break. The school year in Spain commenced in mid-September following a lengthy summer break of 10-12 weeks. In April, there was a two-week break over Christmas followed by a two-week break over Easter. Staff at the school vary in specialty, including English, Music, IT and Physical Education. They predominantly remain at the school until their retirement, the average age of staff being 41.2 years old.

Students who attended the school were from the town or local villages, the majority Spanish residents. They travelled on foot, by bicycle, car or bus. There were no students who lived far away from the school. On the weekend, students and their families moved around the Catalonia region and during Christmas, Easter and summer holidays they sometimes travelled abroad. Within the school's student population of over 700, three had visited Australia. Of the Year 5 cohorts who participated in the online collaboration, half of the students had travelled to another country for a holiday. Neither the students nor the teachers involved in the project had been to Australia.

Technology and students' technology skills

The school had effective connectivity to the Internet, which supported their focus on integrating technology to ensure their students became competent Information Communication Technology (ICT) users. In the primary school, students used the school's devices. The Year 5 classes had 30 Chrome notebooks to share between the classes, which were used to deploy the tools of the Google suite. Students utilised the device on a regular basis for educational work during primary school before moving to a personal device (Chrome book) in secondary school. Other technologies in the school were Interactive White Boards (IWBs) in each classroom, iPads and laptops as well as a range of robotics equipment. The proficiency of the Year 5 students' ICT capabilities who participated in the collaboration was at a high level prior to the collaboration. Two teachers were involved in the project. One worked as a teacher for five years before moving into a job working with computers and design networks. He returned to teaching and had been back in the system for ten years, specialising in IT at the school. Whilst he could read English at a highly competent level, he was not as confident writing or speaking English. The second teacher worked with small groups at an English school in an out-of-school program for 11 years, before moving to this school to teach, where she had been for four years.

School in Spain: Case Study One

Collaboration context

The collaborative project was conducted over ten weeks, from May to June, this being the final term of the Spanish school year and the second term of the Australian school year. Each week the classes worked on the collaboration for two one-hour sessions asynchronously. The students in Spain were in Year 5; two classes of 30 students participated. The students in Australia were in Year 6; one class of 26 students participated.

Learning task

The teachers in Spain and the researcher in Australia designed the learning task collaboratively. The process commenced with a videoconference discussing common curriculum learning outcomes and pedagogical structures. Email communication followed and the students'

task was created in a shared Google doc. The teachers in Spain distributed their students into groups in a shared Google sheets document, followed by the researcher in Australia distributing the students in Australia across the groups.

Google Education applications were utilised for the collaboration to enable the students to collaborate in shared documents in a safe and secure environment. Only the students in the group and the teachers could access, view and edit the student folders and their work. The applications enabled students to collaborate across educational institutions and provided the teachers with information through the edits feature on who was completing what, when, increasing the accountability of the student's participation in the learning task.

Each group was given a statement related to the Science topic of light. In groups, students were to read their statement and decide as a group whether they thought the statement was correct or incorrect. As a group, they were to create a hypothesis and design an experiment to prove their hypothesis. Students were to undertake the experiment, filming and explaining their process and findings. The students in Spain were to conduct the same experiment as their group members in Australia and view each other's films, which were uploaded into their shared folders. Finally, a shared Google Slides presentation was created by the group, which could include their film clip, outlining the process and its outcomes.

Each group had their own folder in Google Drive; the teachers added them to this folder using their individual school email address. In each folder were two Google Docs and an empty Google Slides presentation. The Group Journal document (see Appendix K) was where students discussed what they have learnt, reflected on their ideas and how they have changed, shared ideas, information, web links and asked questions, communicating with their group members. They commenced the project by introducing themselves to their group, responding to other members' introductions and asking questions to develop a conversation. As each student posted, they were asked to finish their post with their name and the date in brackets. For each new post, they used a new line in the table. When responding to another group member's post, they were to write in the same line of the table. The second Google document in the folders was the Group Task Sheet (see Appendix L). This document contained the initial statement on light and the steps to complete the project. The Google Slides presentation in each folder was empty and the final step in the task as outlined above. On conclusion of the collaboration, a Google Hangouts session took place where each group had their own independent synchronous session to meet each other via videoconference and chat. The Google Hangouts session required students to sit in different classrooms so they could hear their group members talking and went for around 30 minutes.

Groupings

In the school in Spain there were two Year 5 classes involved, with 30 students per class. In the school in Australia there was one class of 26 Year 6 students. The teachers in Spain

distributed their students into 13 groups, with learning abilities spread evenly so there were mixed abilities between the students in Spain in each group. For this collaboration, the teachers in Spain kept students with other students from their class. Following this, the teacher in Australia distributed the students in Australia across the groups, with mixed abilities in each group. There were five groups with six students and eight groups with seven students.

Qualitative data

This research study investigated the development of ICC from the students in Australia's perspective through collaborations with students from a different culture, and country. Qualitative data utilised in this case study included a post-collaboration student questionnaire with open-ended questions, collaboration documents (Google Docs, Google Slides), student reflections following the Google Hangouts session, post-collaboration teacher questionnaire with open-ended questions, teacher/researcher email communication and the researcher's journal. The students in Australia completed the student questionnaire independently, in their classroom during the school day, at the same time on conclusion of the collaboration. A questionnaire with open-ended questions was used instead of a one-on-one interview due to the researcher's relationship with the students as their classroom teacher, ensuring the reliability and trustworthiness of the responses, which could be validated through the written responses. Each student in Australia answered the sample questions (see Appendix G) online through a Google Form after the collaborative project and process was complete. Triangulation of the qualitative data occurred through the use of email correspondence between the teachers in Spain and researcher, the teachers' questionnaire results and the researcher's journal notes. The teachers in Spain answered the open-ended questions (see Appendix I) through a Google Form on completion of both collaborations.

Corpus of data

The scope of data in this research study includes a range of data sources. Each case was analysed separately before a cross-case analysis occurred. The focus of this research study is to investigate the development of ICCs in the upper primary students in Australia. To commence the data analysis, the students in Australia's open-ended questionnaires were examined on a question-by-question basis, with key themes emerging from each question's response creating a code. For each case study, 26 questionnaires were analysed. The same process was undertaken with each student's reflection which was conducted post-Google Hangout in the first and second case study. The emerging themes from each question were compiled into a table with responses categorised under these codes. Each of the 26 students' group documents in Google Classroom were examined with examples included under correlating codes. If a new code emerged, it was included added to the table. From the initial categories (codes), key themes emerged which stemmed into subthemes. The teachers' open-ended questionnaire, teacher/researcher email correspondence and the researcher's journal responses were analysed for emerging themes and

cross referenced with the students' key themes and sub themes to triangulate the data. Following, the key themes and sub themes were categorised into the pre-existing dimensions of ICC (intercultural adroitness, awareness and sensitivity) and the use of technology to facilitate the collaboration online. A subset of students were focussed on in the results. The figures in Chapters 4 and 5 show a proportion of the students in Australia's data.

Sample selection

The sample selection was drawn from the students in Australia's class. The researcher identified a small number of students (six) from the class of 26 using convenience sampling. The selection was not totally random; students were selected who were willing and likely to provide a sample across all learning abilities. The sample of qualitative data included the students in Australia's group collaboration documents, student reflection following the Google Hangout session and students' questionnaires upon completion of the collaboration.

Qualitative data findings

The students in Australia's qualitative data was analysed from the raw initial data into initial categories. The students' results were triangulated with email correspondence between the teachers in Spain and researcher in Australia, the teachers' questionnaire results and the researcher's journal notes. From the initial categories key themes were identified. Key themes were then further analysed to identify subthemes. Quotes that best represent the subthemes were selected and matched with the ICC dimensions of intercultural adroitness (behavioural aspects), intercultural awareness (cognitive aspect) and intercultural sensitivity (affective aspect), and the use of Web 2.0 tools to facilitate the collaboration. The behavioural aspect of intercultural communication refers to an individual's ability to reach communication goals when interacting with students from another culture (G. Chen & Starosta, 2000).

Qualitative data results

The students in Australia's qualitative data was analysed for common themes from which key themes emerged. From these key themes, sub themes were identified. Subthemes were categorised into the three ICC dimensions of adroitness (behaviour), awareness (cognitive) and sensitivity (affective); the relative proportion for each dimension identified in Figure 4.1. The three ICC dimensions are described in separate sections. Results relating to the use of Web 2.0 tools to facilitate collaboration with students in another country follow the ICC findings. The relative importance that emerged from the summaries demonstrated intercultural adroitness (behaviour) as the most important, followed by intercultural awareness (cognitive) and intercultural sensitivity (affective) as the relative rank order. In the description of each ICC dimension, quotes are used to illustrate the students in Australia's reflection (sensitivity), reaction (behaviour) and understanding (awareness).
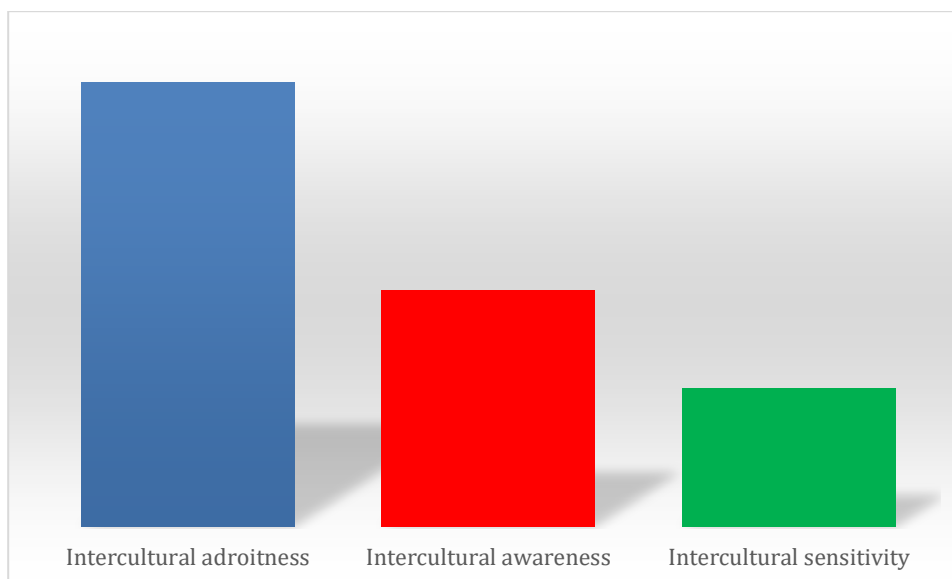
Figure 4.1 Relative Proportion of ICC Dimension Responses (Case Study 1)

Intercultural adroitness

Intercultural adroitness addresses the skills and behaviours that are required in order for intercultural interactions to be effective (G. Chen & Starosta, 1998). Key themes that emerged from the data were *communication, behaviour, time* and *task expectations*. Each key theme will be addressed through sub themes that stemmed from the students in the Australia's data with correlating quotes included from the teachers of the students in Spain and the researcher.

Communication was a key theme from which seven sub themes emerged: *common language, questioning, proficiency of the English language, effectiveness, translation, misunderstandings* and *increased communication*. Having a *common language* between the two schools assisted *communication*. One student said, "It made things easier as they spoke the same language so they would understand the task more than if they spoke another language, that way you wouldn't have to translate it as the translator on the internet isn't always accurate" (Student 5). Another student said, "When communicating with the students in Spain the Spain students could read and write English meaning that we didn't need to translate" (Student 6) whilst this student said, "… and in the group journal we asked lots of questions and it was like we had a real conversation with them" (Student 1). The researcher had noted in her observational journal on completion of the first collaboration (case study) that the students in Spain's ability to read and write English was instrumental to both students being able to complete the task without translations: "The students in Spain demonstrate a good command of the English language, which has supported the collaboration through the ease of communication where decoding has not been a significant part of the communication process".

Questioning to improve communication was evident through the students' responses. One student said, "I collaborated well by asking lots of questions and starting conversations. I asked pretty much everyone a question and it was really cool when they responded" (Student 1). Another student said, "I reacted to these cultural differences by asking them more questions to get a better understand and also to ask for more detail on what they want to say" (Student 6) whilst another student said, "I was then confused about what then menat so I asked her again. This time she told me that she made a misstake and meant to say '2 months'" (Student 5). Evidence from the Group Journal supported the use of questioning to improve communication in the initial introductions, though this appeared to be lacking as they moved through into the collaboration section for the learning task. Students shared ideas but didn't collaborate to compile them as a group outcome (see Appendix M) which was discussed between the teachers in Spain and the researcher. Both the teachers in Spain and the researcher addressed this with their students to encourage more collaboration on the learning task.

Proficiency of English language was a subtheme of *communication*. One student said, "However a difficulty was understanding it (their writing) because sometimes the things they would type on the Google Docs would either have words missing or doesn't have punctuation" (Student 6). Another student said, "When communicating through Google hangouts… also the difficulty of the accents. Because English wasn't their native language, their speech wasn't the best. So, there were some difficulties understanding them" (Student 3). One student said, "When communicating through text their writing was a little bit hard to read because their grammar wasn't very good. Also when we talked to them through Google hangouts their accents were a bit hard to understand" (Student 3). Reflecting on the Google Hangouts session and approaching difficulties, one student said,

> We asked them to repeat their question and answer. We tried to speak loud and clear. We tried to try and guess what they were saying. We also started talking on the chat session if we couldn't understand what they were saying multiple times. (Student 2)

This student went on to say, "In Google classroom it was easier to communicate because you just had to type something and they would understand it" (Student 2). The researcher observed the students in Australia adapting their behaviours across the collaboration, with the recognition that English is the students in Spain's third language. Whilst initially the students in Australia exhibited frustration towards the imperfections of the students in Spain's English proficiency, over time they demonstrated growth in their behaviour, persevering to decode their responses. For example, this student reflected;

> One of the difficulties we faced was communicating. We both spoke different languages so it was really hard, having to communicate but it also helped us and them because they got to learn some more english and we got to learn about their language and culture. (Student 4)

Effective communication was a subtheme of *communication.* A range of different responses, in terms of what each student deemed as effective communication, emerged. One student said, "Our group was very effective in communicating since when ever they would write something that we didn't understand we would ask more questions to get more detail on what they are trying to say" (Student 6). Another student said, "My group was effective because we put our own individual ideas down and they were all similar so when we made the final decision it had all of our ideas in it. We also kept asking each other questions so we could get as many answers to our questions" (Student 2) whilst another said, "Our group was effective in communicating as we would reflect of what each other was saying and begin to have a conversation. This helped us share our ideas and work together as a team so we could discuss how we could display our slides presentation" (Student 5). This student's feedback highlighted effective communication as responding and receiving a response from their international group members: "I think that our group was very effective in communicating with each other because they always replied to our questions and we replied to their questions, which meant we got to know a little bit about themselves and Spain, while still doing our task" (Student 4).

During the visit to the school in Spain in October of that year, the teachers and the researcher discussed the meaning of effective communication and what it would look like in this context. Following, they built upon their initial discussions through email during the first collaboration (case study) where the reporting and sharing of ideas was occurring between students but collaboration, where the students would discuss their ideas and agree on common aspects as a group, was not occurring. Adaptations were applied to the learning task for the second collaboration (case study) to foster growth in collaboration occurring.

Translation as a subtheme of *communication* was identified. One student said, "Sometimes, the group in Spain would write something to us or about the task and then we would have to think about the sentence and what word was similar to the word they wrote and would fit in the sentence" (Student 4). Evidence can be seen in the Group Journals where the students asked clarifying questions, particularly in the introductions where sports like padel and softball had not been heard of by students. For example, one student said, "…what is padel? Can you send a picture?" (Student 2)

Misunderstandings as a subtheme of *communication* highlighted difficulties arising during the process. One student said, "There were misunderstandings with what our group members were saying during the Google hangouts session because they were sometimes speaking Spanish, the screen kept on freezing and the volume was not right" (Student 4). Though there were some misunderstandings due to the English language proficiency of the students in Spain, the researcher noted the students in Australia's persevered in problem solving to understand what the students in Spain were saying.

Increased communication was a subtheme of *communication*. One student said, "Although we had a lot of communication I felt like we didn't have much discussion and we could have given more feedback and give them some more advice" (Student 6). Another student said, "I think we could improve it by having more sessions where we Skype. This way we could discuss our project more and work on it together" (Student 5). During the collaboration the teachers in Spain and the researcher noted the students would report what they had completed to their group members, rather than collaborating to discuss their ideas together. This correlated with the teachers' and researcher's reflection mentioned earlier, where collaborative discussion was missing between the students. For example, one student reflected on the discussions around the learning task, "… We could have also had more conversations about our light project" (Student 3).

The second key theme of intercultural adroitness was *behaviour*, with a subtheme of *positive behaviour* identified. One student said, "I approached this task with a posotive attitude and hoped it would turn out well and we could finish the task" (Student 1). Another student agreed, "I approached it well. We were able to complete it with little difficulty" (Student 2). The teachers in Spain said, "Students were really excited when they knew they were going to do a project with students in Australia and also during the whole process." In response to the Google Hangout, one student reflected, "It was great to actually see the people and know who they are… Both groups were really excited to meet each other and we all had lots of questions" (Student 4). Another student said, "… I had realised how open they were and how they were excited like we were" (Student 6). The teachers in Spain's response referred to their students' approach, which correlated with the students in Australia's responses. They said, "They are really open minded and willing to collaborate with students in Australia but I'm not sure whether it would be the same will all the cultures".

Time was the third key theme with a subtheme of *asynchronous time difference*. The synchronous and asynchronous connections fostered different behavioural reactions from the students. For example, in regard to the asynchronous connections through Google Classroom, one student said, "Their weren't many difficulties aside from the time differences as these meant that if any questions were asked you would have to wait for a response. For example if I asked for permission to edit the slides document, I would have to wait for an answer so I wouldn't be able to do work on the slides," (Student 5). When reflecting on the synchronous connection through the Google Hangouts session, one student said, "With their communication we could get a response from them faster, and we could actually see there faces and try to get them to expand on their responses" (Student 1). Another student said, "We actually go to see their face, hear their voices, and get to know what they like more and also who they are and we got to match a name to a face" (Student 4). One student reflected on the difference in her own behaviours when she communicated through the synchronous and asynchronous connections;

After connecting with our group members in Spain I have really enjoyed getting to meet them and see them. It was different because in the Journal the way we had to write wasn't actually the way we speak so when we got on to Google Hangouts it was nicer to actually talk to them in a way we would when you first meet someone. (Student 5)

The researcher noted the students in Australia's excitement, particularly in the first few weeks of the collaboration where they would log into their account and find responses from their group members in Spain. As the collaboration went on, some students in Australia were impatient in receiving a response when the students in Spain were involved in other activities at their school. This meant the students in Spain's Science lesson was rescheduled to another day and time; the students in Australia found this challenging.

The fourth key theme was *task expectations* with a subtheme of *responsiveness*. One student said, "Sometimes they wouldn't give that much information they would only say that the statement is false but I would of liked to know why so I could understand better" (Student 1). The teachers in Spain reflected, "Well, at the beginning they were a bit shy and were afraid of making mistakes when writing. They were afraid of not being understood. When they saw there could be communication, they felt released and comfortable" which correlated with the students in Australia's responses, seeking more in the communication from their international group members in the first few weeks of the collaboration. On conclusion of the first case study, the researcher noted two sessions a week as a manageable commitment for both schools to keep consistent in their responses.

Intercultural awareness

The cognitive aspects of ICC refer to the understanding of cultural conventions that affect how we think and behave (G. Chen & Starosta, 1998). Key themes that emerged were *communication, task expectations* and *cultural differences*. Each key theme will be addressed through sub themes stemming from the students in Australia's data with correlating quotes included from the teachers of the students in Spain and the researcher.

Communication was a key theme from which two sub themes emerged: *proficiency of English language* and *misunderstandings*. With regard to the first key theme of *proficiency of English language,* one student said, "I noticed that they wouldn't write a lot when writing paragraphs or writing answers and that we would write really long paragraphs that contained a lot of information but I suppose that is because English isn't their fist language" (Student 1). Another student viewed it differently, "I noticed that they knew a lot of English, more than I expected so that was made it easy to communicate" (Student 5). The teachers from Spain's questionnaire response highlighted the difficulties their students experienced at the beginning of the collaboration in response to the question; Have your students faced difficulties with the communication when collaborating online? What were these difficulties? They said, "Most students at the beginning when they did not know how to express themselves. Once, one of our

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students came and said that the girls in Australia said that they he had beed rude. I checked what he had written and I told him that he had not expressed himself well." The researcher observed in her journal:

> The students from the school in Spain respond to the students in Australia with short messages, which some of the students in Australia are finding frustrating, whilst others are accepting, demonstrating an awareness that English is not their native language, patient in their quest to know more and by asking further questions.

Small misunderstandings in *communication* were noted. One student described misunderstanding the communication between the group members on the experiment they were to complete, which was to be the same in both countries. "There was one misunderstanding with their experiment on the light, because their experiment was based on the amount of heat the black water absorbed, rather than if the black water reflected the light" (Student 3). This was also noted in their group collaboration documents.

The second key theme was *task expectations*. The students in Australia demonstrated an emerging intercultural awareness in the difference of understanding between the two cultures and the expectations they had in the standard of response with the students in Spain. One student reflected, "Some differences was our understanding. Our understanding was different because when we first approached the task we had different response and explanations" (Student 6) whilst another student said, "I noticed that they wouldn't write a lot when writing paragraphs or writing answers and that we would write really long paragraphs that contained a lot of information but I suppose that is because English isn't their fist language" (Student 1). The researcher had noted in her journal, conversations between the students in Australia. In each group they discussed the different expectations they had in comparison to their international group members in completing the task.

> Students have been discussing the lack of information in the students from Spain's responses. Whilst some have alluded to English being the students in Spain's third language and reflecting on their own experiences in learning Languages Other Than English (LOTE) at school, and the difficulties they would have using Chinese to collaborate on a learning task, a significant amount of students have not considered this, demonstrating a lack of intercultural awareness.

Cultural differences were the third key theme of *intercultural awareness* with three subthemes of *sport, language* and *school*. On the subtheme of *sport*, one student identified growth in her awareness of their culture because of the communication, "… and they played many sports that we had never heard of, however after doing this task I have learnt a lot about their culture by communicating with them" (Student 6). This was evident in the students' documents where they asked curious questions to learn more about the sports they had not heard of before. Padel and netball were prominent discussions between the students. The researcher noted in her journal, the prevalence of discussion around a new sport called, Padel in the first two sessions of the

collaboration. The researcher said, "Today's session saw the emergence of discussion and questioning between the students on Padel, a sport played in Spain they had not heard of. It also saw the students exclaiming in surprise that the students in Spain had not heard of netball before."

Language was prominently noticed in student responses as a *cultural difference*. One student said, "Yes. The cultural differences were their first language. English was their third language whereas for us it was our first" (Student 3) whilst another student reflected, "Yes. How they worded their sentences and the different opinions they had" (Student 1). One student's reflection referred to the complexity that the students in Spain's accent added to their synchronous connection through the Google Hangouts session:

> I found it harder to talk to each other as our accents were different and their english wasn't the greatest because it was their second language. An example of this was when they had a question but I couldn't understand them… The difference was we were face to face rather than talking through a screen. It also made it harder to understandthem because English isn't their first language. (Student 3)

School was another difference noted in the differences of uniforms, timing of their school years in a calendar year and the times of their school days. One student said, "Some differences I noticed were; their school year finished at a different time, their days were longer …" (Student 3) whilst another said, "… I also noticed that they finish there school year halfway through our school year" (Student 2). Following the synchronous Google Hangouts session, one student said:

> I noticed the girls had a different uniform from the boys, but both the girls and boys had shorts and a t-shirt on but the design was different. I also noticed that they were wearing shorts and t-shirts which means they must be in summer and we are in winter. They took us around the school and I noticed that their school was smaller than ours as they had a separate high school and we have a combined Junior school and High school. (Student 1)

Intercultural sensitivity

The affective aspect of ICC signifies the student's readiness to appreciate and understand cultural differences in intercultural communication (G. Chen & Starosta, 1998). Key themes that emerged were *communication, behaviour, task expectations* and *cultural differences*. Each key theme will be addressed through sub themes stemming from the students in Australia's data with correlating quotes included from the teachers of the students in Spain and the researcher.

Communication was the first key theme which stemmed into two subthemes of *utilising discussion to learn more* and *understanding*. On the first subtheme of *utilising discussion to learn more*, one student said, "I approached the communication aspect by communicating with the students in Spain on Google Docs and using a lot of discussion with them to get more information and a clear understanding on what they want to say" (Student 6). Another student discussed the approach she took to learn more about the students in Spain, "The communication aspect of this task worked well. I think that we all understood each other and talked about Spain and things

other than the task, which made it easier to talk to them about the task because we knew them a little bit" (Student 4). The teachers in Spain reflected in their questionnaire, "They are really openminded and willing to collaborate with students in Australia but I'm not sure whether it would be the same for all cultures". The student documents reflected the increase in asking questions to clarify what the students in Spain meant in their responses. This followed a discussion the teacher-researcher had with the class in Australia, which was noted in her journal.

> Students are reading through the initial introductions the students in Spain have written in the shared Google Docs and have questions about what they have written. They have been asking each other in their groups what the students in Spain meant, as well as asking me to clarify what the students meant. I have facilitated a discussion today, asking them, 'How do we clarify and find out more about something we are unsure about? Do we ask each other? Do we ask the original source? Why might we do this?' Students are becoming more aware that in order to clarify the meaning of something or inquire further, they need to go directly to the source communicating.

As a subtheme of *communication*, one student demonstrated sensitivity in her reflection, *understanding* from the students in Spain's perspective, "At first I was confused but then realised she might have thought I said something different and understood as English wasn't their first language" (Student 5). The teachers in Spain reflected on the change observed in their students:

> We've seen a change, at the beginning, as we said, they were a bit afraid of speaking and little by little, all the students in the group have felt confident enough to writeand communicate with the students at the end.

The teachers in Spain's response highlighted the growth in confidence of their students, which inferred the students in Spain felt safe in the collaborative environment that the students in Australia were part of, increasing their contributions over time. Though, the researcher noted in her journal on several occasions during sessions, a lack of sensitivity and understanding had occurred with the students in Australia, in the classroom:

> Though the students demonstrate sensitivity through their interactions in the collaborative documents by not referencing difficulties they are facing and persevering to work through, some of them have been commenting between the group members in their class on aspects they are personally frustrated with such as the length and quality of the students in Spain's responses. This demonstrates a lack of sensitivity but correlates with the maturity level of the students in Australia, involved in the study.

The second key theme was *behaviour* with a subtheme of *understanding*, which demonstrated sensitivity through their reflections. One student said, "When speaking to them through text on Google Docs, we just interpreted their writing the same way we would anyone else. We also just ignored the mistakes they made with their writing because we could still understand them" (Student 3). Another student reflected, "I took in their opinions and respected them. I also tried to work everything out together and made sure they knew what we were doing" (Student 2). Referring back to the previous paragraph, the researcher's response also correlated

whereby the students would not communicate their frustrations with their group members in Spain and rather discuss them with their group members in Australia. Whilst they demonstrated *understanding* through their behaviour in the collaborative documents, they often lacked sensitivity in their behaviour in class.

The third key theme was *task expectations* with a subtheme of *accepting differences*. Whilst noticing differences in how the task was completed, most of the students in Australia didn't criticise their approach. They demonstrated sensitivity, understanding and recognised the students in Spain were using their third language to communicate in their questionnaires, reflections and documents. One student reflected, "A difference I noticed was how big of a paragraph they wrote compared to our paragraphs. But what they did write was usefull. The reason I think they write smaller paragraphs is because English isn't their fist language" (Student 1). This was also evident in the documents, which show how the students continued on with the task in light of the different expectations they had on completing the task. Another student reflected:

> Over the time we were conducting this experiment I noticed that if one student wrote a statement and one if his/her friends had the same idea they wouldn't write the same thing, they would write in their section that they agreed. This was different from us as we would type a small paragraph about what we think and if each other had the same result we would word it differently. (Student 5)

Cultural differences was the fourth key theme, with a subtheme of *language*. Differences in the language used, such as word pronunciation, accents and type were prominent themes. One student said, "I noticed that they weren't as fluent when they wrote in English as they would have been when they wrote in Spanish" (Student 4) whilst another noticed, "Some cultural differences that I noticed were when they would say a word that we had never heard of …" (Student 6). During the synchronous Google Hangouts session, emotional responses were exhibited due to frustration in not understanding the students in Spain as they switched between languages when communicating with their group members internationally and their group members in their school in Spain. For example, one student said, "They kept on speaking Spanish to each other in the session and we were annoyed that we couldn't understand them." Another student reflected on the situation differently and said:

> We couldn't understand them we asked them many times to repeat what they were saying since it was very crucial to give them an explanation… I had noticed that they had a different accent and how some of the sentences they had said didn't make sense… These situations would help me in communication and learning about a different culture. You can tell when you speak to them that they had a different accent so it means we have to try harder to communicate. (Student 6)

Most students in Australia demonstrated intercultural sensitivity by recognising and accepting their differences in communication and not letting it interfere in their communication

in the documents to complete the collaborative task. The Google Hangouts reflections demonstrated a different level of intercultural sensitivity in the students in Australia's behavioural approach. Frustrations were identified in the complexity the students in Spain's accent brought to the synchronous intercultural communication as well as when they communicated amongst themselves in Catalan where the students in Australia could not understand.

Following a class debrief on the synchronous connection undertaken, the researcher noted the students in Australia's behavioural responses in her journal:

> Following the Google Hangouts session this afternoon we debriefed as a whole class. There was a high level of excitement in meeting their group member's face-to-face through videoconferencing, though, a common response was that the students in Spain would talk amongst themselves in Spanish, which the students in Australia couldn't understand. They felt this was insensitive and were frustrated. They asserted that the students in Spain knew English, so it wasn't acceptable for them to be speaking between themselves during the collaboration in English.

The researcher went on to note in her journal observations following the Google Hangouts session:

> Some of the students in Australia found the videoconferencing communication difficult, as they had to slow their speech and repeat themselves multiple times during the communication process. Whilst some of the students were accepting and sensitive of the students in Spain's needs and understood that the students in Spain were requiring them to do the same thing, so they could understand their spoken English with the Spanish accent, others were only considering the communication from their point of view. In terms of how many students found this difficult, there were 4 out of 26 who demonstrated a lower level of sensitivity. Interestingly, these students are the ones who experience difficulty in learning the English language (reading, writing and speaking competences) in the classroom at school.

Use of Web 2.0 tools to facilitate collaboration

The students in Australia and the Spanish students from Cohort 1 used Google Classroom to collaborate and communicate within their groups. They used shared Google Docs to input and share their ideas and findings, collaborate throughout the process of the task and complete a Google Slides presentation as a group to present their investigation. As the students in Spain had a sound proficiency in reading and writing English, and because their Science lessons were conducted in English, an application to translate was not required.

The students in Australia's qualitative data was analysed for common themes on the use of Web 2.0 tools to collaborate. Three key themes emerged from the analysis: *technology to collaborate, problems with technology* and *enjoyment*. The relative proportion of each key theme is identified in Figure 4.2. The relative importance that emerged from the summaries demonstrated *technology to collaborate* as the most important followed by *problems with technology* and *enjoyment* as the relative rank order. Each key theme will be addressed stemming

from the students in Australia's data. Correlating quotes are included from the teachers of the students in Spain and the researcher.
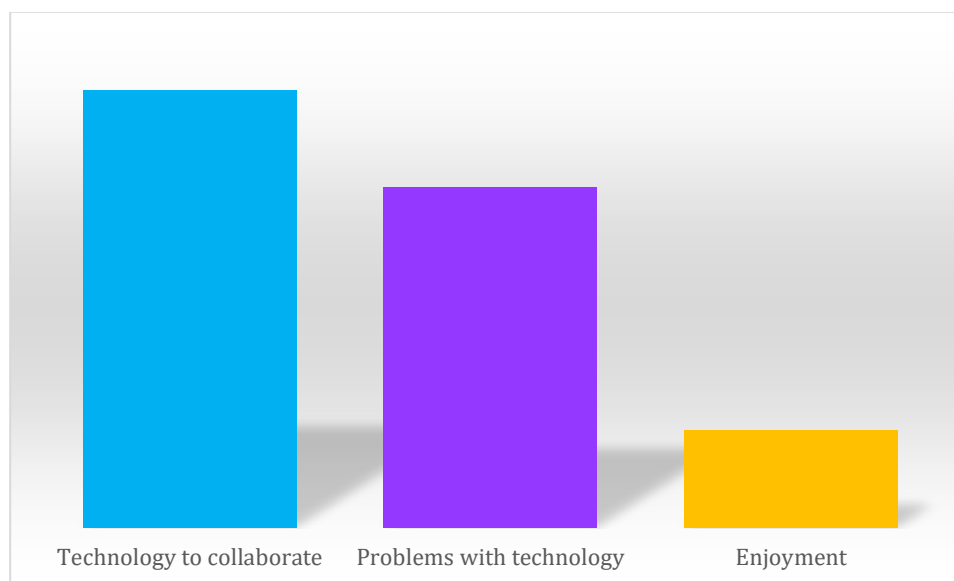
Figure 4.2 Relative Proportion: Web 2.0 Tools Responses (Case Study 1)

Through the key theme of *technology to collaborate*, two subthemes emerged: *web tools* and *collaboration*. One student reflected on the use of *web tools* to communicate with the students in Spain, "We approached the communication aspect through Google Docs, and Google Hangouts. When using these we got to talk with the students in Spain in both real life and through text" (Student 3). Another student said, "Google Classroom is a really good way to do these tasks as you don't have to save your work and it is really fast so you go see straight away what your other group members are doing" (Student 2). The use of web tools to facilitate the collaboration was noted. One student said, "Technology helped us collaborate with the students from another country by using Google Classroom. This is because we got to write to each other using Google Classroom" (Student 4).

On the subtheme of *collaboration*, the students in Australia reflected on the use of *technology to collaborate* with other students internationally. One student said, "Technology has helped me collaborate because you are able to communicate with people from across the world and work together on the tasks… and make us work more as a team" (Student 6). Another student said, "Technology helps, because without it we wouldn't have been able to talk and collaborate with the students in Spain" (Student 3). One student referred to features that technology provided her with to collaborate online. She said, "Technology helped me because I was able to see what my group members were doing and ask them questions. We also did all our work on the same document and were able to communicate and complete our questions at the same time" (Student 2). The teachers in Spain were experienced in using Google applications through other means with their students in their school and did not comment on the use of it to collaborate internationally. The researcher noted in her journal:

The use of Google Docs and Google Slides has enhanced the ability to identify each student's contributions to the collaborative task, important when collaborating to ensure that each member is contributing. The ability to work synchronously within the classroom has pondered thoughts on how Google apps can be used further with the students in the classroom in their learning.

The second key theme was *problems with technology* with the sub theme of *Internet connectivity and computer hardware problems*. Students highlighted issues with connectivity during the Google Hangouts sessions, which were conducted simultaneously with the groups. One student reflected:

I experienced some difficulties when we were doing the Google hangout session because we had a bad connection so the screen kept freezing and the volume was not right so we couldn't hear what they were saying… We did experience difficulties during our Google hangout session because we had bad connection and this meant our screen kept on freezing, we would drop out of the Google hangout and we also could not hear what our group members were saying. (Student 2)

The teachers in Spain noted one difficulty in connecting a group of students to a Google Hangout session for their group, which was amended through email communication with a new link. On reflection of the Google Hangouts session the researcher noted in her journal:

Three groups of students experienced difficulties with their screens freezing during the Google Hangouts session. The three groups had to end and restart their connection. As each group was separately conducting a synchronous videoconferencing session in the same building this may have caused an issue? Something to follow up with the IT Department for future videoconferencing sessions?

Other students noted issues with connectivity during the asynchronous sessions. One student said, "Some difficulties that we experienced with technology is when you can't write anything in Google Classroom because the Wi-Fi wasn't working, so Google Classroom has to refresh the page and you can't write anything while its refreshing the page" (Student 4). The teachers in Spain did not report any difficulties at their end with technology or Internet connectivity. The researcher noted in her journal:

Following a storm in the city, there have been issues of Internet connectivity, which have affected some of the student's connectivity on the devices meaning they cannot work on their Google Docs because they require this connectivity to work online.

The third key theme in the *use of Web 2.0 tools to collaborate* was *enjoyment*. One student said, "I have found that technology has helped make this task more fun …" (Student 6). Another student reflected, "We also got to see what our group members looked like because we got to Google hangout with them which I enjoyed" (Student 2). In her Google Hangout reflection, one student said, "I found the google hangout was fun because we got to speak with kids from another country and we go to learn a bit about their culture and they got to learn about ours" (Student 1). The teachers in Spain reflected, "Students were really excited when they knew they were going

to do a project with students in Australia and also during the whole process… The fact of interacting with their counterpart in Australia has been really motivating." The researcher noted in her journal upon conclusion of the first collaboration:

> The students' motivation towards the collaboration has not waned throughout the collaboration. They have exhibited the same interest and enjoyment in completing the task from the beginning until the end of the collaboration. There was always a sense of excitement at seeing someone else's response in their shared documents in their behaviour, with excited exclamations in the first few sessions. Whilst the exclamations subsided after the first few sessions, the enjoyment in communicating with students in another country did not appear to decrease or their motivation for the task, even when they faced difficulties.

School in Spain: Case Study Two

Collaboration context

The second collaborative project (case study) was conducted over 10 weeks, from October to early December, this being the first term of the Spanish school year and the fourth term of the Australian school year. Each week the classes worked on the collaboration for two one-hour sessions asynchronously. This collaboration followed a visit by the researcher to the school in Spain during the school in Australia's two-week October holiday break. The students in Spain were in Year 5; two classes of 30 students participated. The students in Australia were in Year 6; one class of 26 students participated.

Learning task

The teachers in Spain and the researcher designed the learning task collaboratively during the researcher's visit to the school. The process started with a discussion of common curriculum learning outcomes and pedagogical structures. Following the visit to the school, email communication continued and the students' task was finalised in a shared Google doc. The teachers in Spain distributed their students into groups in a shared Google sheets document, followed by the researcher distributing the students in Australia across the groups.

Google Education applications were utilised for the collaboration to enable the students to collaborate in shared documents in a safe and secure environment. Only the students in the group and the teachers could access, view and edit the student folders and their work. The applications enabled students to collaborate across educational institutions and provided the teachers with information through the edits feature on who was completing what, when, increasing the accountability of the students' participation in the learning task.

Prior to the group collaborative project commencing, the teachers in Spain and Australia conducted three one-hour lessons where they taught and explored how to create and draw electrical circuits, how electrical energy can be transferred and transformed through these circuits, and how electrical energy can be generated from a range of sources. Resources were shared

between the teachers via email. The collaborative project required students to utilise their knowledge of electrical circuits to design an alarm that would stop a burglar, using the Engineering Design Process. Through the process, students worked in their group to identify the problem, why it was a problem, brainstorm and devise solutions and create a prototype of their solution. Each group created a prototype (burglar alarm) using electrical circuits both in Australia and Spain and sought feedback from their group members to further improve the prototype by creating short film clips to demonstrate how their alarm worked. The task concluded with the evaluation of their alarms and effectiveness of their prototype through a shared Google Slides presentation.

Each group had their own folder in Google Drive, which they were added to using their individual school email address. In each folder were two Google Docs and an empty Google Slides presentation. The Group Journal document (see Appendix N) was where students discussed each stage, reflected on their ideas and how they had changed, shared ideas, information, web links and asked questions, communicating with their group members. Students commenced the project by introducing themselves to their group, responding to other members' introductions and asking questions to develop a conversation. As each student posted, they were asked to finish their post with their name and the date in brackets. For each new post, they used a new line in the table. When responding to another group member's post, they were to write in the same line of the table. The second Google document in the folders was called, Group Work. This document was where the students wrote the formal responses they had agreed upon as a group for each part of the Engineering Design Process from their initial brainstorming and discussion of ideas in the Group Journal (see Appendix O). This Google doc could include photos of their designs or diagrams to illustrate their ideas. The Google Slides presentation in each folder was empty and the final step in the task as outlined above. On conclusion of the collaboration, a Google Hangouts session took place where each group had their own independent synchronous session to meet each other via videoconference and chat. The Google Hangouts session required students to sit in different classrooms so they could hear their group members talking and went for around 30 minutes.

Groupings

From the school in Spain there were two Year 5 classes involved, with 30 students per class. From the school in Australia there were 26 students in the Year 6 class. The teachers in Spain distributed their students into 10 groups, with learning abilities spread evenly so there were mixed abilities between their in each group. For this collaboration, the teachers mixed students from both classes within the groups. Following this, the teacher in Australia distributed the students in Australia across the groups with mixed abilities in each group. There were six groups with nine students, two groups with eight students and two groups with seven students.

Qualitative data

This research study investigated the development of ICC from the students in Australia's perspective through collaborations with students from a different culture, and country. Qualitative data utilised in this case study included a post-collaboration student questionnaire with open-ended questions, collaboration documents (Google Docs, Google Slides), student reflections following the Google Hangouts session, post-collaboration teacher questionnaire with open-ended questions, teacher/researcher email communication and the researcher's journal. The students in Australia completed the student questionnaire independently, in their classroom during the school day, at the same time on conclusion of the collaboration. A questionnaire with open-ended questions was used instead of a one-on-one interview due to the researcher's relationship with the students as their classroom teacher, ensuring the reliability and trustworthiness of the responses, which could be validated through the written responses. Each student in the Australian school answered the sample questions (see Appendix G) online through a Google Form after the collaborative project and process was complete. Triangulation of the qualitative data occurred through the use of email correspondence between the teachers in Spain and researcher, the teachers' questionnaire results and the researcher's journal notes. The teachers in Spain answered the open-ended questions (see Appendix I) through a Google Form on completion of both collaborations.

Sample selection

The sample selection was drawn from the students in Australia's class. The researcher identified a small number of students (six) from the class of 26 using convenience sampling. The selection was not totally random; students were selected who were willing and likely to provide a sample across the learning abilities. The sample of qualitative data included the students in Australia's group collaboration documents, student reflection following the Google Hangout session and student's questionnaires upon completion of the collaboration.

Qualitative data findings

The students in Australia's qualitative data was analysed from the raw initial data into initial categories. Their results were triangulated with email correspondence between the teachers in Spain and researcher, the teachers' questionnaire results and the researcher's journal notes. From the initial categories key themes were identified. Key themes were then further analysed to identify subthemes. Quotes that best represent the subthemes were selected and matched with the ICC dimensions of intercultural adroitness (behavioural aspect), intercultural awareness (cognitive aspect) and intercultural sensitivity (affective aspect), and the use of Web 2.0 tools to facilitate the collaboration. The behavioural aspect of intercultural communication refers to an individual's ability to reach communication goals when interacting with students from another culture (G. Chen & Starosta, 2000).

Qualitative data results

The students in Australia's qualitative data was analysed for common themes from which key themes emerged. From these key themes, sub themes were identified. Subthemes were categorised into the three ICC dimensions of adroitness (behaviour), awareness (cognitive) and sensitivity (affective); the relative proportion for each dimension identified in Figure 4.3. The three ICC dimensions are described in separate sections. Results relating to the use of Web 2.0 tools to collaborate with students from another country follow the ICC findings.

The relative importance that emerged from the summaries demonstrated intercultural adroitness (behaviour) as the most important, followed by intercultural awareness (cognitive) and intercultural sensitivity (affective) as the relative rank order. In the description of each dimension's ICC, quotes are used to illustrate the students in Australia's reflection (sensitivity), reaction (behaviour) and understanding (awareness).
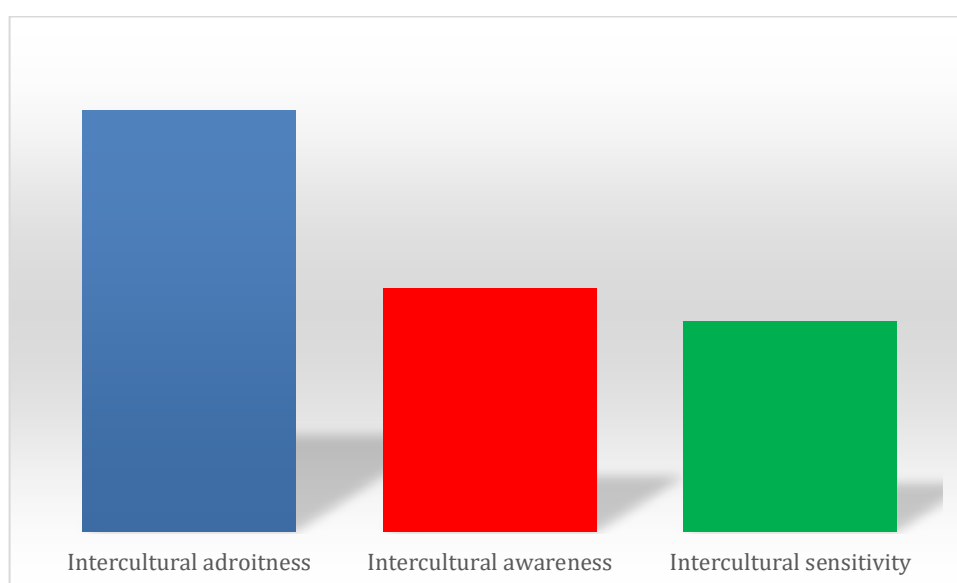
Figure 4.3 Relative Proportion of ICC Dimensions (Case Study 2)

Intercultural adroitness

Intercultural adroitness addresses the skills and behaviours that are required in order for intercultural interactions to be effective (G. Chen & Starosta, 1998). Key themes that emerged from the questionnaires were *communication, attitude* and *cultural differences*. Each key theme will be addressed through sub themes that stemmed from the students in Australia's data with correlating quotes included from the teachers of the students in Spain and the researcher.

Through the key theme of *communication*, five subthemes were identified: *proficiency of English language, increased communication and discussion, task expectations, no difficulties* and *effective collaboration*. The first subtheme was *proficiency of English language*, where the students in Australia addressed difficulties they faced at the beginning of the collaboration but an openness to working out what the students in Spain meant. On student said, "I noticed that they

don't have very fluent English and sometimes use phrases that we don't understand. Another thing that I noticed was that they didn't always answer our questions that we asked them" (Student 4). Another student said, "A difficulty we faced was the communication as sometimes we could not understand what they were saying or sometimes they would write in the wrong spot and we would get all confused" (Student 2). During the Google Hangouts session, one student noted in her reflection that, "They were sometimes talking in Spanish to each other so we couldn't understand what they were saying" (Student 2). Another student said, "It also made it harder to understand them because English isn't their first language" (Student 3) whilst another student said, "One of the difficulties that we faced was communicating. We both spoke different languages so it was really hard, having to communicate… we had to say the message multiple times" (Student 4). This student continued:

> Some difficulties was when the Spanish students wrote something and we had to figure out what they meant. They had written something underneath a question or about themselves or asking us a question, and we had to understand what they were saying or asking us…The only misunderstandings that we ever had was when we didn't understand what the other students wrote, and what they meant but we always figured it out in the end. (Student 4)

The teachers in Spain explained the difficulties their students faced, "Most students at the beginning when they did not know how to express themselves." They go on to say, "… at the beginning they were a bit shy and were afraid of making mistakes when writing. They were afraid of not being understood. When they saw there could be communication, they felt released and comfortable." The researcher noted in her journal:

> Being the second collaboration with the same school but a different cohort, the students in Australia are facing similar challenges at the beginning of the collaboration where their group members in Spain are finding their feet in a new style of collaboration through the online format and communicating with students who they don't know and have not seen. Whilst this is the second online collaboration in this manner for the students in Australia, it is the first for this cohort of students in Spain. It's interesting to note the similarity of the students in Australia's behaviours in the beginning stages when comparing this collaboration to the first collaboration.

The second subtheme of *communication* was *increased communication and discussion*. One student said, "I took interest in them and asked them lots of questions…" Student 1. Another student reflected on the group's communication in order to complete the task:

> If we didn't understand what they meant in any particular way, we would ask them and they would explain it to us. If they were telling us about something they like to do tht we had never heard of before, we would ask them what it was and they would explain it to us. (Student 2)

The students recognised the importance of communicating in order to collaborate on the task through discussion. One student said;

> I approached the communication aspect by using a lot of disscusion and informing each other on what we are going to do and they would inform us about the things that they were planning to do.' 'I noticed that while communicating we made sure we asked many questions on what to do and keeping updated on what they were planning to do. (Student 6)

Following the Google Hangout, the students reflected on what they had learnt through communicating with their international group members. One student said;

> I think I have learnt a lot from the google hangout I have learnt that their are culture differences and the time differences… and also that they have a much different lifestyle than us and their school is much smaller than ours. They also eat different food from us and live in different types of homes. (Student 1)

The researcher noted an increase in the students in Australia's questioning in the collaborative documents to inquire and discuss the learning task. Whilst the researcher felt the discussion was not a high level, it had increased from the previous collaboration. The Google Hangouts sessions provided opportunities for synchronous communication where greater conversation occurred in which understandings about each other's cultures were exchanged.

The third subtheme of *task expectations* identified how ineffective communication led to misunderstandings. One student said, "A misumderstanding was when we were doing the slides because the students in spain would keep changing the slides and everytime we would add something in the would delete and keep it the way before" (Student 6). The researcher noted that the students in Australia and Spain had not communicated how they would like to complete the slides presentation together with each other. The deletion of slides and changing of content caused angst and disappointment in the students in Australia when they logged in to see their work had been altered. Though, this was due to their lack of communication and discussion on how it would be completed as they were often observed to be doing the same to their group members in Spain's work.

The fourth subtheme that emerged from the key theme of *communication* was *no difficulties*, where students asserted that they experienced no challenges during their communication and collaboration. One student said, "We didn't experience any difficulties because they were very easy to commuicate with and really reliable for answers. It wasn't hard to have a conversation with them as well… We didn't have any misunderstandings as everyone was really understanding and we discussed everything so we knew what each other was doing" (Student 5). It is interesting to note the students in Australia's responses in deeming there were no difficulties in communicating, as their previous themes had identified misunderstandings, differences in task expectation and proficiency of the English language arising.

The fifth subtheme that emerged from the key theme of *communication* was *effective collaboration*. One student said, "Our group was very good during our time collaborating as they kept on answering the questions about how to complete the burglar alarm. They also would write lots about what they think and they wrote paragraphs" (Student 5). Another student said, "Our group was rather effective in communicating to complete our learning task, because we always asked each other questions and tried to always answer them" (Student 4).

The teachers in Spain noted in their email correspondence that their students were communicating more within their groups than the first cohort had in the first collaboration (case study). They also noted that within the groups, the students in Australia and Spain were creating different alarms, which was not the purpose of the task. Each group was to collaborate and create the same alarm with the same materials as best they could. The effectiveness of the collaboration to complete the task is in question. Though increased communication was observed, collaboration became less evident as the task progressed.

The second key theme of intercultural adroitness was *attitude* with a subtheme of *positive mind frame*. The students in Australia demonstrated a predominantly positive attitude over the course of the collaboration. One student said, "I knew that this school was going to be very reliable because earlier in the year when we collaborated with them they were always replaying and answering questions" (Student 5). Another student said, "We approached this task with a fun and active mindset" (Student 2). Following the synchronous Google Hangouts, one student said:

> It was really interesting talking to them and seeing their faces. It was also really fun having an hour to talk to them and ask questions about their culture. It was also really interesting learning about them and what they like to do (Student 1)

Actions that triggered a less positive response were the deletion or changing of their work by the students in Spain and their response to the students in Spain's English language proficiency in the beginning stages of the collaboration. These behaviours were noted with a small minority on occasion – the majority of the students demonstrated positive responses consistently over the course of the collaboration.

The third key theme of intercultural adroitness was *cultural differences* from which two subthemes emerged: *sport* and *language*. The common interest of sport captured the attention of the student and encouraged them to increase their inquiry through questioning to learn more; this behaviour assisted them in developing a connection with their group members. For example, one student said:

> Yes. Some cultul differences I noticed were the types of sports that they placed since they didn't know what netball was and we didn't know some of the sports they played. We got to learn about these cultrul differences by readig their introductions and sking questions. (Student 6)

The second subtheme was *language*. One student said, "I noticed that they don't have very fluent English and sometimes use phrases that we don't understand" (Student 4). Another student said, "There was a language barrier and sometimes when we were communicating with each other, we sometimes didn't understand what someone was saying" (Student 2). The language barrier was also noted in the students in Australia's reflections following the Google Hangouts sessions. An integral aspect of effective intercultural communication is the skill to interact or communicate effectively. The issues noted here were challenges faced in the process of communicating interculturally.

Intercultural awareness

The cognitive aspects of ICC refer to the understanding of cultural conventions that affect how we think and behave (G. Chen & Starosta, 1998). Key themes that emerged were *communication, attitude* and *cultural differences*. Each key theme will be addressed through sub themes stemming from the students in Australia's data with correlating quotes included from the teachers of the students in Spain and the researcher.

The first key theme of intercultural awareness was *communication* from which *understanding* emerged as a subtheme. One student reflected, "We reacted by ignoring the mistakes they made with their English, and going on Google docs at different times. We also reacted by excepting the differences" (Student 3). Another student reflected on the challenges in interpreting the students in Spain's communication and how she reacted in response: "We just tried to make sense of what they had wrote and in the end we understood, and we thought that it was cool that they got a break from school in the middle of their day" (Student 4). The researcher noted in her journal, the majority of the students in Australia demonstrated some intercultural awareness in their responses and behaviours towards their group members in Spain however, a small minority exhibited a lack of understanding in the difficulties the students in Spain may be facing, communicating in their third language.

The second key theme was *attitude* with a subtheme of *accepting differences*. One student demonstrated an open mind through her response:

> I think some differences were that they weren't as confident in the English language as we are and sometimes that was a bit difficult in understanding what they meant. I also thing that at the beginning, they might have struggled to understand what we might have been trying to answer for the task but they understood it in the end and they completed it well. (Student 2)

In her reflection following the Google Hangout session, one student said, "I noticed that they had a Spanish accent and it was a little hard to understand but in the end we got it!" (Student 1). When approaching difficulties during the Google Hangouts session one student said, "We asked them (and they asked us) if they could repeat what they had just said. And in the end we got the message across by talking slowly and listening carefully" (Student 4). This student

demonstrated intercultural awareness in her actions by adapting her behaviour to ensure their conversation was successful without questioning why she should have to. The teachers in Spain's email response following the synchronous connection described the students in Spain not wanting to finish their Google Hangouts sessions:

> The students were very excited! The groups who could not hear the others properly ended up chatting so they could understand each other. At 0, when we had to stop the connection because the classes were starting, some groups did not want to stop. They were saying: "No! We want to spend more time talking to them!!

The students in Spain's response following the Google Hangouts session to their teachers highlights the moderate success of the synchronous communication in which the students were motivated to learn more about their group members in Australia.

The third key theme of intercultural awareness was *cultural differences* with subthemes of *sport* and *school*. On the subtheme of *sport*, students identified differences in the sports they played in each country, "… Another is the types of sports they play" (Student 1). Another student reflected:

> Yes. Some cultul differences I noticed were the types of sports that they placed since they didn't know what netball was and we didn't know some of the sports they played. We got to learn about these cultrul differences by readig their introductions and sking questions (Student 6).

The researcher noted the prevalence of the conversation around sport in the beginning stages of the collaboration in her journal. Commonalities were sought through their conversation with sport a key feature in their discussion, often relating to the differences through netball and padel not being known in Spain and Australia, consecutively. It would be interesting to compare conversations between teenagers and adults in their intercultural communication when they first get to know each other and the prevalence of sport in their introductory conversations. The students' age group may be significant to the inclusion of this topic in their conversations.

School as a *cultural difference* was prominent through the timing of their school day, the inclusion of a siesta break and the time difference between Australia and Spain. One student said, "I noticed that because of there culture they go back home in the middle of the day them arrive back at school later to do more work until around 5pm" (Student 5). Another student said, "Some differences were that they had a break in the middle of their school day. Which meant they left and went home, and then came back at five o'clock in the afternoon" (Student 3). This student reflected on the difference in their school day, "Some difference with the students were the time one. Since Spain is seven hours behnd the students normally wouldn't reply back till the next day" (Student 6). Following the Google Hangouts, one student said:

> We noticed lots of different things because they showed us around their school and showed us through their window to outside. I noticed that their

classrooms were very white and clean and they had their own desks and didn't have to wear a uniform. (Student 5)

Intercultural sensitivity

The affective aspect of ICC signifies the student's readiness to appreciate and understand cultural differences in intercultural communication (G. Chen & Starosta, 1998). Key themes that emerged were *communication, attitude* and *cultural differences*. Each key theme will be addressed through sub themes stemming from the students in Australia's data with correlating quotes included from the teachers of the students in Spain and the researcher.

The first key theme of intercultural sensitivity was *communication*, from which three subthemes emerged: *proficiency of English language, inquiring to learn more,* and *task expectations*. In the first subtheme of *proficiency of English language*, the students in Australia demonstrated sensitivity in their reflections. For example, "I noticed how much they grew during this task on their language. As at the start they were a little rusty on their language but now they are really getting the hang of it. They can now write a long sentence and getting everything write" (Student 1). Another student said:

> I noticed that there was a language barrier between us and that sometimes it was a bit hard to understand each other. I also noticed that at the start I think that the Spanish students were not extremely confident in doing the project but as we went along they started to put a lot of information in and it was really interesting to read. I noticed that there were some cultural differences too. (Student 2)

Though, in contrast and demonstrating a lack of sensitivity, one student said:

> When communicating with our group members in Spain, we did have a few difficulties. One of them being, that English was their second language, so they didn't write very clearly… No there were no misunderstandings, beside the language, and their grammar and spelling. (Student 3)

The teachers in Spain reflected, noting the increase in their students' confidence across the collaborative project once they realised that "language has not been a problem."

In the second sub theme of *inquiring to learn more*, the students in Australia reflected on how they reacted to the cultural differences between the students in Australia and Spain during the collaboration. One student said, "I reacted to them by learning about it and asking a lot of questions abut it and getting a better understanding of heir cultrul differeces" (Student 6). As the second collaboration commenced, the researcher had noted the increase in questioning to learn more about their group members in Spain, particularly in comparison to the first collaboration.

The third subtheme of *communication* was *task expectations*. One student demonstrated a lack of sensitivity, "I noticed that they seemed to agree on others work a lot and only write small things not 2 or 3 sentences as my group member and I were typing" (Student 5). In contrast another said, "I also noticed that they wrote a lot of information. They were all really good at the

topic" (Student 3). The teachers in Spain and the researcher discussed the group collaboration via email correspondence and alluded to the different ways in which the groups would communicate to share their ideas. Whilst the students in Spain would confer amongst their groups and then share the response they decided upon as a group, the students in Australia independently wrote their ideas to share with the group to come up with a common answer. In relation to the students in Australia's responses in their questionnaires, in their eyes they deemed this as not completing the task correctly, when in fact, the idea was to collaborate together across countries so amalgamating responses within their groups in their country prior was not deemed an issue to the teachers involved.

The second theme of intercultural sensitivity was *attitude* from which two subthemes emerged: *open mindedness* and *differences in language*. The researcher has previously noted in the intercultural adroitness section, the major majority of the students in Australia demonstrated an open mind and positive attitude when approaching each aspect of the collaboration. For example, one student said, "It was interesting to communicate with people from the other side of the world as we have never met them before and we had to complete a task with them" (Student 5). Through the Google Hangouts reflections, three of six students alluded to technological issues such as Internet connection and sound being the problem rather than the communication between their group members.

In contrast, and through the subtheme of *differences in language*, intercultural sensitivity differed between the students in Australia. One student reflected, "The cultural differences that we noticed was that the students in Spain didn't always write correct English, didn't use correct punctuation and what they wrote didn't always make sense to the students in Australia" (Student 4). This response lacked sensitivity through understanding the students in Spain's challenges and context. This also correlated with the researcher's observations noted earlier. In contrast, following the Google Hangouts session, one student reflected, "I noticed that we both speak different languages, and even though they knew some english it was still hard communicating" (Student 4). Here, the student recognised the difficulties but exhibited sensitivity in her response.

The third key theme of intercultural sensitivity was *cultural differences* with a subtheme of *respect for different opinions*. Most students demonstrated respect and intercultural sensitivity in their responses. For example, one student said, "A difference I noticed was the different opinions they had. I respected these differences and took in their opinions" (Student 1). The teachers in Spain noted in their questionnaire:

> A really good experience for students. We think it would be a good idea to do a project like this every year with students from differents countries. If each student could communicate every year with students from different countries, it would be a good experience. I think people would have a more tolerant behaviour.

The researcher agreed:

Across the two collaborations with cohorts in Spain, the students in Australia have demonstrated an increasing intercultural understanding, awareness and sensitivity in their interactions and behaviour with the students in Spain. Whilst it has taken a little longer for some students, perhaps the age and maturity of the students, or their previous experiences and interactions with people from different cultures, affects the rate in which these dimensions grow.

Use of Web 2.0 tools to facilitate collaboration

The students in Australia and the students Spain from Cohort 2 used Google Classroom to collaborate and communicate within their groups. They used shared Google Docs to input and share their ideas and findings, collaborate throughout the process of the task and complete a Google Slides presentation as a group to present their investigation. As the students in Spain had a sound proficiency in reading and writing English, and because their Science lessons were conducted in English, an application to translate was not required.

The students in Australia's qualitative data was analysed for common themes with a focus on the effectiveness of the Web 2.0 tools to facilitate the international, intercultural collaborations. Two key themes emerged from the analysis: t*echnology to collaborate* and *problems with technology*. The relative proportion of each key theme is identified in Figure 4.4.
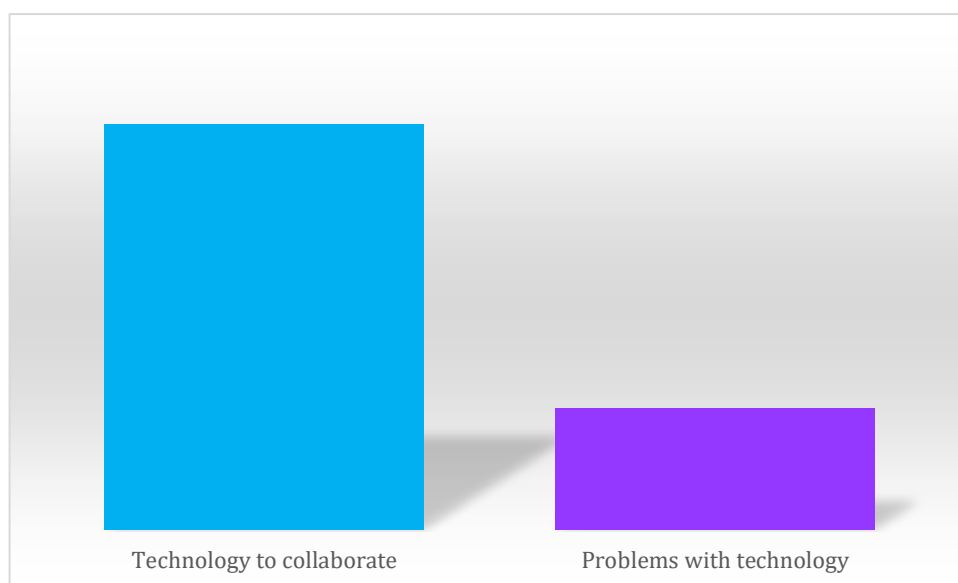
Figure 4.4 Relative Proportion: Web 2.0 Tools Responses (Case Study 2)

The relative importance that emerged from the summaries demonstrated *technology to collaborate* as the most important followed by *problems with technology* as the relative rank order. Each key theme will be addressed which stemmed from the students in Australia's data. Correlating quotes are included from the teachers of the students in Spain and the researcher.

Through the key theme of *technology to collaborate*, three subthemes emerged: *web tools, faster communication* and *collaboration*. The students in Australia identified the *use of web tools to communicate* with the students in Spain. One student said:

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Firstly we us computers to help us communicate with new people from another country and we use Google Classroom on it…We used the documents in Google Classroom to communicate with the students from Spain. We wrote paragraphs about ourselves in the Group Journal and we responded to each other asking questions. It was interesting talking to them and sometimes it was a bit hard to understand what they were saying because of the language barrier but it was a great experience and we all discussed our ideas about the task in the Group Journal. (Student 2)

Another student explained, "We approached communicating with them through Google docs. We collaborated on the learning task, creating a burglar alarm, together and told each other about our findings" (Student 3).

The researcher reflected on the use of web tools to communicate:

The use of Web 2.0 tools to collaborate worked well as it allowed the students to see what each group member had contributed in a safe, secure digital environment. The use of technology engaged the students and as well as increasing their technological skills, it also encouraged them to consider how they could interact responsibly online. Something they will no doubt encounter in the next few years as they start to use different social media platforms independently.

The second key theme of *technology to collaborate* was *faster communication*. The students' responses identified how technology assisted them in increasing the pace of communication to collaborate. One student said, "Technology helps as it is so much faster than sending a note all the way to Spain and then them sending one back" (Student 1). Another student said, "We completed this task using Google Classroom. Google Classroom is a really good website to use as it saves its selves and is really fast tat connecting with others" (Student 6). In her Google Hangouts reflection, one student said:

After connecting to our group members in Spain I have really enjoyed getting to meet them and see them. It was different because in the Journal the way we had to write wasn't actually the way we speak so when we got on to Google Hangouts it was nicer to actually talk to them in a way we would when you first meet someone. (Student 5)

The researcher reflected:

Whilst video-conferencing has been around for quite a while now, the ability to collaborate synchronously through web tools is a significant step in providing students to learn from and with each other online in a time-efficient manner, which not only regulates the flow and interactions within a task, but ensures the momentum is not lost to increase the engagement of learning with students. The ability to integrate and utilise these web tools internationally, has been interesting to observe as the tasks progressed.

The third subtheme was *collaboration*. Students recognised the technology they were using assisted them in communicating and collaborating with students from another school, in another country. One student explained, "It also helps as Google Classroom allows more than one

person to be on one document and we can all contribute" (Student 1). Another student said, "Technology has allowed us to complete this task as without it we couldn't collaborate and that was one of the main points of the task" (Student 5). Another student reflected, "Technology helped, because without it, we wouldn't be able to collaborate and complete the task" (Student 3). The students reflected on the purpose of the collaborative task in their Google Hangouts reflection. In response to this question, one student said:

> So that you can see what other people's lives are like from countries on the other side of the world and get to learn cultures and how people's lives are different to yours. Technology is the only way to do it except for writing letters to them which would take a long time. (Student 2)

The teachers in Spain and the researcher discussed the effectiveness of technology in being able to present opportunities for students to collaborate internationally and interculturally, though, noted that students of this age needed more development in their collaboration skills as often they would report, rather than collaborate on their learning task.

The second key theme was *problems with technology* from which one subtheme emerged: *Internet connection*. On the subtheme of *Internet connection*, one student said, "A difficulty was that sometimes on Google Classroom it would come up with a sign saying that it was loading and you couldn't do anything until the sign went away" (Student 1) whilst another student reflected, "We experienced some difficulties, with technology in Google docs. Some times it came up with a reconnecting sign, or a can not connect sign" (Student 3). During the Google Hangouts sessions, students experienced difficulties with the Internet connection. In her reflection, one student said, "Yes, the computer froze a lot because there was 13 groups on the computers all trying to communicate with other group so I could understand why it kept freezing!" (Student 1). Another student said, "… in google hangouts it was a bit hard to understand what they were saying because the connection was not good and the screen kept on freezing' (Student 2) whilst this student reflected:

> Our connection would glitch and become frozen so we would have to hang up a few times ad call back. We did get to talk to each other and although we had to listen really hard to make out what they were saying we managed to have a decent conversation. (Student 5)

It is interesting to note that in the students' responses, they all had reasons they had devised as to why the technology was causing issues at the time, even though there were no problems specifically alluded to during the collaboration by the teachers or the researcher.

Summary

In this chapter, the results from both case studies with the school in Spain found the same relative rank order emerged for the three ICC domains. The relative importance from the

summaries demonstrated intercultural adroitness (behaviour) as the most important, followed by intercultural awareness (cognitive) and intercultural sensitivity (affective).

As the first case study showed, intercultural adroitness drew key themes of communication, behaviour, time and task expectations. The second case study drew key themes of proficiency of English language, increased communication and discussion, task expectations, no difficulties and effective collaboration. Communication the common key theme in intercultural adroitness (behaviour) across both case studies signifying its relative importance as identified by the students in Australia. Students identified that a language in common assisted their intercultural communication and eliminated the need to translate; an additional step which can often be inaccurate. Questioning was employed to inquire and learn more about their group members and seek a greater understanding of their ideas. Translation difficulties were referred to in decoding the students in Spain's responses. As the students in Spain could communicate in English, higher expectations were alluded to by the students in Australia with the belief that their English language proficiency would be similar. The second case study saw the students in Spain's lower English language proficiency identified earlier; with greater tolerance and perseverance demonstrated. Effective communication saw a variety of understandings of this term emerge; from questioning to the combining of ideas. Ineffective communication led to misunderstandings between group members in correlation with task expectation differences. The second case study saw the students refer to experiencing no difficulties in their collaborations; countering their previous responses where challenges were outlined. Misunderstandings occurred during the synchronous session where the students in Spain would switch between languages, trying to decode the responses of their international counterparts. Whilst the students in Australia felt there was a lot of intercultural communication, upon reflection, further discussions would have led to greater depth and feedback through their interactions during the collaboration. The importance of communication was referred to in the second case study; the students demonstrating a greater understanding of its impact. Positive behaviours were exhibited during the intercultural interactions and understanding of the intercultural messages was confirmed. The asynchronous connection and international time differences delayed the task moving forward at times as the students waited for the group members to contribute their ideas. Cultural differences of language and sport were identified; responses made reference to the challenges encountered when interculturally communicating due to the difference in native languages.

As the first case study showed, intercultural awareness drew key themes of communication, task expectations and cultural differences. The second case study drew key themes of communication, attitude and cultural differences. Communication and cultural differences common key themes in intercultural awareness (cognitive) across both case studies signifying its relative importance as identified by the students in Australia. An awareness of the lower level of the students in Spain's English language proficiency was a common thread, though,

one student referred to their surprise in how much they knew. As the students worked through the learning task, small misunderstandings in communication were noted. Differing expectations in completing the learning task saw a lower level of intercultural awareness exhibited by the students in Australia, though, personal growth because of their experiences through the intercultural collaborations was evident. An open mind was featured in accepting differences as the intercultural collaborations evolved. Similarities between the two cultures were focused on with reference to their hobbies and sports they played. Cultural differences identified were language, sport, international time differences as well as the school year, school day structure and uniform. In the second case study, language was not identified. An awareness of cultural differences beyond this were overlooked.

As the first case study showed, intercultural sensitivity drew key themes of communication, behaviour, task expectations and cultural differences. The second case study drew key themes of communication, attitude and cultural differences. Communication and cultural differences common key themes in intercultural awareness (cognitive) across both case studies signifying its relative importance as identified by the students in Australia. Discussion was utilised to learn more about their international group members and comprehend the message they were communicating. Sensitivity was exhibited through considering their perspective upon realising the students in Spain's level of English language proficiency. Greater sensitivity was exhibited in the second case study with students prepared following their experiences in the first case study. Reflection emphasised time taken to interpret responses, ignoring errors and ensuring they understood the task. Open-mindedness and respect of opinions and differences also featured. Two students lacked sensitivity in their response; one regarding task expectations their other in considering perspectives of cultural differences. Interestingly, this student's perspective changed following the synchronous session where she endured challenges in intercultural communication. Cultural differences in language were noted in the first case study. Across both case studies, an acceptance of differences in intercultural communication diminished its presence as an obstacle through the intercultural collaboration over time. The second case study saw an increased inquiry from the students about the cultural differences they identified.

The results from both case studies found the same relative rank order emerged for the first two key themes in the use of Web 2.0 tools to facilitate the collaboration. The relative importance from the summaries demonstrated technology to collaborate as the most important followed by problems with technology. The first case study had a third theme emerge of enjoyment. Students identified the use of Web 2.0 tools to communicate and collaborate internationally with students both synchronously and asynchronously. The dynamic nature the connection digital technology provided with an almost instantaneous response, unable to be replicated without its use. Google Classroom as a collaborative platform was discussed; its features in enabling all students to be working in the same space, their work appearing on their

group member's screen within moments and its inbuilt saving mechanism positive attributes. Internet connectivity during the synchronous session saw some sessions drop out. Additionally, a couple of students experienced the delayed loading or freezing of pages on their laptops during the asynchronous sessions, unable to continue until the page and refreshed or the laptop had restarted to reconnect. Two of the students in Australia spoke of their enjoyment in using technology during the collaboration which included being able to see their group members in Spain during the synchronous sessions.

The results from both case studies with the school in Spain found common key themes emerge across the three ICC dimensions: communication, attitude, behaviour, task expectations and cultural differences. Results also found common key themes in the use of Web 2.0 tools to facilitate the collaborations, these being the use of technology to collaborate and problems with technology. The students in both countries were positive and demonstrated an open mind. On a few occasions, the students in Australia lacked sensitivity in their questionnaire responses towards the difference in language proficiency, though, this behaviour was not exhibited during any of the intercultural communications. Both case studies identified language difficulties being experienced; students in both countries exhibited perseverance and increased confidence in working to overcome these. The next chapter describes the results from the third case study; the collaboration with the school in Thailand.

CHAPTER 5 CASE STUDY THREE

Overview

Chapter five describes the collaboration with the school in Thailand (case study) with the students in Australia, commencing with a description of the school in Thailand's context, followed by the technology available in the school and the students in Thailand's technological proficiency. The context of the collaboration is followed by a description of the learning task and student groupings. Qualitative data outlines the sample selection followed by the qualitative data findings and results. Findings with themes that emerged are categorised into the three intercultural communication competence (ICC) dimensions of intercultural adroitness (behaviour), awareness (cognitive) and sensitivity (affective). The next section describes the themes that emerged on the effectiveness of the Web 2.0 tools, when collaborating with students from another country with no common language. Quotes included in the chapter have been left as typed by the students, including any spelling, punctuation and grammatical errors. The chapter concludes with a summary of the results found.

Case study: Thailand

School in Thailand's context

The school in Thailand was in a rural area, a four-hour drive northeast of Bangkok and was largely removed from larger towns and cities, with the closest a two-hour drive away. The area was dependent on agriculture and farming with little access to leisure activities, public transport, extensive health provision and employment options. Internet provision is hard to access with the school erecting its own service pole. The school week ran from Tuesday to Saturday, with the school closed on Sunday and Monday.

The school was established and built in 2014 by a Foundation providing free education for students to serve a rural community in need. The school relied on sponsorship and external support and commenced with classes from Kindergarten to Primary 4. The addition of buildings over the past few years allowed the school to grow with the overarching goal of creating a completely sustainable school, providing education for Kindergarten to Year 12. A diverse number of guests and volunteers have visited the school, providing students with a broad base of people to communicate with. Students had taken on the responsibility of touring groups around the campus and gave small presentations as well as working with students from schools and colleges around the world. The school had a sustainable focus, growing organic fruit and vegetables in several greenhouses, which were used in the school kitchen to create meals for the students and sold in Bangkok. The school provided meals for the students during the day.

Most students are transported to school by minibus, some students travelling up to thirty minutes from their family home. Often students lived with their grandparents, as their parents needed to work away from home. There were few options available for students to expand their social and geographical awareness. Social exclusion was evident in the students' response to education. The central focus of the School's goals was to develop a student-centred approach that promoted student autonomy and critical thinking.

When external influences were brought into the equation, the issue became complex. Aging relatives with very defined gender roles, less control of behavioural issues and no previous history of education as an opportunity to foster change, as well as parents or carers with little self-belief or knowledge in how to encourage and support education within the home environment, left a heavy responsibility with the school in promoting positive educational development for each student.

At the time of the research, the school had 259 students from Kindergarten to S1 (Year 7) with classes being expanded each year to ensure a continuation into secondary school. There were 19 teachers who worked across the primary and secondary school as well as the Head Teacher. In Kindergarten, there were 5 teachers plus an extra teacher who provided English support and special needs advice across the school. All the teachers in the school were licensed

teachers, except for two within Kindergarten. Kindergarten is broken down into K1, 2 and 3 with 85 students altogether. The Thai teacher taught English classes within the primary school as well as providing academic support to the teachers.

The curriculum in the school was predominantly in Thai and included History, Mathematics, Science, Social Studies, Civics, Health, Thai Language, English Language, Music and Art, ASEAN, IT and Buddhism. Some of the subjects had only recently been introduced into the school. With the employment of new staff, Thai dance had been incorporated into Music classes, Buddhism as an in-house subject and much needed computer training. With Internet access almost impossible in many of the students' homes, the development of computer training skills was deemed paramount for students to be successful in a rapidly advancing technological world. The school had a bank of computers in the school library, which also had a good range of books and games, with a loan system encouraging students to read at home.

The learning of English was formalised in the school in 2015; each primary class had three hours per week with a native English speaker and an additional hour supplemented by a Thai teacher who is supported by materials. A morning vocabulary session was initiated with a public school in Sydney using videoconference sessions. This had been successful in encouraging the students who wanted to speak English.

Most staff in the school were young having recently finished college. The remote location of the school contributed to the difficulty in finding more experienced teachers who are often settled into their home lives in other provinces. Traditionally Thai people tend to stay in one place if it's economically viable to live and work. If the teachers were not locally based, their young age led to parents concerned about them living away from home, pressuring them to find other jobs closer to home, which led to transitional staffing.

A lack of teaching experience and remote geographical factors saw teachers expecting a more traditional style of Thai management and teaching environment. The school continued to provide as much professional development, training and support as they could. Their wider worldview supported through a variety of means. They worked in partnership with a prestigious school in Bangkok which provided training or they supported teachers to undertake further education and training as well as enabling them to visit schools in Australia. The development of a new initiative to exchange information with teachers and schools outside Thailand had been a strategic goal over the past few years.

The ethos of the school focused on community development and participation. The school ensured they maintained regular contact with parents and carers by holding meetings and asked that every parent donate fifteen hours per term of their personal time where they undertake jobs around the school in return for their children's education. In 2015, the school identified that parents would not only like their children's English language abilities to improve but would like

to develop their own. An English class for parents on Saturdays was trialled, however, discontinued due to declining numbers. Teachers participated in an hour English class by videoconference with a prestigious school international school in London.

Collaboration context

The third collaborative project (case study) was conducted over 13 weeks, from mid-August to the end of November. The Thai school year commenced in May and ended in February, with a semester break from late September to mid-October. The collaboration commenced in the first semester of the Thai school year and the third term of the Australian school year. Both schools incurred a two-week holiday break during late September to mid-October, which was not counted in the number of weeks the collaboration occurred. Each week the classes worked on the collaboration for two one-hour sessions asynchronously. This collaboration followed the visit by the researcher to the school in Thailand during the Australian April school holiday break. The students in Thailand were in P5, which is the equivalent to Year 5 in the Australian schooling system. One class of 21 students participated; the students in P5 were ten and eleven years old that year. The students in Australia were in Year 6; one class of 26 students participated.

Learning task

During a visit to the school to understand its context, the students in Thailand's capabilities and plan collaboratively with the teacher in Thailand during the Australian two-week school holiday break, a learning task was devised integrating multiple learning areas and skills. The purpose of the learning task was to conduct a scientific investigation to investigate the growth of vegetables, starting from seeds, in the Thai and West Australian geographical climates (see Appendix P). The vegetables the students grew were chosen based on what was available to source in both Thailand and Australia, these being cabbage seeds, chilli plant seeds, carrot seeds and spring onion seeds. Due to customs regulations and the protection of each country's environment, each school purchased their seeds in their own country. Each group focused on one type of vegetable and recorded data weekly. The students collected and recorded data on the day and date, weather, and height and width of the seedling, including photos of their vegetable as a visual cue. Tuesdays were chosen as the day in which data would be collected. Whilst on the school visit, the researcher took photographs of the students in P5 and inserted them into a document with their first name and surname to use when creating group documents at a later time.

The scientific investigation was recorded through collaborative documents in Google Apps for Education with a Google Doc for each group. Students communicated their findings through measurements, written responses, observational notes and photos, encouraging intercultural communication whilst developing their digital technology skills and global digital citizenship skills. At the beginning of the document, each group member's photo and name was

included in a box. Additionally, a space was provided for students to communicate with each other where they could introduce themselves and learn more about one another.

Students were permitted to use the chat feature at the side of their Google Doc to communicate with their group members. Each worded aspect was written by the students in Australia in English, who also included a Thai version underneath using the translation tool; Google Translate to translate their English response. The students in Thailand wrote their responses in Thai. The students in Australia translated the student in Thailand's response once completed, using the translation tool, inserting the translation under the student in Thailand's response.

Whilst at the school, an example (see Appendix Q) was presented to the P5 class by the teacher in Thailand, their classroom teacher and the researcher to introduce the task and its purpose. The classroom teacher helped to translate to the students as the researcher spoke to the group. In the data collection phase, different colours were used to identify each school's data. Teachable moments were discussed with the teacher in Thailand as the inclusion of photos to supplement each step fostered learning opportunities to compare and contrast. Questions such as: what is the difference between the soil in Perth, Western Australia and the soil in Thailand? What is the difference between the weather at the two locations? What are the current seasons? How do you think this might affect the outcome of the investigation? Is it a fair investigation if the seasons are different? How do we ensure our data is reliable? It was collaboratively decided between the teacher in Thailand, the classroom teacher and the researcher that the inclusion of these discussions in class was paramount to fostering higher order thinking stemming from the investigation process as it progressed.

Prior to the collaborative investigation commencing, the students in Thailand brought in tools and boots to clear the identified area ready to plant the seeds. The students were supplied with notebooks for handwritten recording by the school and the Foundation organised for the school's server to be checked to ensure the Internet connection would be maintained.

Technology

Prior to the collaboration, the school in Thailand had not used Google Apps for Education and the students did not have their own email accounts. The school had a teacher who was responsible for IT but their main specialist was based in Bangkok. The specialist worked both remotely and through visits to the school. Prior to the researcher's visit to the school, the specialist in Bangkok set up a Google account under the school domain and created Google Apps for Education accounts for the students with passwords, as well as creating an email account for each of the students in Thailand using their formal first name and surname. At the school, the students are called by their Thai nickname. In the comment thread, when collaborating on the creation of

the initial investigation process, the teacher referred to the students in Thailand using their nicknames as well, "When they introduce themselves, they can give their nicknames as well."

To arrange the technology requirements necessary for the project to take place, communication between the teacher in Thailand, researcher and main IT specialist was conducted through email prior to and following the school visit. The teacher in Thailand was added as their teacher in Google Apps for Education as well as the teacher in charge of IT at the school in Thailand. The school had a number of Android tablets and PC computers as well as hardware to conduct group Skype sessions, which included a large television screen. For this task, the PC computers in the library were used as to use the Android tablets for this collaboration would require separate apps for each Google application, which could create confusion for the students in Thailand given their level of technological skill prior to the collaboration. The Foundation sent a few small digital cameras to the school from their office in Bangkok so the students to take photos as part of the investigation.

During her school visit, the researcher trained the teacher in Thailand in how to use Google Apps for Education as well as the teacher in charge of IT at the school. As the translation feature in Google Docs translates the entire document, rather than selected sections, the app Google Translate was used external to the Google Education apps to translate between English and Thai. It was decided that the students in Australia would translate the students in Thailand's written responses for them using Google Translate, due to their technical skills being more proficient than the students in Thailand.

Students in Thailand's technology skills

Prior to the collaboration commencing, a range of technical skills in using digital technology were initiated and grown with the students in Thailand, led by the teacher and teacher experienced in IT at the Thai school. These skills included; navigating Google Apps for Education, in particular Google Docs, logging into their email account, writing an email and sending it, taking and uploading photos onto the PC from the digital cameras as well as inserting their photos into Google Docs.

Following the set-up of the students' Google accounts and practice with them over the course of a week, the teacher in Thailand identified that:

> Students know their groups… Good arrangement as students are mixed well. All getting competent if slow (typing) in emails. Set back today as they accessed my document but browser issues. We downloaded google chrome eventuality. Some of the kids now understand add-ons for translation purposes.

When responding to the researcher's request to commence the introductions and planting the following week, the teacher in Thailand responded with "Yes we can – but we will allow students to dig over this week in preparation and practice taking pictures." Three days later, the

teacher sent an email to the researcher: "Dear [researcher], I am so proud of the children that I wanted to send you their first emails to me with their uploaded pictures of preparing the land!" (see Figure 5.1).

Figure 5.1 Students in Thailand preparing the land

Groupings

In the Primary 5 Thai class there were 21 students. An analysis of student abilities within the class was undertaken between the researcher and teacher in Thailand. Students were distributed into ten groups, with learning abilities spread evenly so there were mixed abilities between the students in Thailand in each group. Following this, the 26 students in Australia were distributed evenly across the groups, with mixed abilities in each group. There were four groups with four students, six groups with five students and one group with six students. The group with six students had one student from Thailand working at a very low level of ability who was be supported by the other two students in Thailand during the investigation process.

Qualitative data

This research study investigated the development of ICC from the students in Australia's perspective through collaborations with students from a different culture and country. Through this case study, the students in Australia collaborated with students with entry-level English. No common language meant translation was required in order to communicate. Qualitative data utilised in this case study included a post-collaboration student questionnaire with open-ended questions, collaboration documents (Google Docs), post-collaboration teacher questionnaire with open-ended questions, teacher/researcher email communication and the researcher's journal. The students in Australia completed the questionnaire independently, in their classroom during the school day, at the same time on conclusion of the collaboration. A questionnaire with open-ended questions was used instead of a one-on-one interview due to the researcher's relationship with the students as their classroom teacher, ensuring the reliability and trustworthiness of the responses, which could be validated through the written responses. Each student in Australia answered the sample questions (see Appendix G) online through a Google Form after the collaborative project and process was complete. Triangulation of the qualitative data occurred through the use of email correspondence between the teacher in Thailand and researcher, the teacher's questionnaire

results and the researcher's journal notes. The teacher in Thailand answered the sample open-ended questions (see Appendix I) through a Google Form on completion of the collaboration.

Sample selection

The sample selection was drawn from the students in Australia's class. The researcher identified a small number of students (six) from the class of 26 using convenience sampling. The selection was not totally random; students were selected who were willing and likely to provide a sample across the learning abilities. The sample of qualitative data included the students in Australia's group collaboration documents, student journal reflections during the collaboration, and student's questionnaires upon completion of the collaboration.

Prior to the collaboration commencing

The students in Thailand spent two weeks learning and growing their technical skills with digital technology prior to the collaboration commencing. An email from the teacher in Thailand identified an increase in student engagement and confidence in the students in Thailand:

> The students remain very keen on this and other classes are now a touch envious! It has been great for P5 as academically they were very behind last year and this project is really helping to reinforce the belief and work that has gone into developing both skills and confidence.

Following the creation of each group's Google Doc, the researcher added the emails of the students in Australia and Thailand to their respective group's document. This triggered an email being sent to the students in Thailand with a link to their group's document. Upon commencing the collaboration, the students in Australia noticed the students in Thailand collaborating in their Google Docs weren't the ones identified in the group members' section of their shared document. The researcher had also received several emails from Google Docs triggered by the students in Thailand requesting to access documents where they were not group members. Clarification was required from the teacher in Thailand to match each student's name, email and photo to the correct group as originally allocated during previous planning sessions.

> Our students are on at the moment and have said the students are in the wrong groups. That would be why your students have sent a request to me to access a document when they aren't in that group. Could you please ask them to check if they are in the right group by seeing if their photo is in the Google document? (Researcher)

The teacher in Thailand responded, needing time to meet with the class, "I will have to get the students to help me match names to faces – I never use their last names!" Amendments were made to the groups, with students from group 8, in group 9.

> I've gone through the groups and they are all correct now. I'm not sure how but I received about five requests from your students asking to join different groups which I accepted without checking that they were wanting to get into the wrong group. So they are now all in the group they should be in. They

should have received an email from me via Google Docs inviting them, which has the link to the document. Alternatively, they can log into their Google Classroom account and go into 'my account' and then into the nine-square icon where they can go into Google Docs and their document will be there. It may require a little playing around with in their account but once you have done it a few times, it's quite easy to navigate. Please let me know if I can help with anything. (Researcher)

In the first week of the collaboration, the researcher contacted the teacher in Thailand about some technical aspects of the task.

I have gone back into Group 3's document and restored some edits from early on today as one of your students has accidentally highlighted the document and cut and pasted it into other boxes… My students are so excited at the moment that they can see your students working on the computer!

The teacher in Thailand responded:

… I shall speak to group 3 about cutting and pasting. Starting to realise that their IT skills are lower than expected. I am going to make them go back today and write their personal info.

A week later, "Moving forwards: Kids starting to write and understanding the translation app we have added on. I emailed pictures to them and we will move on to uploading pictures. Seeds are in." (Teacher in Thailand) The translation app referred to is the use of a translation app having 'add-ons' when translating from English to Thai as alluded to earlier. "… it is a steep learning curve … They are however starting to build some competence as they are taking in language and using tool bars with more skill." (Teacher in Thailand)

I have a meeting organized for today with all the teachers to try and clear any issues and move forwards. The IT teacher had issues uploading pictures with the students but I have explained the process again. All of the students have accessed their documents. (Teacher in Thailand)

The researcher responded:

Thank you for everything you are doing on your end. I have set up a Group Journal document this morning for my students to write in so I can see any difficulties, interesting thoughts or ideas that they have along the way. I think you may be shared into them but I put it into 'view mode' for you. They will continue to write in this over the course of the collaboration. I have also set up a document to use if they don't understand the Thai translation. The students were playing around with Google Translate, and found that by using the Thai version your students had initially written, they were able to re-translate it to English and it made more sense. So the document I have set up is to show what they don't understand, and then a progression of understanding through the conversion (which is still out due to the nuances of our language). There are a few students who haven't written anything yet in their document, Group 1 has only got my students work in there so far.

The teacher in Thailand responded via email:

I will definitely look at the journal. I may get the students to make notes on what problems are arising for them, what they are learning. If we collate later

on it may be of use to you… Generally teachers this end think it is going well and students are improving.

In the third week of the collaboration, the students in Thailand were still requesting to access Google Docs for groups they were not a part of. In an email from the researcher to the teacher in Thailand, she said:

> I'm a little confused about the requests I am getting from your students to join Google documents for other groups? I'm actually not sure how they can try and access the document when they have only been sent the link for the group they are in? I received the following on Friday and Saturday:
> Student A – is in Group 10 but sent me 3 requests to join Group 6;
> Student B – is in Group 14 but sent me 3 requests to join Group 1;
> Student C – is in Group 7 but sent me 1 request to join Group 1;
> Student D - is in Group 6 but sent me 3 requests to join Group 4;
> Student E – is in Group 5 but sent me 2 requests to join Group 3 and 1 request to join Group 1;
> Student F – is in Group 6 but sent me 3 requests to join Group 2.
> Student G and Student H have sent me requests before. Can you shed any light on this for me? It's difficult to know why and how they are doing this when I'm not on location with you. I apologise for the inconvenience. We will be working on the documents this morning so I'll ask each group to let me know which students they haven't seen actively writing in the document and let you know so your teachers know who may need some extra help.

Response from the teacher in Thailand via email:

> I have no idea why they are doing this. I will have to meet with the students and other teachers to find out why. I can't work out how they are doing this? They were told to log in through email. Sorry for the inconvenience. I sat with some of the students to give them a better idea of what they should be doing and have told them to spread the news!

Later that week the teacher in Thailand replied by email:

> Spoke with the teachers. We think it is because students are not logging off correctly so others are opening the wrong account. There will be a concerted effort to remind the children. I have also explained that the teachers must encourage the students to complete the areas regarding equipment, seeding, weather etc.

Qualitative data findings

The students in Australia's qualitative data was analysed from the raw initial data into initial categories. The students' results were triangulated with the use of email correspondence between the teacher in Thailand and the researcher, the teacher's questionnaire results and the researcher's journal notes. From the initial categories key themes were identified. Key themes were then further analysed to identify subthemes. Quotes that best represent the subthemes were selected and matched with the ICC dimensions of intercultural adroitness (behavioural aspect), intercultural awareness (cognitive aspect) and intercultural sensitivity (affective aspect), and the use of Web 2.0 tools to facilitate the collaboration. The behavioural aspect of intercultural

communication refers to an individual's ability to reach communication goals when interacting with students from another culture (G. Chen & Starosta, 2000).

Qualitative data results

The students in Australia's qualitative data was analysed for common themes from which key themes emerged. From these key themes, sub themes were identified. Subthemes were categorised into the three ICC dimensions of adroitness (behaviour), awareness (cognitive) and sensitivity (affective); the relative proportion for each dimension identified in Figure 5.2. The three ICC dimensions are described in separate sections. Results relating to the use of Web 2.0 tools to collaborate with students from another country, with no common language follow the ICC findings.
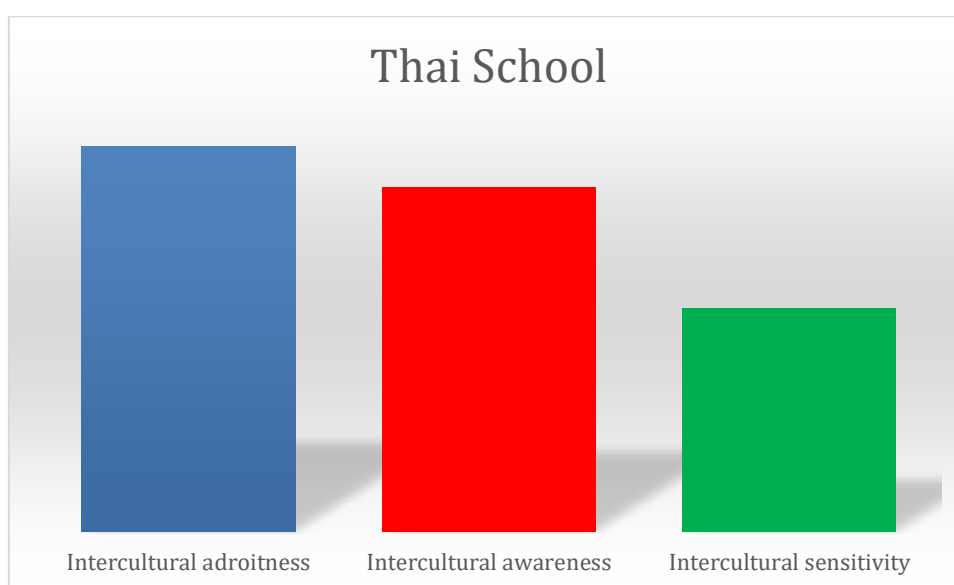
Figure 5.2 Relative Proportion of ICC Dimension Responses (Case Study 3)

The relative importance that emerged from the summaries demonstrated intercultural adroitness (behaviour) as the most important, followed by intercultural awareness (cognitive) and intercultural sensitivity (affective) as the relative rank order. In the description of each ICC dimension, quotes are used to illustrate the students in Australia's reflection (sensitivity), reaction (behaviour) and understanding (awareness).

Intercultural adroitness

Intercultural adroitness addresses the skills and behaviours that are required in order for intercultural interactions to be effective (G. Chen & Starosta, 1998). Key themes that emerged from the questionnaires were *translation, behaviour, communication* and *cultural differences*. Each key theme will be addressed through sub themes that stemmed from the students in Australia's data with correlating quotes included from the teachers of the students in Thailand and the researcher.

Translation was identified as a key theme with three sub themes: *tools, language barrier* and *understanding*. The students utilised a translation tool to foster successful intercultural communication, as there wasn't a proficient common language between the two schools. One student said, "We had to translate our work that we did into Thai so that the other students would be able to read it and respond back to it" (Student 6). The teacher in Thailand explained that during the collaboration, "The students also gained knowledge of using translation tools outside of the collaboration project together with learning how to download apps inside of Google documents."

The teacher in Thailand said:

It would have been impossible to undertake the collaboration without a translation app. It would have been time consuming if we had had to translate from English to Thai and then reverse the process on an individual basis which would I feel have led to less commitment and belief in the project.

The researcher noted in her journal upon commencement of the collaboration:

The collaboration has commenced with the students in Australia translating both their responses and the students in Thailand's responses using Google Translate. We have chosen to use this tool to keep the use of the Google suite of applications together. This is a new tool for the students in Australia to utilise, particularly during a collaboration but they have picked up the skill quickly.

Language barriers were evident through responses. One student said, "I noticed that we found it a bit confusing with the language barrier and the translation... at the start we weren't really [understanding their responses] and everything was a little confusing" (Student 1). Another student said, "Sometimes there were misunderstandings with the translating because as I said before, they are not 100% right but we could tell what they meant even though the translating wasn't extremely accurate. They put in pictures which helped us understand what they were saying" (Student 4) whilst another student said;

At the start of the collaboration, we did not understand most of the writing as it did not make sense. Though after using Bing Translator, the communication was much easier. Also, when we were putting our graphs in, we realised that the Thai Group's graph was in Thai so we could not understand it. (Student 5).

The teacher in Thailand's response correlated these reflections, "Though the translations were often less than perfect it did remain possible to understand the majority of the meanings and enabled the students to feel they had ownership over their communications."

The teacher in Thailand described the difficulties the students in Thailand faced with the communication when collaborating online as:

The low level of English language skills in terms of reading and understanding.

The need to learn how to use a translation tool.
Increasing comprehension skills in relation to understanding questions and responding accurately.
Overcoming cultural inhibitions in terms of not wishing to make mistakes or answer incorrectly.

She explained how the students in Thailand worked through difficulties they faced:

The students consistently persevered to overcome difficulties in a number of ways; practising sending and receiving emails, familiarisation of an English keyboard, writing their names and passwords in English, learning how to download translation apps and developing comprehension of science based information with support from teachers and peers.

The third subtheme of *translation* was *understanding*. Most of the students in Australia demonstrated an understanding of the need to translate their responses for the students in Thailand. For example, one student said, "After we had done that we would have to translate the writing we did so that the Thai school would understand it because English is their second language they speak" (Student 2). Another student said, "The Thai students didn't speak English, so we used translating tools such as Bing or Google translate to communicate with them" (Student 5).

The researcher reflected in her journal following the first few collaborative sessions online:

The translation tool seems to have a lower level of accuracy than first anticipated. The students have demonstrated perseverance in continuing to find solutions to the problem, often translating the responses multiple times from Thai to Australian and vice versa, with some degree of success in improving the translation. I have observed several conversations between students where they discuss the need for an increased success rate with their response so that both the students in Australia and Thailand can enhance their understanding of what each other is saying.

This emphasised the lengths the students in Australia would go to, to ensure their communication with their international group members was effective.

From the second key theme of *behaviour* stemmed *attitude towards the collaboration*. One student said, "…I was a little excited to collaborate with them because before, we had only collaborated with Spain and now we were able to collaborate with a country in Asia" (Student 4). Another student said, "The Thai students have typed about their growth and I found it exciting to read!" (Student 3). Another student reflected in her journal response:

Today we found that the school in thailand has put in their data while we were on holiday and their writing has still been a bit confusing but there are getting easier to understand compared to what had wrote before. I am excited about working with them this term and comparing the data. (Student 1)

The teacher in Thailand said:

The students remain excited and very open to undertake the collaboration. Not only do they feel that this is an opportunity unlike any other that they have had they also appreciate being the selected class which has been a definite factor regarding confidence building.

The researcher reflected on conclusion of the collaboration:

The students in Australia's attitude and engagement across the collaboration has been consistent in that they are genuinely engaged in the task. They are excited to log in and see how the students in Thailand's plants are growing and there has been increased conversation between groups to compare how each different seed has progressed. Perhaps the excitement of someone they haven't met yet leaving them information each time and not knowing what they will find has intrigued them?

The third key theme of *communication* was integral to the collaboration from which the subtheme of *effectiveness* emerged. Different opinions on effectiveness were evident in the students in Australia's responses. One student said, "Our group was effective because the task was completed. This means that the communication between schools worked and we worked together to do the task" (Student 5). Another student said, "We also had different understanding like when they asked a question or left a comment we would sometimes have to ask them more questions so that we could understand better" (Student 6). This student went on and said, "My group was effective while doing this task since we asked many questions and had a bit of discussion. After asking questions the Thai students were able to respond and give a clear explanation." When reflecting on how the collaboration could be improved, one student suggested, "…we could collaborate more with them in the introduction…" (Student 4) whilst another student agreed of the need to "have some more discussions within the group" (Student 1). This student expanded on her response and said, "I would make sure that we have more discussion in the document and that we collaborate more in these types of learning tasks with other schools."

The researcher reflected on the collaboration and its effectiveness in a journal response on conclusion of the collaboration:

The collaboration with the school in Thailand has been an interesting one with significant learning in different aspects. Whilst the translation tool caused some issues in the beginning, the students were able to learn from each other by sharing information and photos on their progress. Interestingly, it was not necessarily a collaboration but a communication of them working through the investigation and sharing results, orally discussing between their group members in Australia the students in Thailand's results and comparing their results to the students in Thailand in their group. Their behaviours demonstrate an understanding of what they need to do in order to communicate effectively to their counterparts, perhaps because they are beginning to understand from their perspective what it's like to be on the other end where you might not understand.

Cultural differences were identified as a key theme, with l*anguage* and *inquiry* its subthemes. The Australian students didn't refer to any other cultural differences between

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themselves and the students in Thailand. One student said, "I noticed a difference with language and understanding. Since the students in Thailand weren't able to read or talk English we had to translate our work that we wrote every time into Thai" (Student 6). It's interesting to note the assertion by the student that the other students didn't know their native language of English, meaning they believed the Thai students' behaviour had to be adapted in order to communicate effectively. This was also noted in the researcher's journal through the first few sessions online where a few students questioned why they were required to complete both their own and the students in Thailand's translations.

Inquiry was the second subtheme of *cultural differences*. Again, the theme of cultural differences stemmed through inquiry but were focused on the intercultural communication occurring to understand each other rather than any other cultural differences. One student said, "We reacted to these cultural differences by communicating more and trying to ask more questions to get a better idea of what they are saying. By asking questions we were able to get a clear understanding and were able to work more efficient" (Student 6). All six students identified behaviours they employed to communicate effectively with the students in Thailand in order to complete their group's task successfully.

Intercultural awareness

The cognitive aspects of ICC refer to the understanding of cultural conventions that affect how we think and behave (G. Chen & Starosta, 1998). Key themes that emerged were *translation, task expectations* and *differences*. Each key theme will be addressed through sub themes stemming from the students in Australia's data with correlating quotes included from the teachers of the students in Thailand and the researcher.

Translation was a key theme from which two subthemes were identified: *tools* and *language barrier*. From the subtheme of *tools*, one student said, "When we started it was very hard to understand what they meant and I think it might have been hard for them as well …" (Student 1) going on to say, "… we were using Google Translate. After a while we had realised that using Bing translate was more accurate and I think that helped us complete the task." The researcher noted in her journal the investigation the students undertook to test different free translation tools online in the third week of the collaboration, with a more successful translation tool found in Bing Translate. From this point of the collaboration onward, Bing Translate was used as the primary translation tool. One student said, "Today we used Bing Translate instead of Google translate to translate our writing. It seemed much better as it made more sense" (Student 5).

Through the second subtheme of *language barrier*, the students in Australia became more aware of the challenges in intercultural communication as the collaboration progressed. One student said, "I realised that they could not speak English very well, sometimes they forget to

translate it into English …" (Student 5). The teacher in Thailand referred to the difficulties the students in Thailand faced in the previous section addressing intercultural adroitness. The researcher noted the students in Australia's growing intercultural awareness, in understanding the challenges the students in Thailand might have been facing in completing the task across the first few weeks of the collaboration given their context. They were flexible in their thinking and tried to devise solutions to assist that might assist the students in Thailand at their end.

The second key theme of *task expectations* stemmed into the subtheme of *awareness*. One student said, "As our group does not speak English, their introduction was only one sentence each" (Student 5). Another student said, "… when we first started the task the Thai school only wrote a little bit but now I think they got used to it so they started writing a lot more…" (Student 2) who goes on to say, "I **t**hink they got better and maybe more confident as they got to know us and learnt how to use Google and the computer." One student reflected on the perceived gap in task engagement, identifying the error in the group members from Australia's thinking:

> The Thai students didn't write any new observations for about 5 weeks. We thought it was because they were on holiday or something but then we saw that they had written 'no growth because of the rain the seeds rot' in one of the tables. That's when we realised that it was raining heavily in Thailand and that must have caused the seeds to rot or drown. (Student 4)

The teacher in Thailand noted the change in the students in Thailand's behaviour over the period of the collaboration when communicating with the students in Australia:

> Initially the students seemed reluctant or apprehensive to communicate and were particularly concerned with the need to use English combined with the lack of IT knowledge. Initial coaching and support enabled to the students to feel more able to communicate and less concerned about English as the main language of communication.

She went on to explain how the students in Thailand engaged in the communicative collaboration, to complete the learning task online:

> The students are fully engaged and have shown ongoing commitment in terms of preparing the planting area looking after their plants, becoming more involved in understanding the English language and being willing and keen to increase their IT, science and maths skills. They have been fully involved in all areas of the project.

The third key theme of *differences* stemmed into the sub theme of *cultural differences* as perceived by the students in Australia; *language* was a common response. One student said, "The fact they spoke Thai and the way they wrote was different" (Student 4) whilst another student said, "Some cultural differences were language since they weren't able to communicate in English and we weren't able to communicate in Thai" (Student 6). Confusion through the translation also added to the responses. One student said, "I found one cultural difference. It was that they said that they would need a Perry Luoyang to plant their seeds. I don't think we have those in Australia" (Student 2). When specifically referring to the cultural differences between the students in

Thailand and themselves, the students in Australia could not identify any cultural differences aside from the language they spoke. One student said, "I couldn't really see any differences aside from the fact that the Thai students don't speak English …" (Student 3) whilst another said, "I didn't really notice anything apart from the language that they speak" (Student 4).

Intercultural sensitivity

The affective aspect of ICC signifies the student's readiness to appreciate and understand cultural differences in intercultural communication (G. Chen & Starosta, 1998). Key themes that emerged were *translation, task expectations, technology, differences* and *responsiveness*. Each key theme will be addressed through sub themes stemming from the students in Australia's data with correlating quotes included from the teachers of the students in Thailand and the researcher.

Through the key theme of *translation*, one subtheme was identified: *understanding*. The subtheme of *understanding* derives from the students' reflection on the effectiveness of their communication. One student said, "… I think our group was effective was if we did not understand something, we would try to understand it and if we couldn't we would put it in the translation not understood section and asked the Thai school to explain it again" (Student 2). Another student said, "I think our group was effective in communicating with each other. Even though the translations were not exactly right, you could tell what they meant and the pictures they put in helped too" (Student 3). The researcher reflected on the difficulties the students endured in the first few weeks of the collaboration in her journal:

> The students in Australia have experienced difficulties with the Google Translate application, with translations quite inaccurate and confusing the message the students are trying to communicate to each other, from both perspectives (Thailand and Australia). The students in Australia are demonstrating sensitivity towards the students in Thailand in their communication as they recognise the difficulties they are experiencing relate to the translation tool and not the students in Thailand's communication.

The second key theme of *task expectations* highlighted the subtheme of *awareness*. One student said, "I noticed that when we were first communicating, the Thai students were a bit unsure of what to do with things like the translating and writing in about the growth of the plant but in the end, they got the hang of it and they have been working really well," (Student 3). She went on to say, "…they hadn't ever used Google Classroom and things like that before we started. I think that they were a bit unsure of what to do at first but they picked up fast and they were working really well." The student demonstrated patience and understanding in their differences as they worked towards a common goal. In contrast, one student demonstrated a lack of sensitivity in their differences:

> As our group does not speak English, their introduction was only one sentence each. This made it very difficult to learn about them and their personality… the only things that told us about them was: They like oranges and are ten years old. They love tastes and are 10 years old. (Student 5)

The introduction referred to here is the initial part of the task where the students in Thailand were coming to terms with new technology, developing new skills to use digital technologies as well as learning new ways in which to complete a task as outlined earlier in this Chapter.

The teacher in Thailand reflected:

> During the project the students clearly developed a greater degree of comfort in terms of interacting with a different culture. Initially they were (I feel) worried about writing incorrect information or responding inaccurately. Again this was exacerbated due to the need to develop IT confidence together with the fact that the task allowed to students to possibly have greater autonomy and ownership over communication than normal.

The third key theme of *technology* stemmed into a subtheme of *skills*. One student said, "I noticed that they were always responding to our questions which was good and that sometimes they may get a bit confused when they were in the Google Docs and may write things in different places however we would always find a solution," (Student 6). Here, the student demonstrated sensitivity towards the students in Thailand's technology skills through an openness to work towards a solution. The teacher in Thailand said:

> There has been a definite increase in IT confidence in all areas particularly as the students started out with little or no knowledge of sending and receiving emails or using an English keyboard and can now understand these process together with using Google Docs. Students also seem more comfortable in working with groups with a focused goal and have shown real commitment to maintaining the project. There has definitely been a level of peer led education with students showing other students how to use translation apps and commands such as cut and paste. Students have recognised that they can use Google translate as a general tool.

The teacher in Thailand reflected on the students in Thailand's increase in confidence in using IT and interest in improving their technology skills:

> Within their English classes students have requested to use Google Apps which was previously not done. Other teachers have also commented on the development of the class during other subjects. I have also observed students using IT resources in the library during lunchtimes. During IT sessions the students have become more receptive through the project interaction and have been committed to their Science project time which is when the vegetables are tended to, measured and photographed. They also developed graph building skills and use of Excel with GAP volunteers from *** International School.

She went on to say:

> The class as a whole appear to have developed more confidence and willingness to learn and be involved with school activities. Their willingness to develop English language skills particularly with regards to following a set of actions to enable a computer process has increased together with developing a better understanding of measurement tools (for height, length, temperature etc) and the use of graphs.

The fourth key theme of *differences* stemmed into a subtheme of *cultural differences* as identified by the students in Australia. One student said, "I found that the Thai students had different ways of talking in the introduction. They liked to talk about their nicknames and famous soccer players and stuff that we don't normally pay much attention to" (Student 4). Across the collaboration, the researcher noted through the conversations between their group members in Australia when working on their task, the students in Australia's inability to identify cultural differences between themselves and the students in Thailand. Of note, the students in Australia were fixated on the students in Thailand having 'nicknames', which seemed like a foreign concept, however, quite prevalent in Australian society.

The fifth key theme is *responsiveness*, stemming into the subtheme of *behaviour* in how the students in Australia responded to the students in Thailand. One student said:

> When they spoke Thai, we used Google translate and their way of writing was just how they were taught so we just wrote it down in the journal. It wasn't a major difference it was just that they wrote in small sentences and wrote the date difference e.g. November/12/2016. (Student 4)

Another student said, "I tried to accept that they did not know English and read what I could about them and translated it again to understand it. Still, it is hard for me to understand what they are telling us" (Student 1). The teacher in Thailand reflected on the students in Thailand's response to increasing their ICC, "There has definitely been an increased commitment to using the English language and though this interest is linked to other ongoing school activities this collaboration has been part of growing enthusiasm and confidence."

The teacher in Thailand asserted:

> As a rural community the foundation of preparing and growing plants was an ideal starting point as they were able to use learnt skills in a familiar environment. This also meant that when overcoming fears related to using a new medium (IT and internet communication) they were able to build their confidence with their wide knowledge of farming vocabulary in their own language. It has also been empowering for students to have been provided with the space to respond and report on the project in their own words as they are often taught in a far more prescriptive manner with the teacher taking the mainlead. As an area with little or no network coverage this project has also enabled the children to develop skills often taken for granted by many such as opening an email, having an email address or being able to upload information, all of which are essential within everyday life.

She concluded:

> The collaboration has provided a range of benefits to the students many of which are difficult to measure but clearly exist. The Year 5 class has previously faced obstacles previously with regards to English language skills, critical thinking and self responsibility. Having never been provided with an opportunity like this before it enabled the students to develop a sense of ownership as they have been required to take the main lead in caring for plants and recording and communicating their findings.

Use of Web 2.0 tools to facilitate collaboration

The students in Australia and Thailand used Google Classroom to collaborate within their group. Within Google Classroom they used a shared Google Doc to input and share their ideas and findings throughout the investigation process. As the students in Thailand have very little understanding of how to speak and read English and the students in Australia do not speak or read Thai, the application Google Translate and online tool Bing Translator were used to translate student responses from English to Thai and vice versa. The students in Australia completed the translation for the students in Thailand, copying and pasting the translation into English from the application, under their Thai response in the Google doc. Following their own written response, the students in Australia would translate their response from English into Thai, copying and pasting the translation underneath in the Google doc. As the students in Thailand gained confidence in their technology skills and using the web tools, they started to complete the translation process themselves.

The students in Australia's qualitative data was analysed for common themes on the use of Web 2.0 tools to collaborate. Three key themes emerged from the analysis: *Google Translate issues, technology skills* and *web tools as collaboration space*. The relative proportion of each key theme is identified in Figure 5.3.
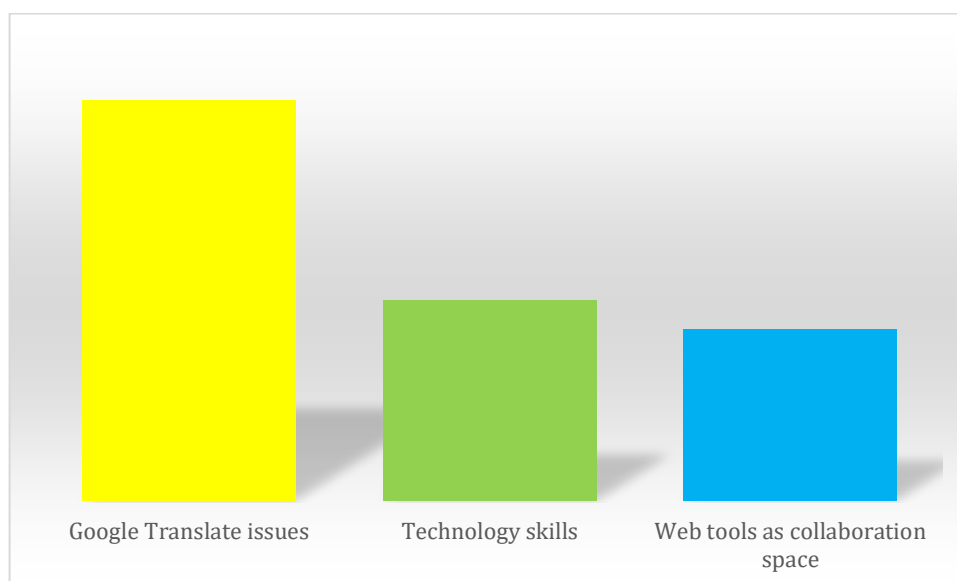
Figure 5.3 Relative Proportion: Web 2.0 Tools Reponses (Case Study 3)

The relative importance that emerged from the summaries demonstrated *Google Translate issues* as the most important, followed by *technology skills* and *web tools as a collaboration space* as the relative rank order. Each key theme will be addressed stemming from the students in Australia's data. Correlating quotes are included from the teacher of the Thai students and the researcher.

Through the key theme of *Google Translate issues*, difficulties were alluded to. One student said:

> In terms of the communication between the two schools, we used two translating sites: Google Translate and Bing Translator. We used both of these sites because Google Translate translated the writing but it did not make sense. So, since the 25th of October, we have been using Bing Translator which we see works better and makes more sense. (Student 5)

Another student said, "… most of the problems were on translate. The translating wasn't very accurate which was a problem when speaking to the Thai students" (Student 4).

One student described persevering to find a solution:

> There were many misunderstandings in the start since we had trouble translating. When we translated Thai into English the sentence wouldn't make sense and was confusing. Although we learnt a way to translate it many times to get it to understand, its grammar wasn't correct. However, when we found Bing translate we were able to understand better. (Student 6)

The second key theme was *technology skills*. One student said, "I noticed that the Thai students weren't as good at using technology as we were and that they needed quite a bit of help from their teacher. We found this out when we checked the latest edits on top of the page" (Student 4). The teacher in Thailand reflected:

> There has been a definite increase in IT confidence in all areas particularly as the students started out with little or no knowledge of sending and receiving emails or using an English keyboard and can now understand these process together with using Google Docs.

She goes on to say, "There has definitely been a level of peer led education with students showing other students how to use translation apps and commands such as cut and paste." The students in Thailand's increase in the confidence in using technology alongside the development of their skills in using digital technologies resulted in increased use of the IT outside the collaborations. "I have also observed students using IT resources in the library during lunchtimes" (Teacher in Thailand).

Web tools as a collaboration space was the third key theme that emerged, which emphasised the students' awareness that Web 2.0 tools provided them with the opportunity to collaborate synchronously and asynchronously with people internationally and interculturally. One student said:

> It is great using Google Classroom so we can communicate with people on the other side of the world basically. There are also other different types of technology we used too, such as the translating tools helping us communicate with them. (Student 3)

Whilst another student said:

> Since we used Google classroom to do this task other kids around the world would also be able to go on Google classroom and if we share the document with them you could do work together and see each other's work and you can even communicate with them even if they are across the other side of the world. (Student 6)

The researcher reflected on the use of Web 2.0 tools as a collaboration space where the students required a translation tool to communicate:

> The use of Google Classroom (Web 2.0 tools) has been effective in creating a secure place for students to collaborate online. The ability to identify which student had contributed increases their accountability knowing the teacher can see this information. The ability to bring back information that may have been deleted by another student accidently through the 'restoring' tool was a positive, particularly when working with students from another school. The web tools are fairly easy to use which is evident in the way the Thai students were able to learn and use them in a short amount of time. The use of photos as a visual to communicate findings or ideas, alongside written responses, was instrumental through the collaboration.

Summary

In this chapter, the results from the third case study with the school in Thailand found the same relative rank order emerged as the first two case studies in Chapter 4. The relative importance from the summaries demonstrated intercultural adroitness (behaviour) as the most important, followed by intercultural awareness (cognitive) and intercultural sensitivity (affective).

As the third case study showed, intercultural adroitness drew key themes of translation, behaviour, communication, differences and responsiveness. Communication was a common key theme across all three case studies. Students recognised the need for a translation tool to enable the collaboration to be successful. The effectiveness of the translation tool caused confusion with students when communicating interculturally. Students exhibited enthusiasm during the collaboration, excited about the opportunity to collaborate with students in another country. The importance of communication when collaborating saw questioning employed to elicit further information and consolidate what their group member was expressing in their asynchronous response. Increased questioning from the first two case studies saw the students in Australia exhibit responsiveness in their behaviour to enable the intercultural communication to be effective. One cultural difference was identified; the only one being the difference in language and adapting their behaviour through the use of a tool to assist them in communicating interculturally. One student in Australia questioned why the students in Thailand were not proficient in English.

As the third case study showed, intercultural awareness drew key themes of translation, task expectations and differences. (Cultural) differences was a common key theme across all three case studies signifying its relative importance as identified by the students in Australia.

Difficulties with the translation tool were experienced by the students in Australia; recognition of the students in Thailand's difficulties were recognised. A different translation tool that was more accurate was found to assist them in communicating interculturally. Language barriers were alluded to; a lack of intercultural understanding in one student's response was evident in assuming the students in Thailand would be proficient in English. The students in Australia commenced the collaboration with the expectation the students in Thailand would complete the task to the same standard as they would. Over time, they exhibited a shift in their awareness; increased understanding of the challenges the students in Thailand were enduring and their lower level of confidence in using technology evident. A lack of awareness in cultural differences was evident; identification of language being the only difference they identified.

The third case study showed, intercultural sensitivity drew themes of translation, task expectations, technology, differences and responsiveness. (Cultural) differences was a common key theme across all three case studies signifying its relative importance as identified by the students in Australia. Sensitivity was exhibited through the students in Australia's responses. Understanding the difficulties being experienced and persevering to apply different strategies to strive towards effective intercultural communication in their groups was consistently applied. Half of the students in Australia exhibited sensitivity in their task expectations, understanding the students in Thailand's technological skills proficiency and proactively worked towards a solution. The other half of the students lacked empathy in their response. This lower level of sensitivity was only exhibited in the classroom and in their personal reflections; it was not evident in their intercultural communications with the students in Thailand. The teacher in Thailand highlighted the low level of confidence the students in Thailand commenced the collaboration with. This developed positively over time as they became more proficient in their use of IT and feeling safe in sharing their responses through the interactions. Differences through reflection in what the students in each country might find in important that their international group members don't were alluded to with sensitivity. The results show the students in Australia were responsive to the students in Thailand through the collaboration with positive reactions exhibited the majority of the time.

The results from the third case study showed a different relative rank order for the key themes in the use of Web 2.0 tools to facilitate the collaboration. The relative importance from the summaries demonstrated Google Translate issues as the most important followed by technology skills and webtool as a collaboration space. This case study was the only one to use a translation tool which was imperative for the students to communicate interculturally. One key theme was common across all three case studies in the use of web tools as a collaboration space/technology to collaborate signifying its relative importance as identified by the students in Australia. The translation tool, Google Translate was a prominent issue for the students due to its inaccuracy causing difficulty in understanding responses, hindering the intercultural

communication and collaboration. The students in Australia investigated the use of other online translation tools; Bing Translator proved to be more accurate which increased student understanding and the effectiveness of their communication. Significant perseverance was noted in the students in Australia in finding a solution to this problem. The lower level of technological skills in the students in Thailand was referred to, though, the students in Australia also noted their increase throughout the collaboration. The teacher in Thailand credited the collaboration in increasing her students' IT skills, confidence in applying these skills and increased interest in using technology outside their classroom. She referred to the peer tutoring that occurred where students demonstrated skills to one another, rather than seeking assistance from the teacher. Once again, the students in Australia identified the use of Web 2.0 tools to communicate and collaborate internationally with students both synchronously and asynchronously, this time with students who speak a different language.

The results from the third case study found common key themes emerged across the three ICC dimensions: translation, task expectations, differences (cultural), and responsiveness. Further, interrelationships between the use of Web 2.0 tools to facilitate the collaboration and key themes of ICC transpired, such as difficulties with the translation tool which resulted in behavioural responses, an increased awareness of cultural differences and sensitivity exhibited towards the students in Thailand's skills and abilities. Common key themes that emerged from all three case studies across the three ICC dimensions were communication, attitude, behaviour, task expectations and (cultural) differences. The next chapter discusses the findings through a cross-case analysis in line with the literature.

CHAPTER 6 DISCUSSION

Overview

This chapter incorporates a summary and discussion of the findings through cross-case analysis. The aim of the research study was to investigate what ICC developed in upper primary school students in Australia when they participate in learning online, collaborating interculturally with students from another country using Web 2.0 tools and what dimension/s of ICC were exhibited. The discussion in this chapter is framed by the guiding questions of the research study.

Research Study

The first research question for this study was:

Do upper primary students in Australia exhibit ICC development through participation in an online international collaborative project using Web 2.0 tools?

Because ICC is multi-dimensional, the following sub-questions were developed:

1.1 What intercultural adroitness competences are exhibited?
1.2 What intercultural awareness competences are exhibited?
1.3 What intercultural sensitivity competences are exhibited?

The second research question for the study was:

2. *To what extent can Web 2.0 tools be used to effectively facilitate collaborative projects online with students in upper primary from different countries*?

The construct of ICC was based on the three dimensions identified by (G. Chen & Starosta, 1998). These dimensions guided this study as a Conceptual Framework and in identifying what ICCs were exhibited by the students in Australia through collaborating interculturally online with students from another culture, in another country.

The results from all three case studies suggest that the collaborations the students in Australia participated in, with students from another country and culture, enhanced their ICC development. In all three case studies, intercultural adroitness (behaviour) demonstrated the most importance in relative rank order followed by intercultural awareness (cognitive) and intercultural sensitivity (affective). All three case studies demonstrated the same order of relative importance proportionally in their outcomes. The use of Web 2.0 tools to facilitate the collaborative projects online saw common themes emerge in the first two case studies with the school in Spain. The third collaboration with the school in Thailand saw different themes emerge relating to the translation tool, technology skills and use of web tools as a collaboration space.

This chapter summarises and discusses the findings through cross-case analysis in line with the associated research literature, structured by the questions that guided the study. The outcomes of the cross-case analysis will be reflected against the intercultural understanding general capability in the Australian Curriculum with students in Year 6 typically demonstrating Level 4 by the end of the year (see Appendix A). The original research questions and Conceptual Framework, as proposed in Chapter Two, provide the basis for discussion of the major findings.

Interpretation of the findings

Intercultural adroitness (behavioural)

The first sub-question explored:

What intercultural adroitness competences are exhibited?

The dimension of intercultural adroitness addresses the skills and behaviours that are required in order for intercultural actions to be effective in the host's society. G. Chen and Starosta (1998) describe intercultural adroitness as focusing on "communication skills, such as behavioral flexibility, interactional management, and verbal and nonverbal skills in intercultural interaction settings" (p. 49). The intercultural interaction settings for this research study were through Web 2.0 technologies, in these instances, Google applications. From the results, intercultural adroitness emerged with the most importance proportionally in relative rank order. Key themes that emerged from cross-case analysis associating with the dimension of intercultural adroitness were *communication, behaviour and attitude, time, task expectations, cultural differences and translation. Communication* was a common key theme across all three case studies; *behaviour* and *cultural differences* across two case studies. A summary of the key themes and sub themes from all three case studies can be found in Table 6.1. The following sections will address what intercultural adroitness was exhibited by the upper primary students in Australia through the key themes that emerged. Some of the subthemes amongst the key themes drew similar responses, therefore were synthesised together. Following, the outcomes from intercultural adroitness will be mapped against the intercultural understanding general capability learning continuum from the Australian curriculum.

Table 6.1
Intercultural adroitness: Summary of key themes and sub themes

Key themes	Sub themes
communication	common language, increased communication and discussion, questioning, proficiency of English language, translation, misunderstandings, task expectations, effectiveness, collaboration
behaviour and attitude	positive behaviour, attitude towards the collaboration,
cultural differences	sport, language, inquiry
translation	tools, language barrier, understanding
time	asynchronous connection, time differences
task expectations	responsiveness

Communication

Through the key theme of communication, communicating interculturally through a common language (in this instance the students in Australia's native language of English) assisted the intercultural interactions in the first two case studies. The students in Australia felt the students in Spain would understand the task more than the students in Thailand as a translation tool wasn't required, noting the translation tools were not always accurate. The students in Australia felt the intercultural interactions through the first two case studies with the school in Spain, felt more like a real conversation and reflected on their use of questioning, which they believe increased their communication and discussion. This signifies what Deardorff (2014) found in that language fluency is needed, although, it is insufficient in itself to represent intercultural competence. Not requiring a translation tool to communicate interculturally for the first two case studies saw the process of intercultural communication simplified as less behavioural flexibility was required for the interactions to be successful; similar to what G. Chen and Starosta (1998) found. The first case study saw students feeling safe learning in a new online environment without the complexity that imperfect or inaccurate translations might create. This confirms Zorn's (2005) findings where communicating in a foreign language can be a barrier, hindering people in engaging comfortably.

The students in Australia felt they collaborated effectively, inquiring and initiating conversations, exhibiting enjoyment at receiving a response. Questioning was also utilised to acquire more detail on what the students in Spain meant by their response. When confused with the response, the students in Australia were not afraid to ask questions to clarify what their group members were trying to say. The use of questioning increased from the first case study to the second case study. Evidence from the Group Journal supports the use of questioning to improve communication in the initial introductions, although this appears to diminish to a lower level as the students move through into the collaboration sections for the learning tasks. Students shared ideas but didn't collaborate to compile them as a group outcome. This supports evidence from the literature where online communication can lack in quality and quantity at times, which can result in inappropriate and insufficient communication. Although, the shortcomings of whether this was the digital platform or the students' general knowledge and abilities is not clear (Allwood & Schroeder, 2000; Bretag, 2006; Thorne, 2003; Thorne & Payne, 2005). Change in the students' interactional management behaviour was found through the intercultural communication of each case study process over time. Changes in behaviour reflect what Starke-Meyerring and Andrews (2006) found in that intercultural collaborative projects can be demanding for students (and educators). The willingness to embrace ambiguity and enjoy the experience is needed to enhance the experience for all involved, which was exhibited in the students' behaviour.

Through the first two case studies, the students in Australia mentioned the students in Spain's proficiency of the English language in that understanding their writing was difficult at times, with omitted words or missing punctuation. The translation by the students in Spain from

their native language into English, their third language, meant the students in Australia had to think about what the students in Spain had written and attempt to interpret what they were trying to communicate. This correlates with Wiseman's (2002) findings in that ICC is gained through conscious and consistent attempts, not naturally occurring to humans. There were small misunderstandings throughout the process because of the students in Spain's proficiency of the English language, although, these were addressed by the students in Australia as they persevered to problem solve and understand what their international group members were trying to communicate. This was mentioned more in the first case study than the second. In the second case study, some of their international group members left follow-up questions unanswered, more so at the beginning of the collaboration when the students were getting to know each other. Intercultural adroitness focuses on communication skills, such as "behavioral flexibility, interactional management, and verbal and nonverbal skills in intercultural interaction settings" (G. Chen & Starosta, 1998, p. 49). The asynchronous online environment the students communicated through, using textual messages, meant nonverbal skills were not present during the intercultural communications. The reduction of communication through nonverbal cues were found to hinder the students in engaging comfortably at times, as communicating in a foreign language can, which reflected Zorn's (2005) findings. McNeil (2000) asserts that two-thirds of communication is nonverbal. The omission of these nonverbal skills through the intercultural communications online created misunderstandings between the students.

In parts of the collaboration ineffective communication saw different task expectations arise. The deletion of work and changing of content by their international group members caused angst and disappointment in the students in Australia when they logged in to see their work had been altered. A lack of discussion in how the learning task would be divided up in its presentation saw the emergence of ethnocentric mindsets and behaviours come into play between the two cultures as found by Gudykunst and Kim (1997).

As the project progressed, the students demonstrated behavioural flexibility in learning to adapt to the communication from students in Spain. When speaking through the synchronous connection, the students in Australia noted difficulties in understanding their speech due to their accents. Some misunderstandings occurred where they were trying to understand what their group members in Spain were saying. In both the first and second case study, the students noted that their international group members spoke amongst themselves in their native language during the synchronous connection, which left them out of parts of the conversation. Half of the students in Australia alluded to adapting their behaviour in order to understand what their group members were communicating synchronously by asking them to repeat their question and answer, attempting to decode and guess what they were saying. The students in Australia utilised the chat feature in Google Hangouts once multiple verbal attempts had been made, if they still couldn't understand. They also tried to speak loud and clear and repeated the message several times. The

students in Australia said they found it easier to communicate in Google Classroom because the message communicated was in textual form, however, later on in this chapter, we find some of the students enjoyed the synchronous context more than the asynchronous context. A positive reflection was made by the students in that they were learning more about their international group members' culture whilst the students in Spain were able to learn more English. Whilst initially the students in Australia exhibited frustration towards with the imperfections of their international group members' English language proficiency, their behavioural response diminished over time and they persevered to decode responses. It was interesting to note during the second case study with the same school but a different cohort (case study two), similar challenges were experienced at the beginning of their collaborations where the students in Spain were finding their feet in a new style of collaboration using the online format, communicating with students they do not know and have not seen from another country and culture. The second case study was the second online collaboration for the students in Australia and they exhibited slightly adapted behaviours towards the communication but still noted similar challenges in their reflections.

This reflects Tranekjær's (2018) findings where issues of understanding between second language and native speakers see the prevalence of potential misunderstandings as the second language speaker occupies the learner position. Through their interactions, minimal disruptions of interactional progression and flow were managed to ensure understanding between the native speakers and the second language speakers by using explicit questions about understanding, reflecting Mondada's (2011) research. This form of questioning fostered a response from the second language speaker (the students in Spain) that provided reassurance to the native speaker that they were understood or, required the message to be repeated or reformed as found by Tranekjær (2018). Due to differences in English language proficiency, the use of questioning and perseverance to work through language difficulties or misunderstandings demonstrated positive behaviours in trying to maintain interactional progression and flow whilst also providing reassurance. These adapted behaviours exhibited positive growth in the development of intercultural adroitness and intercultural understanding in the students.

The students in Australia deemed themselves effective in communicating as they asked questions whenever they were uncertain about the message their international group members were trying to convey or to find out more about what they thought. One student alluded to reflecting on what each of her group members were saying and initiating a conversation, supporting the sharing of her group members' ideas and encouraging them to work as a team. The students in Australia contend that it was difficult to communicate at times, but they were still able to understand. Whilst some of the students considered the third case study with the school in Thailand successful as they were able to complete the task, others believed it was successful as they asked questions so they could understand what they were communicating. Questioning and discussion were behaviours the students considered important in collaborating to work through a

learning task effectively with their international counterparts. The teachers in Spain noted the increase of communication within groups during the second case study, in comparison to the first. Although, they also noted that the students were creating different alarms in each country. The purpose of the task was to collaborate and design one alarm, with the same materials, which they would construct a version of in each country to test. This was proposed to increase the communication and collaboration required. The effectiveness of the collaboration to complete the task is in question for the second case study. Although increased communication was observed, collaboration was less evident as the task progressed. Through the case study collaborations, the students collaborated through the authentic learning environments online with students from different countries and cultures to develop their ICCs, rather than learning about them in a classroom through direction instruction. The influence of the constructivist philosophy saw the students develop their skills and understandings through the authentic online learning environments as found by J. Herrington et al. (2003). This was evident in the challenges the students encountered and how they adapted their behaviours to be more successful. These skills could not have been developed authentically in the classroom without the intercultural interactions. The complex communication the authentic learning grew beyond the foundational skills that core subjects instil was evident through the complexities the students in Australia encountered through their authentic learning collaborations with their international group members, as suggested by Lombardi (2007).

Interestingly, the third case study ended up being a communication of findings, working through the investigation and sharing results rather than a collaboration together. The students in Australia orally discussed the results of their international group members between themselves, comparing their own results to the students in Thailand in their group. There was no comparison in the communications between the students in Australia and their international group members. The students' demonstrated an emerging understanding of what they needed to do in order to communicate effectively, considering their international counterparts' perspectives and experiences. The question here is what do we consider effective communication behaviours to look like in this context? And how does the task play a part in fostering intercultural communication to enable collaboration rather than the exchange of facts? Does the development of ICC outside the learning task outcomes counter the exchanging of facts instead of collaboration that occurred? The authenticity in the development of ICC lie in the dynamic interactions amongst the components of the learners, the task and the environment. This occurred through the case studies reflecting what was found by Barab et al. (2000).

From the reflections, a theme of no difficulties emerged where the students in Australia asserted they experienced no difficulties during the collaboration. This contradicts what they articulated through previous key themes with small misunderstandings, differences in task expectations and proficiency of the English language arising. Deardorff (2015) explains that the

developmental process of ICC is a lifelong in which one never fully achieves competency; the focus on the developmental process. Her findings confirm the students misunderstanding of the developmental process of ICC and why the measurement of these competences in individuals through self-assessments and self-reporting is ineffective, augmenting the outcomes through an insufficient story.

Behaviour and attitude

Positive behaviour and attitude towards the collaboration was identified in the students' reflections as well as through the teachers' and researcher's observations of their verbal and non-verbal skills when interacting with their international group members. They were excited about communicating with their international counterparts and learning more about them, which was replicated in their group members' behaviours whilst online. Liddicoat and Scarino (2013) found that people need to be aware that all behaviours are culturally variable with no one normal way of doing things; cultures are relative. Evidence of this was not found in the students' behavioural responses. Should their international group members not have been as excited or open minded, it would be interesting to note if their positive behaviours towards the collaboration would have continued across the time period of each case study, and if this would have affected their approach to the following case study. Perhaps the excitement and suspense of communicating with someone they had not met before and the anticipation of not knowing what they might find when logging into their collaborative documents each time, intrigued them through the curiosity of suspense.

Time

The students in Australia alluded to the need to wait for a response because of the asynchronous connection due to time differences between the countries. The students' reflections refer to the Google Hangouts synchronous session as being an opportunity to get to know their counterparts better because of the instantaneous response, where they could delve deeper on the spot but also see their group members. This allowed for verbal and nonverbal messages to be communicated interculturally as found by McNeil (2000). The students liked the personalisation and social connectedness the synchronous connection gave them in meeting their group members, referring to the difference in communications between the asynchronous and synchronous connections. Feelings of social connectedness were fostered through the social networking the online learning environment provided as well as the pedagogical use in collaborating on learning tasks as found by Hung and Yeuen (2010). The synchronous connections provided an opportunity for the students to develop their verbal and nonverbal skills in communicating interculturally. The students' excitement, particularly in the first few weeks of each collaboration, was stimulated by the responses from their international group members 'appearing' overnight. As the collaboration continued, some of the students in Australia portrayed impatient behaviour when they had not received a response due to other activities occurring in the international school, demonstrating

behavioural inflexibility as found by G. Chen and Starosta (1998). The instantaneous response technology is now affording us has engrained an expectation that we receive feedback promptly through its dynamic manner due to its possibility of anywhere, anytime (Aghaei et al., 2012). As part of a generation who has not had a lot of experience in waiting for a response, the asynchronous connection was challenging for some students at times.

Task expectations

In their reflections, the students referred to the responsiveness of their international counterparts in that their consistency online, by completing at least two sessions each week, ensured the learning task progressed forward and feedback flowed sufficiently. The lack of quick feedback through asynchronous connections can create barriers, hindering students in engaging comfortably supported by Zorn's (2005) findings. The use of Web 2.0 technology to facilitate the intercultural communications allowed for this through its instantaneous and dynamic manner as found by Gundawardena et al. (2009). The students in Australia made reference to the amount of information they would receive in response in the beginning of the first two case studies. This was due to the students in Spain being shy and afraid of making mistakes as reported by their teachers, which the students in Australia were unaware of. This could also be correlated with the time and effort writing in their third language would require as found by Zorn (2005). The students in Australia discussed responding to the cultural differences of the students in Thailand. They asked more questions to gain a clearer understanding, which enabled them to be more efficient in working on their learning task at their end. Through conscious and consistent attempts which do not occur naturally to humans, the students in Australia's ICC was developed reflecting what was found by Wiseman (2002). The students demonstrated behaviours of interactional management through their responsiveness in communicating to ensure their efforts were positive and progressed the learning task forward. Although, sometimes this saw them working independent of the 'collaboration' aspect of the task based on their independent task expectations. This demonstrated an ethnocentric mindset, reflecting Gudykunst and Kim (1997) findings; limited human thinking and behaving in the students in Australia's behaviour in how their international group members might feel and respond to this action.

Cultural differences

In their reflections across the collaborations, the students mentioned a few cultural differences. The common interest of sport captured their attention, which fostered further inquiry through questioning to learn more. This behaviour assisted the students in developing a connection with their group members through finding a common interest. The inquisitiveness of wanting to know more about sports they had not heard of before or where the students might play their games in their country stimulated increased verbal communication and in turn, connection. Although the students attention was captured through seeking a common interest, seeking these alone can cause problems that lead to the exclusion of cultural distinctiveness as found by

Samovar and Porter (2004). Interestingly, the cultural difference of language emerged at the beginning of the third case study, where the students in Australia were required to use a translation tool in order to communicate interculturally. One student commented on the students in Thailand not being able to use their native language of English to communicate, believing their behaviour should be adapted to suit the students in Australia. This behaviour demonstrated a lack of flexibility in her approach to intercultural communication and collaboration supported by Blell and Doff (2014), perhaps due to the maturity and age of the student.

Translation

The use of an online translation tool to foster successful intercultural communication between the students in Australia and Thailand was required as there wasn't a proficient common language between the two schools. This created a language barrier as supported by Keles' (2013) findings. If this tool was not employed, the communication would not have been possible. This was a new behaviour for the students in Australia as they have not previously needed to undertake this step. In order to communicate with student group members, they had to be flexible in their approach to engage with new tools. The effectiveness of the translation tool was key in communicating interculturally. Translation problems occurred when using the online translation tool due to vocabulary equivalence between languages, supporting what was found by Jandt (2001, 2010). By working to find a solution to the ineffectiveness of the first online translation tool, the students in Australia adapted their behaviours to manage the interactions. They included photos to assist in communicating what was happening with the task on their end until they found a more effective online translation tool and managed to increase the success in their intercultural communication.. The majority of students in Australia demonstrated an understanding of the need to translate their responses for the students in Thailand to ensure they could communicate interculturally. In order to master their intercultural encounters, the students in Australia developed their ICC skill repertoire. They coordinated appropriate perspectives and flexibly changed which supports Blell and Doff's (2014) findings. Their behaviour in the first few weeks of the third case study, adapting by translating the message multiple times to increase the accuracy of the translation, shows the lengths they would go to, to ensure their communication was effective with their international group members.

Connection with the intercultural understanding general capability

The outcomes from the cross-case analysis exhibited by the students through the ICC dimension of intercultural adroitness were reflected against the intercultural understanding general capability in the Australian Curriculum (see Table 6.1). Supporting evidence within the intercultural adroitness outcomes show the students in Australia exhibited three sub elements of intercultural understanding. These outcomes align with the intercultural understanding learning continuum Level 4; the expectation they would be typically achieving around this level by the end of Year 6.

Table 6.2

Intercultural adroitness evidence: Intercultural understanding

Sub element of intercultural understanding	Level 4 Typically, by the end of Year 6 students:	Supporting evidence
Interacting and empathising with others element		
Communicate across cultures	identify factors that contribute to understanding in intercultural communication and discuss some strategies to avoid misunderstanding	Questioning to clarify and acquire more detail; increasing each case study. Embraced ambiguity, enjoying the experience evident in students' behaviour. Conscious and consistent attempts to understand communication. Non-verbal cues impacted misunderstandings. Students adapted by asking questions to clarify meaning. Adapting synchronous communication behaviours when accents fostered misunderstandings. Repeat the question and answer, decode, guess, speak loud and clear, and ask if correct. Use the chat feature if unsuccessful in verbal attempts. Perseverance to find online translation tool with greater accuracy to increase success in intercultural communication with case study 3.
Consider and develop multiple perspectives	explain perspectives that differ to expand their understanding of an issue	Difference in task expectations was learnt through experience during the course of case studies. Consideration of perspectives came earlier in the third case study where there was no comparison in communications.
Empathise with others	imagine and describe the situations of others in local, national and global contexts	
Reflecting on intercultural experiences and taking responsibility element		
Reflect on intercultural experiences	explain what and how they have learnt from a wide range of intercultural interactions and experiences	Questionnaires at the end of each case study identified challenges. Reflective behaviours during the process were exercised which resulted in adapted behaviours in the students in Australia's response over time.

Intercultural awareness (cognitive)

The second sub-question explored:

What intercultural awareness competences are exhibited?

The dimension of intercultural awareness encapsulates the ability for communicators to accurately interpret and perceive verbal messages and non-verbal cues. This requires knowledge of cultural features, including beliefs, values, family roles, societal patterns and social norms. The cognitive aspects of ICC are conceptualised as intercultural awareness, referring to the understanding of cultural conventions that affect how we think and behave (G. Chen & Starosta, 1998). Arasaratnam and Doerfel (2005) describe the cognitive complexity of intercultural awareness as the ability to construct messages and relate to the other person so they can understand. From the qualitative data results, intercultural awareness emerged as the second most important proportionally in relative rank order. Key themes that emerged from the cross-case

analysis associating with the dimension of intercultural awareness were *communication, task expectations, cultural differences, translation* and *attitude.* C*ultural differences* was a common key theme across all three case studies; *communication* and *task expectations* common themes across two case studies. A summary of the key themes and sub themes from all three case studies can be found in Table 6.3. Some of the subthemes amongst the key themes drew similar responses, therefore have been synthesised together. Following, the outcomes from intercultural awareness will be mapped against the intercultural understanding general capability learning continuum from the Australian curriculum.

Table 6.3
Intercultural awareness: Key themes and sub themes

Key themes	Sub themes
communication	proficiency of English language, understanding, small misunderstanding (task)
task expectations	understanding, awareness
cultural differences	sport, language, schooling
translation	tools, language barrier
attitude	accepting differences

Communication

In the students' reflections, one student observed that her international group members responses were not as long or verbose as the students in Australia but reflected that it was likely because English isn't their native language. Another student viewed it differently; she believed the students in Spain knew a lot of English, more than she expected, so it made it easier to communicate. This aligns with Deardorff's (2014) findings where language fluency supports intercultural communications. The students mostly ignored mistakes in the students in Spain's English. After the first few weeks once they became accustomed to the communication and tried to make sense of what their international group members had written as found by Keles' (2013). Behavioural flexibility in adapting to communication difficulties emerged over time. The teachers in Spain noted in their reflection, their students didn't know how to express themselves at the beginning of the collaboration exhibiting anxiety. They felt unsure about what to do and the people they were about to interact with. This was a barrier which resulted in a diminished presence at the beginning of each case study associating with Jandt's (2004) findings. This can be otherwise known as uncertainty avoidance (Hofstede & Hofstede, 2005). When one of the students in Australia commented that one of her group members in Spain had been rude, the teacher in Spain assessed the student's response and told the student he had not expressed himself well. When the processing of a message in one culture to another is required, sometimes the interpretation of the message may carry a different meaning than intended which is what was experienced here, supporting McDaniel et al. (2006) and Samovar and Porter's (1997) findings. Whilst one may

judge another's differences as irresponsible or impolite, the important step here was for the student to try and understand the behaviour in the context of the other student's culture before judging it, as found by Novinger (2001) and Jandt (2004). In this instance, this step was not undertaken. In the first two case studies, whilst some of the students demonstrated an awareness that English is not the students in Spain's first language and asked questions to learn more, other students exhibited frustration demonstrating a low level of intercultural awareness. Whilst the majority of the students in Australia demonstrated intercultural awareness in their responses to their international group members, a small minority exhibited a lack of understanding in the difficulties they may be facing, communicating in their third language. This limited thinking and behaviour demonstrated ethnocentrism which reflects what was found by Gudykunst (1991). In the first two case studies, the students in Spain did not communicate interculturally using their regional (Catalan) or national (Spanish) language. Whilst they learnt and utilised the English language in school both as a language class and practiced through their Science classes, there was a clear imbalance in English language proficiency before commencing the collaborations. This may have diminished the students in Spain's sense of national identity which reflects what was found by Jandt (2010), also correlating with the outcome mentioned earlier, where the Spanish students did not know how to express themselves at the beginning of the collaboration.

Task expectations

The students in Australia demonstrated an emerging intercultural awareness in the difference of understanding between the two cultures and the expectations they had in the standard (length and content) of responses. Prior to the case studies, they had not collaborated with same-age students from another culture; collaborations had only occurred in their classroom or with their peers in the other Year 6 classes. However, within one class in Australia there are a diverse range of learning abilities where the completion of a task can result in varied outcomes. Interestingly, the students in Australia demonstrated more understanding of the cultural conventions in the third case study with the students in Thailand and praised their growth in technological skills and interactional confidence as they developed their digital literacy skills in using the Google suite and the computer. Was this because it was the third case study they had participated in and therefore their intercultural awareness had developed from their previous experiences? Or was it because there was no common language to communicate, meaning they understood one of their differences in cultural conventions? The tendency to evaluate was a barrier the students in Australia worked to overcome by considering their international group members' thoughts and feelings from their point of view. At the beginning of the case study one, the tendency to evaluate in relation to their own culture was strong. This evolved over time, seeing the students intercultural awareness changing where they would take the time to consider perspectives and learn about the students, their behaviour patterns and attitudes which was also found in the literature by Barna (1997). As students emerging into intercultural communication in an online asynchronous environment, here lies one of the most important barriers for them to

overcome. Open-mindedness and taking the time to get to know their group members from a different culture by listening empathetically rather than judging which is imperative to the intercultural communication process.

Cultural differences

Results from the PISA international assessment on global competence in 2018 highlighted the need for deep understanding of how others in different traditions and cultures think and live, no matter their role in society (Organisation for Economic Co-operation and Development, 2019a). Therefore, an awareness of cultural differences was imperative to develop in the students. One of the students in Australia noted personal growth in her awareness of other cultures due to the intercultural communication she experienced through the collaboration. Through their reflections, the students noted knowledge and understanding of the other cultures, by reading their international group members' introductions and asking them questions. Through these interactions, commonalities were sought – sport a key feature in their discussions across all case studies. This topic may have featured due to the students' age; prominent in their life at this time in both the playground and outside of school hours through co-curricular activities. The students in Australia asked curious questions to learn more about the hobbies they hadn't heard of before or if they knew of the sport, how they might play it in their country. This reflects what was found by Hofstede, Hofstede and Minkov (2010) in their discussion of culture, whereby the collective phenomenon sees individuals learning through socialisation. Here, the collective in each country began to distinguish each group or category of people from the other through their choice of sport. Padel, netball and soccer were prominent in the discussions between the students across the case studies with the students in Australia surprised the students in Spain had not heard of netball before. This also supports Arasaratnam and Doerfel's (2005) findings where the students have constructed messages to try and relate to the other person so they can understand them.

Finding commonalities to initiate and grow introductory conversations to build connections was deemed an important part of the collaboration by the students in order to get to know the group members they were about to collaborate with on a learning task over a period of time. Whilst it is natural for people to be drawn to others when we have commonalities, which is what the students were seeking through their introductions, this could become problematic if it became the focus. Through distraction, cultural distinctiveness in their differences was not deemed as important which aligns with research findings by Jandt (2004) and Samovar and Porter (2004). When identifying cultural differences, language was prominent in the students' responses, more commonly identified through the third case study where there was no common language to communicate and a translation tool was required. The students in Australia demonstrated developing intercultural awareness through their attempts to accurately interpret and perceive the messages they were receiving synchronously and asynchronously as found by G. Chen and

Starosta (1998). Schooling also featured in the conversations, identifying cultural differences in the school year, times of the school day including breaks (siesta in Spain), sizes of the schools, differences in their classrooms, the wearing of uniforms (or not), et cetera. Through the third case study, increased intercultural awareness was exhibited in relation to their language differences. In the students' reflections, responses identified no differences with the students in Thailand aside from their native languages. In the third case study where the students in Australia only identified language as a difference with the students in Thailand, cultural distinctiveness has not emerged.

Translation

The inaccuracy of the online translation tool, Google Translate, utilised for the first few weeks of the third case study, made communication difficult. Misunderstandings due to an uncommon language caused difficulties in communicating, in particular with translation between languages. The students in Australia self-directed an investigation to find a free online translation tool that was more effective, changing to Bing Translate from the third week of the collaboration, with more successful translations occurring. They demonstrated an awareness of difficulties the students in Thailand were experiencing due to the inaccurate translation. This had increased the complexity in working on the task as the students in Thailand's English language proficiency was at a beginner's level. This supports Jandt's (2010) research into language barriers. Students were flexible in their thinking and tried to devise solutions that might assist their international group members at their end. Here, intercultural awareness is exhibited as found by Arasaratnam and Doerfel (2005) whereby the students in Australia tried to relate to their group members in Thailand and adapt their communication so they could understand.

Attitude

The students in Australia portrayed a predominantly positive attitude towards their international group members across the three case studies, demonstrating a general acceptance of differences. They recognised the students in Spain weren't as confident in communicating in English (reading and writing) a few weeks into the collaboration following their first responses regarding their task expectations. Differences in communicating orally through the synchronous connection due to the students in Spain's accents resulted in adaptive behaviours when speaking to ensure the conversation was effective, without questioning why they had to. This demonstrated an awareness of the ability to construct and reconstruct messages so the other person can understand during communication as found by Arasaratnam and Doerfel (2005) and Tranekjær (2018).

Connection with the intercultural understanding general capability

The outcomes from the cross-case analysis exhibited by the students through the ICC dimension of intercultural awareness, were reflected against the intercultural understanding general capability in the Australian Curriculum (see Table 6.2). Supporting evidence within the

intercultural awareness outcomes show the students in Australia exhibited four sub elements of intercultural understanding. These outcomes align with the intercultural understanding learning continuum Level 4; the expectation they would be typically achieving around this level by the end of Year 6.

Table 6.4
Intercultural awareness evidence: Intercultural understanding

Sub element of intercultural understanding	Level 4 Typically, by the end of Year 6 students:	Supporting evidence
Interacting and empathising with others element		
Communicate across cultures	identify factors that contribute to understanding in intercultural communication and discuss some strategies to avoid misunderstanding	Language fluency supported the first two case studies intercultural communications; the awareness that this was the students in Spain's third language to communicate in emerged in the first few weeks of the case studies. Students sought similarities to build connections at the start of each case study. An investigation into a more accurate online translation tool was conducted by the students in Australia after difficulties emerged with the first online tool utilised.
Consider and develop multiple perspectives	explain perspectives that differ to expand their understanding of an issue	Evolved over time through the case studies. Significant change in the third case study where they considered the students in Thailand's perspective a lot earlier in the collaboration, praising their growth in technological skills and interactional confidence over time.
Empathise with others	imagine and describe the situations of others in local, national and global contexts	The third case study fostered greater thought of the students in Thailand's context. Greater intercultural awareness fostered in students through the authentic intercultural communications.
Reflecting on intercultural experiences and taking responsibility element		
Reflect on intercultural experiences	explain what and how they have learnt from a wide range of intercultural interactions and experiences	Questionnaires at the end of each case study identified challenges. Reflective behaviours during the process were exercised which resulted in adapted behaviours in the students in Australia's response over time.

Intercultural sensitivity (affective)

The third sub-question explored:

What intercultural sensitivity competences are exhibited?

The dimension of intercultural sensitivity signifies the student's readiness to appreciate and understand cultural differences in intercultural communication (G. Chen & Starosta, 1998). The more interculturally sensitive a person is, the more interculturally competent that person can be (J. Bennett, 1993; G. Chen, 1997; G. Chen & Starosta, 1998). From the qualitative data results, intercultural sensitivity demonstrated the lowest importance proportionally in relative rank order. Key themes that emerged from the cross-case analysis associating with the dimension of intercultural sensitivity were *communication, behaviour, task expectations, cultural differences, attitude, translation, technology* and *responsiveness*. *Communication* and *task expectations* were

common key themes across two case studies; *cultural differences* key themes across three case studies. A summary of the key themes and sub themes from all three case studies can be found in Table 6.5. Some of the subthemes amongst the key themes drew similar responses, therefore have been synthesised together. Following, the outcomes from intercultural sensitivity will be mapped against the intercultural understanding general capability learning continuum from the Australian curriculum.

Table 6.5
Intercultural sensitivity: Key themes and subthemes

Key themes	Sub themes
communication	utilising discussion to learn more, understanding, proficiency in English language, inquiring to learn more, task expectations
behaviour	understanding
task expectations	accepting differences, awareness
cultural differences	language, respect for different opinions, cultural differences
attitude	open-mindedness, differences in language
translation	understanding
technology	skills
responsiveness	behaviour

Communication

The students in Australia employed questioning and initiated conversations, utilising discussion to learn more, to acquire further information and a clearer understanding on what their international group members wanted to say. The majority of these students reflected in their questionnaires that learning their international group members' perspectives was important. The students started to demonstrate skills that need to be mastered in intercultural encounters. They coordinated appropriate perspectives, allowing both their group members in Australia and their international group members to share their ideas, thoughts and opinions throughout the intercultural communications, supporting Blell and Doff's (2014) research. Additionally, the students in Australia referred to their introductory conversations where they communicated to build connections, learning about the students they were collaborating on tasks with, which they found made it "easier to talk to them about the task as we knew them a bit". Establishing relationships prior to commencing and maintaining these through the learning tasks emerged as an important aspect of the collaboration; the ability to understand and relate to each other significant in the intercultural communication process, supporting Byram's (1997) findings. Through a lack of focus on establishing and maintaining relationships and an increased focus on the task, critical incidents can occur when communicating interculturally which drive students away. The importance lie in the social interaction intertwined through the learning task process,

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in this case the need to collaborate with their international group members, to create a sound community which was also found in the literature (Preece, 2000; Zorn, 2005).

As the students in Australia progressed through the case studies, they reacted to cultural differences by inquiring to learn more, asking curious questions to gain a better understanding of their international group members' culture. As the second case study commenced, an increase in questioning to learn more about their group members was noted, in comparison to the first case study. This demonstrated an increase in the students' confidence when approaching intercultural communications and what could be perceived a readiness to appreciate and understand cultural differences through inquiry as found by G. Chen and Starosta (1998).

The majority of the students in Australia demonstrated understanding towards the students in Spain in the first and second case studies, recognising that English wasn't their first language, although this took a few weeks to develop. Their initial reactions revealed a somewhat expectation that the students in Spain's English language proficiency would be similar to their own. One student in Australia noted the growth of the students' English language proficiency across the second case study. Another mentioned the language barrier and observed the students in Spain were not extremely confident but that this developed as they went along, commenting that it was interesting to read their responses. The flexibility to change and coordinate their response that was demonstrated by the students in Australia, an important skill to develop through the intercultural encounters, supporting Blell and Doff's (2014) findings. A lack of sensitivity was revealed by one student in Australia, expecting the students in Spain to write clearly as English was their third language. This student's expectation was that the student in Spain should be proficient in her own country's native language. How might she feel if the situation was reversed and the students in Spain were asking the same question about their own language proficiency, particularly given it is their first language? The teachers in Spain noted the change in their students where they moved from being "a bit afraid of speaking". As the collaboration progressed, the students in Spain grew in confidence when writing and communicating with their group members in Australia. This suggests that the students in Australia fostered a safe environment to communicate interculturally in the shared learning space, with the students in Spain's contributions increasing over time. Anxiety can be felt when communicating interculturally. The natural feeling in being unsure about what to do or what behavioural response they may receive from the people they are about to interact with being portrayed by the students in Spain. This resulted in a lower level of communication occurring at the beginning of each collaboration linking to Jandt's (2004) research. As the students felt safe in communicating with their international group members, their communication increased. Although intercultural sensitivity was exhibited through the shared online collaborative space, comments that occurred in the classroom between the students in Australia, asserting their frustration in the length and quality of the students in Spain's responses demonstrated a lack of intercultural sensitivity

towards the cultural differences that emerged through the intercultural communication. This could be a reflection of the emotional maturity level of the students involved in the study or their lack of experience in communicating interculturally in an asynchronous online environment using written text as their mode of communication.

Task expectations

Through the first and second case studies, the majority of the students in Australia exhibited an emerging intercultural sensitivity by being accepting of differences in their international group members' approach to the learning tasks. Most of the students recognised through their questionnaire reflections as well as through their interactional management that the students in Spain were working with their third language. This reflects what was found in Liddicoat and Scarino's (2013) research in that "there is no one normal way of doing things, but that all behaviors are culturally viable" (p. 23). Accepting the differences in approaches to communication and managing their learning tasks required sensitivity and recognition that their way was not necessarily normal to their international group members. This was exhibited by the students in Australia and increased across the case studies.

In the beginning of the third case study, the students in Thailand's comprehension of the process was observed. The students noted they were demonstrating uncertainty in their communications and actions. They also noticed the significant development in their technological skills over the course of the collaboration, particularly as the students in Thailand had not used Google Classroom prior. Most of the students in Australia commended the students in Thailand's development in their questionnaires which exhibited a readiness to appreciate and understand their cultural differences as found by G. Chen and Starosta (1998). The teacher in Thailand referred to the greater degree of comfort that developed in her students in terms of interacting with a different culture, whereby they initially were worried about writing incorrect information or responding inaccurately, supporting Jandt's (2004) explanation of how anxiety can affect communications. This was also exacerbated due to the need for the students in Thailand to develop their technological skills and confidence, as well as the greater ownership and autonomy this task allowed them in contrast to the pedagogical approach employed in their classroom. This could have created significant barriers and hindered the Thai students from engaging comfortably as found by Zorn (2005).

The majority of the students in Australia demonstrated patience and understanding, an awareness of their cultural differences as they worked towards a common goal. Although, in contrast, one student demonstrated a lack of sensitivity in appreciating and understanding their cultural differences (G. Chen & Starosta, 1998), the challenges the students in Thailand were facing in developing new technological skills and in learning new ways in which to complete a task. The students in Thailand's inability to read and write English during the intercultural collaboration was referred to in that it made it difficult to learn about them through the short-

translated responses. The use of English to communicate interculturally may have resulted in the students in Thailand and Spain feeling a diminished sense of national identity as found by Jandt (2010) whereby the language connects people together through relationships, reflecting what they eat, see and think. Whilst the student in Australia is focused on learning about her international group members and completing the learning task, she has not considered what language means to her international group members and the part it plays in their intercultural communications.

Cultural differences

The students in Australia acknowledged the differences in language proficiency, with word pronunciation, accents and type of language prominent themes in their reflections. They demonstrated intercultural sensitivity by recognising their differences in communication, not allowing it to interfere in communicating to complete the collaborative task which revealed a readiness to understand cultural differences as found by G. Chen and Starosta (1998). The reflections following the synchronous connection through Google Hangouts demonstrated a different approach and diminished intercultural sensitivity. The students in Australia exhibited frustration in the challenges they identified, these being the complexity an accent can add to understanding verbal communication and students communicating in a language the others did not understand between themselves (Catalan). Translation problems of conceptual and idiomatic equivalence between languages occurred, encountered by both the students in Australia and Spain during the synchronous connections reflecting Jandt's (2010) findings. Conceptual equivalence refers to concepts and ideas that are not understood, recognised or comprehended in the same ways in different cultures. Idiomatic equivalence is where the native language speakers understand, however, the non-native speakers experience difficulties in translating and understanding the idiom which results in a meaningless or unusual reaction. These translation problems led to the students in Spain conversing between themselves in Catalan to decode what the students in Australia were communicating. The synchronous connection meant the response time of the intercultural communications was dynamic (Aghaei et al., 2012) and the wait time whilst decoding fostered feelings of anxiety, uncertainty and frustration, which supports Jandt's (2004) research. These emotions were not as evident during the asynchronous connections as the students could not visually see their international group members' nonverbal response.

The synchronous connection through Google Hangouts videoconferencing provided the students with nonverbal communications that were not possible through the asynchronous intercultural communications. Nonverbal communications take different forms and vary significantly across cultures (McNeil, 2000). In these instances, the inclusion of nonverbal communications to the intercultural communications may have been misinterpreted due to the contrast in meaning of these cues between cultures in line with research by Jandt (2001, 2010). The significance in communication differences interculturally required participants to respect both verbal and nonverbal means; the dynamic and evolving nature of cultures emphasised

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through their communications as reflect in Casmir's (1999) research. The students in Australia debriefed following the Google Hangouts session, which provided an opportunity for them to reflect on the challenges they faced and the intercultural sensitivity that was drawn upon in order to communicate effectively, considering the challenges from both perspectives. Interestingly, the students who experienced the greatest difficulties during the communication process were those who faced difficulties in learning the English language (reading, writing and speaking competences) at school.

Across the case studies, the students in Australia have demonstrated increased intercultural sensitivity in their interactions and behaviour with their international group members, demonstrating respect for different opinions and an emerging openness to start appreciating cultural differences. Whilst it has taken a little longer for some students, perhaps the age and emotional maturity of the students, or their previous experiences and interactions with people from different cultures affects the rate in which these dimensions grow. The teachers in Spain referred to a proposed increase in tolerance towards others if students were to continue to communicate with students from different countries each year. This supports research by G. Chen and Starosta (1998) on intercultural sensitivity in the openness towards accepting and understanding cultural differences as well as Deardorff's (2014) summary of emerging themes from over half a century of research in which intercultural competence is "intentionally addressed throughout the curriculum and through experiential learning" (p. 1). Intercultural interaction, led to transformation in the students in terms of level of respect, compatibility and equality as found by Berry (2009).

Behaviour

The students in Australia demonstrated an emerging readiness to understand cultural differences by persevering to interpret their international group members' responses across all three case studies, reflected in G. Chen and Starosta's (1998) research. Although they refer to ignoring mistakes in their international group members' writing because they could still understand them, mentioning these in their questionnaire self-reflections indicated the students' readiness to accept these cultural differences in communication challenged them, particularly at the beginning of the collaborations. Whilst the students in Australia included these mistakes in their self-reflections, they did not discuss these during their intercultural communication with their group members, which demonstrated sensitivity in communicating by considering how their group members might feel should this have been highlighted (affective response). The students alluded to respecting their international group members' opinions, which was evident in the questions they asked, where they sought to clarify what they meant in the message being communicated, not challenging or ignoring it. A few of the students mentioned the effort they made in "trying to work everything out together' and how they "made sure their group members knew what the group was doing". This exhibits a sense of care in that the students feel they are

responsible for their international group members, taking on a support role to guide the group. Although, in proactively taking on this support role, the students in Australia need to be careful they are not perceived as ethnocentric by their international group members where they exhibit behaviours that may be interpreted as thinking their culture is superior to the other, in line with the research (Jandt, 2004; Linde, 1997; Lustig & Koester, 1999). Confidence was exhibited by the students in Australia as they were communicating in their native language. Whilst they demonstrated understanding and were respectful in their intercultural communications through all three case studies, they often lacked sensitivity in the discussions they would have in class with their group members. This is likely due to their emotional maturity and age as referred to in the communication key theme earlier.

Attitude

The majority of students in Australia demonstrated open-mindedness through their intercultural communication across the three case studies, in that they approached each aspect of the collaboration with a positive attitude and were interested in what their international group members had to say. This indicated the students' readiness to appreciate the cultural differences they might experience through the intercultural communications supporting G. Chen and Starosta's (1998) findings. One student in Australia reflected on the differences in language in that the students in Spain didn't always write correct English or correct punctuation; what they wrote didn't always make sense to the students in Australia. This response lacks sensitivity in understanding her international group members' context and challenges. The student then contradicts what she said in her previous response, recognising there are two different native languages between the schools following the synchronous Google Hangouts session. Here the student demonstrated positive growth by recognising the difficulties her group members might be experiencing, exhibiting sensitivity in her response. The synchronous connection triggered the change in her perspective, fostering empathy through the challenges she encountered. The affective (sensitivity) aspect of ICC encapsulates the ability and motivation of the students in Australia to be empathetic and responsive to the emotional experience of the students in Spain and Thailand when communicating, supporting Arasaratnam and Doerfel's (2005) research. A few discussions between the students in Australia in-class saw the comparison of cultural differences occur during the first and second case studies. The differences discussed being the quantity within communications and their differences in approaching learning tasks. These discussions display emergences of ethnocentrism in which the students in Australia felt their way was superior as found by Jandt (2004); the tendency to evaluate their actions or statements rather than consider completely the world of the students in Spain as reflected in Barna's (1997) research. The development of ICC not only involves understanding a culture but also the readiness to reflect on one's own culture, suspending judgement of the other (Chun, 2011).

Translation

From the third case study, the students' reflections demonstrated understanding and sensitivity towards their international group members, the students in Thailand, as they recognised the difficulties they were experiencing related to the translation tool and not the students' communication. They initiated their own independent self-directed investigation to find a more effective online translation tool to use during the collaboration and did not seek assistance from the students in Thailand, acknowledging their technological proficiency was still building in skill. The online translation tool's ineffectiveness in the first few weeks of the collaboration created difficulties for the students in communicating interculturally. The students in Australia's sensitivity towards their international group members can be seen through their readiness to understand the difficulties the students in Thailand would be experiencing at their end and the confusion this might have caused them. The students in Australia demonstrated a higher degree of sensitivity in third case study with the students in Thailand than they did during the two case studies with the students in Spain. By the third case study, the students in Australia's readiness to appreciate and understand cultural differences as found by G. Chen and Starosta (1998) was more evident in comparison to the first two case studies. They focused on listening and learning empathetically to achieve fair and complete understanding of people from different cultures which supports Barna's (1997) research in being open-minded rather than succumbing to the tendency to evaluate. The increased sensitivity exhibited in the students in Australia towards the students in Thailand was a result of the intercultural communication requiring a translation tool in order to communicate. Additionally, the students' observations of the lower level of their technological skills in the students in Thailand fostered empathy through considering perspectives, demonstrating sensitivity. The communication for the first two case studies was enabled by a common language, which resulted in higher expectations of the students in Spain by the students in Australia and less sensitivity exhibited.

Technology

The students in Australia noticed the students in Thailand consistently responded to their questions and even though they sometimes wrote their responses in different places within the shared Google doc, they identified this and attempted to correct the placement. Once corrected, the students in Australia communicated this change with the students in Thailand in the chat feature. Here, the students in Australia demonstrated sensitivity towards the students in Thailand's technological skills development through an openness to accepting their cultural differences and supporting them by modelling how the task was to be completed. The actions demonstrated by the students in Australia could be perceived as sensitive in supporting the students in Thailand's development of technological skills; a representation of the values that affect how Australians think, behave, interact and make judgements about the world as found by Chamberlain (2005). In a different culture, however, these actions may be viewed differently with

ethnocentrism or stereotyping possible. Rather than changing the students in Thailand's work, which exhibits aspects of ethnocentrism as found by Gudykunst (1991), the students in Australia should have taken the time to try and understand them. This is supported Barna's (1997) research on stereotypes in which we "make sense of what goes on around us, whether or not they are an accurate or fit the circumstance" (p. 341). Given the students in Australia have not communicated with the students in Thailand to seek their feedback in providing support, their behaviours could be viewed negatively rather than understanding where their sensitivity derives from. This could also result in a stereotype being labelled due to a lack of communication before action.

Responsiveness

The behavioural response through the third case study with the students in Thailand exhibited greater sensitivity in comparison to the first two case studies with the students in Spain. The majority of the students in Australia did not question the need to translate from Thai to English and the cultural differences in the way they communicated were not exemplified as an issue. They demonstrated a readiness to appreciate and understand cultural differences between themselves and the students in Thailand as found by G. Chen and Starosta (1998). However, the students did not identify cultural differences other than language when asked explicitly and through inference, technological skills. Although they found it difficult to understand the translations in the third case study, they identified the online translation tool as generating this challenge in communicating interculturally. Here, the tendency to assume similarity rather than difference has occurred, distracting the students from the important differences between the two cultures as found by Jandt (2004) and Samovar and Porter (2004). Although the students in Australia have professed to demonstrating an open mind through the third case study, they have in fact missed valuable differences between the two cultures. The essence of culture was not its artefacts, tools or other cultural elements but in how the students in Australia used, interpreted and perceived them as found in the literature by Banks and McGee (1989).

Connection with the intercultural understanding general capability

The outcomes from the cross-case analysis exhibited by the students through the ICC dimension of intercultural sensitivity, were reflected against the intercultural understanding general capability in the Australian Curriculum (see Table 6.3). Supporting evidence within the intercultural sensitivity outcomes show the students in Australia exhibited four sub elements of intercultural understanding. These outcomes align with the intercultural understanding learning continuum Level 4; the expectation they would be typically achieving around this level by the end of Year 6.

Table 6.6
Intercultural sensitivity evidence: Intercultural understanding

Sub element of intercultural understanding	Level 4 Typically, by the end of Year 6 students:	Supporting evidence
Interacting and empathising with others element		
Communicate across cultures	identify factors that contribute to understanding in intercultural communication and discuss some strategies to avoid misunderstanding	Identifying similarities to build connections with their international group members. Inquiring to learn more; curious questions utilised to gain a better understanding. Increase in confidence to ask questions noted between the first and third case study. A safe environment to communicate online was fostered by the students in Australia, evident in the increase in confidence by the international students in all three case studies. The Australian students recognised differences in communication; did not allow it to interfere in completing the learning task. Exhibited adaptation to non-verbal communications during synchronous connection to communicate interculturally. Open-mindedness and a positive attitude resulted in the students' exhibiting greater flexibility in their thinking and approach to challenges progressively through the case studies.
Consider and develop multiple perspectives	explain perspectives that differ to expand their understanding of an issue	Utilised discussion to learn more about their group members' perspectives, coordinating these perspectives to share ideas, thoughts and opinions. Consideration of the challenges in synchronous connection discussions from both perspectives.
Empathise with others	imagine and describe the situations of others in local, national and global contexts	Exhibited an emerging acceptance of differences which increased across the case studies. Exhibited sensitivity towards students in Thailand who commenced the case study with lower levels of technological skills, encouraging their development over the course of the collaboration. Understanding the complexity lie in the translation tools accuracy not the students in Thailand's communication. Empathy fostered through challenges faced (experienced) in communicating interculturally through synchronous session with students in Spain.
Reflecting on intercultural experiences and taking responsibility element		
Reflect on intercultural experiences	explain what and how they have learnt from a wide range of intercultural interactions and experiences	Questionnaires at the end of each case study identified challenges. Reflective behaviours during the process were exercised which resulted in adapted behaviours in the students in Australia's response over time.

Use of Web 2.0 tools to facilitate collaboration

The rapid and continual evolution of digital technologies requires graduates to be technologically savvy with knowledge of foreign languages and intercultural competence a prerequisite (Swartz et al., 2019). Changes from Web 1.0 to Web 2.0 have transformed and varied the way humans behave, interact and acquire knowledge with the use of social networking services prolific amongst young people, becoming widespread practice (L. Johnson et al., 2009). The development of communication technology over the past two decades is the main reason the

world now faces intercultural communication on a daily basis (G. Chen, 2013) with developments of these technologies moving faster than the development of theoretical frameworks for their utilisation in education and training. The ITSE Standards for Students foster student-driven learning as a process, designed to empower student voice. Standard 7 focuses on the global collaborator whereby, "Students use digital tools to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally" (International Society for Technology in Education, 2016). This research study drew upon Standard 7 to foster the development of students as global collaborators through their intercultural and international collaborative learning tasks in each case study.

Web 2.0 is tied to human communication and learning, allowing learners to share and create content in an instantaneous and dynamic manner through social networking. The environments allow networks to provide the possibility of anytime, anywhere seamless learning, where sites can be customised by users. Web 2.0 tools foster interaction, collaboration and contribution by allowing user generated content to reflect the collective intelligence of the users through co-creating, co-editing and co-constructing knowledge (Aghaei et al., 2012; Gundawardena et al., 2009). These characteristics of Web 2.0 make it the ideal context in which to observe the development of ICC as students can interact, network and collaborate with others beyond the traditional classroom setting, through social engagement.

The second research question for this study asked:

To what extent can Web 2.0 tools be used to effectively facilitate collaborative projects online with students in upper primary from different countries?

Throughout the three case studies, the students used Google Docs and Google Slides as part of the Google suite of applications; Google Classroom the platform to facilitate their collaborations. Group documents were set up by the teachers with students added to their group by their school email address. The use of Google applications through Google Classroom enabled the students to work in a safe and secure environment online, of particular importance due to the age of students participating in this study. The first two case studies involved small group Google Hangouts where the students from each group connected synchronously through video connection on conclusion of their collaboration. This was set up using different links for each group with the teachers' email addresses. For the third case study, Google Translate and Bing Translate were used to support the intercultural communication between the students in Australia and the students in Thailand. The first two case studies with the school in Spain utilised the English language to communicate. English was the students in Australia's native language; for the students in Spain it was their third language behind Catalan and Spanish. The students in Thailand were at a beginner's level of English, learning the sound and letter association and simple words in line with pictures of the object. For this reason, the students in Thailand communicated in Thai and

an online translation tool was employed by the students in Australia, translating the Thai students' communications into English and vice-versa to communicate back to them.

Key themes that emerged from the cross-case analysis associated with the use of Web 2.0 tools to facilitate the collaborative projects online were: *technology to collaborate – web tools as a collaboration space, problems with technology, enjoyment, Google translate issues and technology skills*. *Technology to collaborate* and *problems with technology* were common themes across the case studies with the school in Spain. The case study with the school in Thailand saw different key themes emerge, although, the key theme of *web tools as a collaboration space* drew similar responses to the *technology to collaborate* key theme. A summary of the key themes and sub themes can be seen in Table 6.7.

Table 6.7
Web 2.0 tools: Key themes and sub themes

Key themes	Sub themes
technology to collaborate – web tools as a collaboration space	web tools, translation tools, collaboration, faster communication
problems with technology	Internet connectivity
enjoyment	enjoyment
Google Translate issues	translation tool issues
technology skills	proficiency of students in Thailand's technology skills

Technology to collaborate (Spanish) - Web tools as a collaboration space (Thai)

The students in Australia's reflections acknowledged the use of the web tools to collaborate synchronously and asynchronously in that these social tools allowed them to communicate faster than sending letters by post. They noted that Google Classroom was fast in response, allowing you to see your group members' work quickly supporting Cummings (2016) description of the ability of Web 2.0 technology to create "social environments where immediacy and social presence can be maximized" (p. 81). The students in Australia reflected on the platform in that allowed you to communicate in different methods such as text, photo and the chat feature. It also allowed the students to see who had inserted what through the edits/version feature. The students commented on the feature in which they liked, in that the platform automatically saves their work as they progress. The use of the social technologies increased the students' opportunities to engage, interact and communicate with each other across cultural, linguistic and geographic boundaries as found in the literature (Helm & Guth, 2010; Ware & Rivas, 2012). The students in Australia reflected on the use of technology which enabled the collaborations to occur, acknowledging its significance in allowing them to communicate internationally and interculturally with their group members, whilst also providing the teachers with the opportunity to connect. The students in Australia enjoyed the synchronous connection of Google Hangouts in

that it was "nicer to actually talk to them in a way you would when you first meet someone," where the use of social networking technology fostered strong feelings of social connectedness when employed for pedagogical use, supporting Hung and Yeuen's (2010) research.

When working with students of primary school age, a multitude of issues relating to privacy prevent the use of social media in the classroom as found by Poore (2013). In contrast to this research, Google Classroom enabled the students to work in a safe and secure environment online, which is particularly important in regard to child safety in a digital online space. The use of this digital platform to connect and collaborate with their international group members provided them with the opportunity to consider and implement responsible digital citizenship skills through their interactions. The translation tools allowed the students to communicate with students from another country who spoke a different native language. Without the translation tool, the collaboration and communications would not have been an effective way to learn from each other in the third case study.

Students should learn to effectively interact with people from different cultures, developing appropriate communication and collaboration skills to be effective global citizens in our increasingly interconnected world (S. Chen et al., 2012). The students in Australia reflected on the use of technology in helping them to collaborate as it allowed them to communicate with students across the world and work together on learning tasks, supporting with Kamel Boulos and Wheeler's (2007) research, who explain that when using online technologies, participants construct knowledge through their interaction and exploration with other students as they promote active and engaged learning. The platform enabled more than one person to work in the document at one time; it did not hinder the ability for students to all be involved and contribute to the learning task synchronously. According to one of the students in Australia, it helped them to "work together more as a team". This student mentioned that without the platforms, she would not have been able to collaborate with her group members in the other country. The utilisation of online learning environments as a constructivist tool, that facilitate and encourage collaboration internationally, fosters opportunities for students to develop these essential skills through authentic experiential learning which reflects what was found by Jonassen et al. (1999).

Through the edits feature in Google Docs and Google Slides, the version history highlights each student's contributions over time, including any changes made. This feature enhanced the teachers' ability to ensure all of the group members were contributing and can be seen as a method of accountability for each student as part of the collaboration process and being an effective group member. The use of these webtools through the platform enabled the students to collaborate both internationally and interculturally; these learning experiences becoming increasingly important tasks in education to better equip students for a future globalised society as found in the literature (Friedman, 2005; Organisation for Economic Co-operation and Development 2019b; Selby & Pike, 2000)

Problems with technology

The students in Australia reflected on problems that occurred with the technology during the case studies. Issues that occurred were Internet connectivity, which was dependent on the school's servers and the strength of their signal. This was also dependent on the device they were using. The students in Australia had access to an IT technician in the Junior School who supported them in reconnecting when their laptop had connectivity issues. In order to be able to collaborate using Web 2.0 tools such as Google applications, connection to the Internet is required. Structural characteristics were an important aspect of the international collaborations occurring where digital hardware resources (computers) and infrastructure provisions, a strong and reliable Internet connection, as well as ICT support staff not only enabled the intercultural communications to occur consistently but countered and remediated problems as they occurred as found in the literature (Bradley & Russell, 1997; Lawson & Comber, 1999; Tondeur et al., 2009). Internet connectivity allowed the teachers to develop opportunities for the students from different cultures and backgrounds, using online platforms to communicate and collaborate globally on learning tasks.

Enjoyment

Enjoyment was noted by the students in Australia in that the use of technology made the task more fun. The significant impact the social networking had on the intercultural dialogue across geographical locations was compelling, supporting Lee and Markey's (2014) findings. Technology through the use of Web 2.0 tools enabled them to see what their group members looked like through the synchronous connections when they participated in Google Hangouts in the first and second case studies. For the third case study, as the students had no common language to communicate synchronously, a Google Hangout was not undertaken during the collaboration period. Upon conclusion of this case study, a whole class Skype was conducted where the students sang a song to each other and the teacher in Thailand translated the students in Australia's questions and responses to the students in Thailand. The researcher and teachers' observations highlight the students' consistent motivation and enjoyment throughout the collaboration, even when faced with difficulties. Their motivation seemed to lie in communication appearing in their group documents as they logged into the platform each time.

Google Translate issues

The Google translation tool was used for the first few weeks of the third case study, however, caused difficulties in understanding for the students. Although translations between languages often miss cultural nuances in their conversion, the outcomes when using this tool were too inaccurate to be able to use to effectively communicate interculturally. In the third case study, a translation tool was imperative in order to communicate interculturally due to no common language of proficiency. The Google translation tool exhibited difficulties in conceptual

equivalence where the concepts and idea were not presented in the same way between different cultures. Additionally, vocabulary equivalence was an issue where words did not correspond with those in a different language as found in Jandt's (2010) research. The students self-directed an investigation into other free online translation tools and found that in this instance, Bing Translate was more effective. The students in Australia demonstrated perseverance through a solution focused lens to work through this problem, to assist the intercultural communication between themselves and their group members in Thailand. Whilst one of the most obvious barriers to learning, language was not the most fundamental when communicating interculturally as supported by Deardorff's (2014) findings. The cultural characteristics of a school filtered into students' openness to adapt and be flexible through the collaborations. The Australian students demonstrated open attitudes towards educational innovativeness through the use of technology to communicate and collaborate interculturally using Web 2.0 tools, supporting Devos et. al.'s (2007) findings.

Technology skills

Through case study three, the students in Australia noticed the students in Thailand's technological proficiency was not at the same level as their own and that they required quite a bit of support from their teacher in the initial stages. This was noticed through the edits feature in Google Docs. Whilst this didn't appear to be a problem for the students in Australia as they worked through the investigation and was more-so an observation where they demonstrated sensitivity, the students in Thailand's quick uptake of skills made the communication of their learning task flow more effectively. The range of social media tools the students used provided them with the opportunity to actively learn as found by Poore (2013). The implementation of these social tools as a platform to collaborate internationally and interculturally provided all students involved with the opportunity to actively participate in authentic experiential learning. Varying degrees of rapid skill development occurred, dependent on the individual student's technological capabilities and previous experience in collaborative learning prior to the collaborations occurring. Participation in the intercultural interactions and collaboration on the learning task fostered critical thinking, creativity, discussion and collaboration, supporting McMean's (2015) findings.

Web 2.0 Application Framework

Based on the results and analysis of the research findings, a Web 2.0 Application Framework was developed from the original Conceptual Framework and can be seen in Figure 6.1. This research study explored what ICCs upper primary students in Australia exhibited by participating in international intercultural collaborative projects online facilitated by Web 2.0 tools. The development of ICCs is the independent variable; the outcome of collaborating interculturally online through Web 2.0 tools (dependent variable). Structural and cultural

characteristics of ICT in the schools who participated played a key part in ensuring the international, intercultural collaboration was possible and supported.
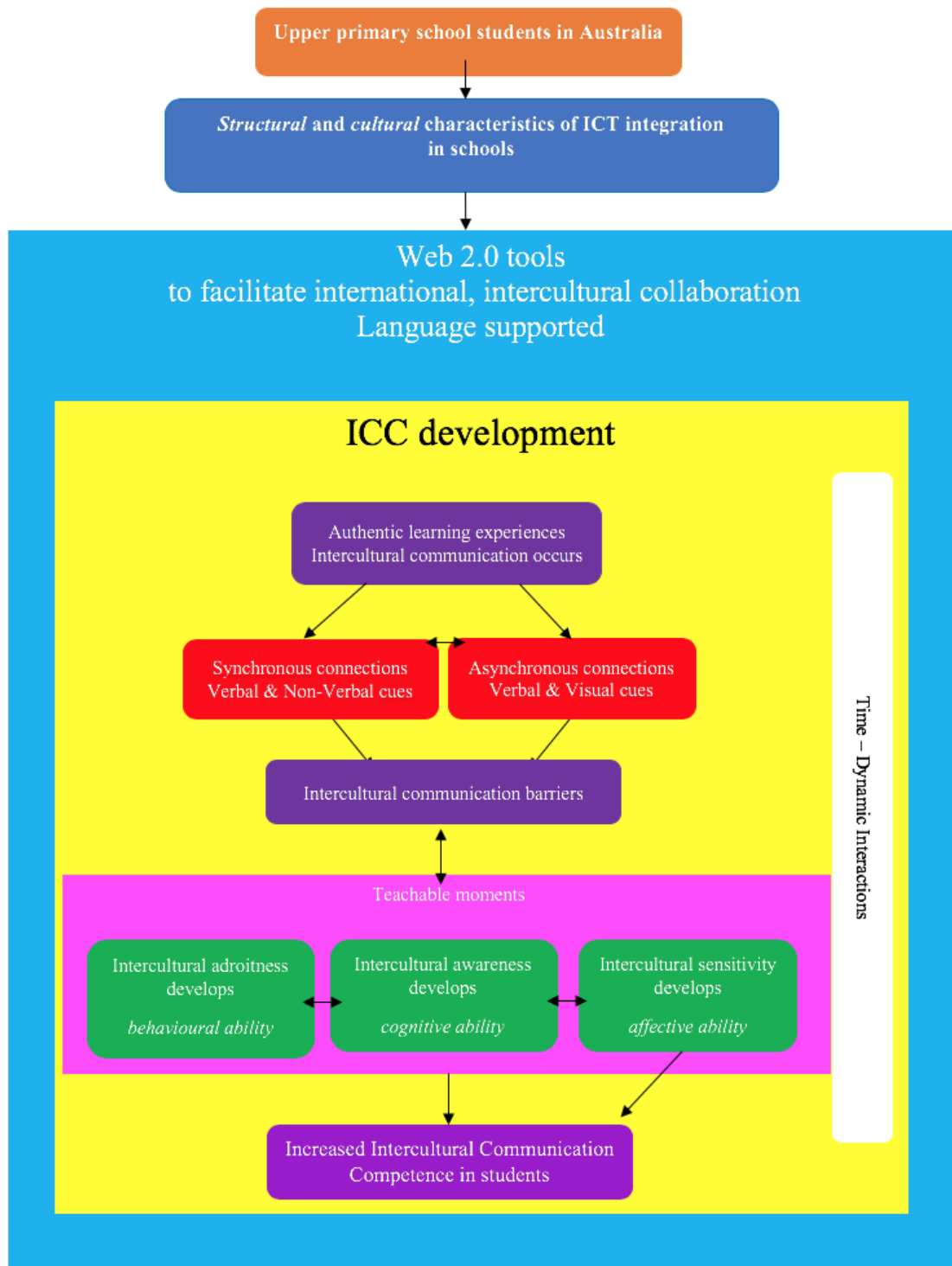

Figure 6.1 Web 2.0 Application Framework

The use of Web 2.0 tools, the social web, was the dependent variable integral to the study. The development of ICCs and construction of knowledge through the collaborations could not have occurred in a consistent, flexible and timely manner without them. The Web 2.0 tools used needed to be language supported in order for all students to be able to communicate and collaborate interculturally. The independent variable of ICC is a construct, not easy to directly measure or describe. Authentic learning environments through the Web 2.0 tools created synchronous and asynchronous connections for students to collaborate and construct new knowledge. Synchronous connections provided verbal and non-verbal cues whilst asynchronous connections provided verbal and visual cues through text, diagrams, photos, et cetera. Asynchronous connections also provided the opportunity for multimedia clips to be pre-recorded and shared.

Summary

This chapter provided insights into the ICCs exhibited by the upper primary students in Australia as a result of participating in international, intercultural collaborations online using Web 2.0 tools. In concluding this cross-case analysis and discussion of the three case studies, the international, intercultural collaborations the students in Australia participated in enhanced their ICC development and intercultural understanding. In all three case studies, intercultural adroitness (behaviour) demonstrated the most importance proportionally in relative rank order followed by intercultural awareness (cognitive) and intercultural sensitivity (affective). All three case studies demonstrated the same order of relative importance in their outcomes. A summary of the ICC findings from the cross-case analysis and discussion can be seen in Table 6.4.

Table 6.8

Summary of Intercultural Communication Competence Findings

Dimension of ICC	Intercultural understanding sub elements	Key themes
Intercultural adroitness	Communicate across cultures Consider and develop multiple perspectives Reflect on intercultural experiences	communication, behaviour, cultural differences, translation, attitude, time and task expectations
Intercultural awareness	Communicate across cultures Consider and develop multiple perspectives Empathise with others Reflect on intercultural experiences	communication, task expectations, cultural differences, attitude and translation
Intercultural sensitivity	Communicate across cultures Consider and develop multiple perspectives Empathise with others Reflect on intercultural experiences	communication, behaviour, task expectations, cultural differences, attitude, translation, technology and responsiveness

When mapped against the intercultural understanding general capability of the Australian Curriculum, supporting evidence within the intercultural adroitness ICC dimension show the students in Australia exhibiting three sub elements of intercultural understanding at Level 4; the expectation they would be achieving around this level by the end of Year 6. This demonstrates the students' growth in intercultural adroitness from participating in the intercultural

collaborations. Key themes that emerged from the cross-case analysis associating with the dimension of intercultural adroitness were *communication, behaviour, cultural differences, translation, attitude, time* and *task expectations*. Communication was a common key theme across all three case studies; behaviour and cultural differences across two case studies. Communication drew multiple subthemes.

When mapped against the intercultural understanding general capability of the Australian Curriculum, supporting evidence within the intercultural awareness ICC dimension show the students in Australia exhibiting four sub elements of intercultural understanding at Level 4; the expectation they would be achieving around this level by the end of Year 6. This demonstrates the students' growth in intercultural awareness from participating in the intercultural collaborations. Key themes that emerged from the cross-case analysis associating with the dimension of intercultural awareness were *communication, task expectations, cultural differences, attitude* and *translation. Cultural differences* was a common key theme across all three case studies; communication and *task expectations* common themes across two case studies.

When mapped against the intercultural understanding general capability of the Australian Curriculum, supporting evidence within the intercultural sensitivity ICC dimension show the students in Australia exhibiting four sub elements of intercultural understanding at Level 4; the expectation they would be achieving around this level by the end of Year 6. This demonstrates the students' growth in intercultural sensitivity from participating in the intercultural collaborations. Key themes that emerged from the cross-case analysis associating with the dimension of intercultural sensitivity were *communication, behaviour, task expectations, cultural differences, attitude, translation, technology* and *responsiveness. Communication* and *task expectations* were common key themes across two case studies; *cultural differences* key themes across three case studies.

The use of Web 2.0 tools to facilitate the collaborative projects saw common themes emerge in the first two case studies with the school in Spain. The third case study with the school in Thailand resulted in different themes emerge related to the translation tool, technology skills and use of web tools as a collaboration space. Key themes that emerged from the cross-case analysis and discussion associated with the use of Web 2.0 tools were: *technology to collaborate, problems with technology, enjoyment, Google translate issues, technology skills* and *web tools as a collaboration space. Technology to collaborate* and *problems with technology* were common themes across the case studies with the school in Spain. The case study with the school in Thailand saw different key themes emerge, although, the key theme of *web tools as a collaboration space* drew similar responses to the *technology to collaborate* key theme. The structural and cultural characteristics of the schools enabled the collaborations to occur. The Web 2.0 tools in the suite of Google Classroom allowed the intercultural collaborations to occur in a safe and secure environment through synchronous and asynchronous connections. Structural issues with internet

connectivity were experienced by the students in Australia. Google Translate posed issues with its inaccuracy when translating; Bing Translate identified as more effective. The use of an online translation tool was imperative to intercultural communications in the third case study. Enjoyment in utilising technology to connect internationally and interculturally was exhibited; students' motivation consistent across the case studies. Differences in technological skills were noted, although didn't affect the intercultural communications.

This chapter provided a cross-case analysis and discussion of the results. The final chapter provides a brief overview of the research investigation and its design. Conclusions are drawn which lead to a summary of the implications of this research along with recommendations. In recognising the study's limitations and generalisability, suggestions are made for further research.

CHAPTER 7 CONCLUSIONS

Overview

This chapter summarises the research study followed by the findings under the sub-questions followed by the two main research questions. Common themes that emerged across the three ICC dimensions are highlighted followed by common themes across the use of Web 2.0 tools which enabled the collaborations to occur. Recommendations are followed by the limitations and generalisability of the study. Suggestions for further future research lead into the final conclusions.

Summary

The aim of this research study was to investigate what intercultural communication competences (ICC) develop in upper primary school students in Australia by participating in international, intercultural collaborative projects online facilitated by Web 2.0 tools. The investigation explored what dimension/s of intercultural communication competence (ICC) were developed and if the Web 2.0 tools were effective in facilitating the collaboration internationally and interculturally. The cognitive goals of the study were to improve students' ICC through experiential learning by using international intercultural collaboration to foster opportunities for them to increase their awareness of, and openness to, other cultures through reflection and comparison. The aim was for students to develop authentic ICC through the collaboration rather than superficial fact exchanges. The purpose of this research study was to contribute to the increasing knowledge about ICC and how it can be developed through social technologies, Web 2.0 tools, with a younger age group. This research study employed an exploratory case study approach using qualitative data "to develop pertinent hypotheses and propositions for further inquiry" (Yin, 2003, p. 6). The outcomes of this study can be used to enhance educators' understanding of how to increase students' ICC using Web 2.0 technology.

Conclusions: Research questions

The conclusions from this research study are presented by addressing each sub-question question in turn followed by Question 2. The overarching research question, Question 1, concludes the findings.

Question 1.1

The first sub-question question explored:

What intercultural adroitness competences are exhibited?

The dimension of intercultural adroitness addresses the skills and behaviours required in order for intercultural actions to be effective in the host's society with a focus on interactional management, behavioural flexibility, communication skills and nonverbal and verbal skills in intercultural interactional settings (G. Chen & Starosta, 1998). Key themes that emerged from the cross-case analysis were communication, behaviour, cultural differences, translation, attitude, time and task expectations. Communication was a common theme across all three case studies; behaviour and cultural differences across two case studies. When reflected against the intercultural understanding general capability in the Australian curriculum, evidence showed the students in Australia exhibited three sub elements of intercultural understanding at Level 4 on the learning continuum; the expectation they would be typically achieving by the end of Year 6. Supporting evidence highlighted their growth of intercultural adroitness against the sub elements as a result of participating in the international, intercultural collaborations.

The results revealed that less behavioural flexibility was required in the students in Australia when a common language was used, although a certain level of proficiency within that language is required for collaboration to occur. An accurate translation tool was required if there was no common language to eliminate the language barrier. This was an aspect the students developed their understandings of across the case studies demonstrating positive growth. Explicit questions were asked by the students in Australia to ensure understanding of their international group members' responses, exhibiting behavioural flexibility in order for the interactions to be affective. Interactional management saw the need for communication consistency; the quality and quantity of responses and the use of questioning to inquire or clarify required to collaborate. The ability to coordinate appropriate perspectives and flexibly change was required as part of their skill repertoire. These skills and abilities exhibited development through the case studies with the need to continue focusing on these moving forward.

Cultural differences fostered increased interactional engagement to sought commonalities. Interactional management in behavioural flexibility increased across the case studies. Persevering and problem solving to work through translations and misunderstandings, particularly when nonverbal skills weren't present in the intercultural communications (asynchronous textual collaborations) was evident; all of which can cause barriers in communicating interculturally. Time differences between the countries saw the synchronous connection increase personalisation and connection and provided the students with immediate feedback. Two one-hour sessions weekly saw flow in the learning task and feedback. The students in Australia developed their communication skills in listening, speaking and observing through the synchronous connection and in textual features through the asynchronous connection. Through a social constructivist approach and the authentic learning environment online, growth in their intercultural adroitness was exhibited beyond what could be taught in the traditional classroom without intercultural communications. Positive interactions were identified in all intercultural communications online by the students in Australia.

Question 1.2

The second sub-question question explored:

What intercultural awareness competences are exhibited?

The dimension of intercultural awareness encapsulates the ability for communicators to accurately interpret and perceive verbal messages and non-verbal cues. This requires knowledge of cultural features, including beliefs, values, family roles, societal patterns and social norms. The cognitive aspects of ICC are conceptualised as intercultural awareness, referring to the understanding of cultural conventions that affect how we think and behave (G. Chen & Starosta, 1998). The complexity lies in the ability to construct messages and relate to the other person so they can understand (Arasaratnam & Doerfel, 2005). Key themes that emerged from the cross-

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case analysis associating with the dimension of intercultural awareness were communication, task expectations, cultural differences, attitude and translation. Communication and cultural differences were common key themes across all three case studies; task expectations common themes across two case studies. When reflected against the intercultural understanding general capability in the Australian curriculum, evidence showed the students in Australia exhibited four sub elements of intercultural understanding at Level 4 on the learning continuum; the expectation they would be typically achieving by the end of Year 6. The supporting evidence highlighted their growth of intercultural awareness against the sub elements as a result of participating in the international, intercultural collaborations.

Progressive understanding of the quality and quantity of responses due to language barriers saw the adapting of behaviours to interpret verbal and nonverbal cues along with their task expectations. The students in Australia exhibited the most intercultural awareness in third case study. With no common language, increased attempts were made to accurately interpret and perceive intercultural communication messages and proactively seek a more accurate translation tool. The students in Australia attempted to relate to their international group members and adapt their communication to suit them. Considering perspectives evolved in the students through reflecting on their intercultural experiences; the authentic learning environment fostering intercultural awareness through the intercultural communications.

Question 1.3

The third sub-question explored:

What intercultural sensitivity competences are exhibited?

The dimension of intercultural sensitivity signifies the student's readiness to appreciate and understand cultural differences in intercultural communication (G. Chen & Starosta, 1998). The measurement of intercultural sensitivity is culture-general and includes attributes such as open-mindedness, self-monitoring, empathy, interaction confidence, interaction enjoyment, interaction engagement and attentiveness (G. Chen & Starosta, 2000). The more interculturally sensitive a person is, the more interculturally competent that person can be (J. Bennett, 1993; G. Chen, 1997; G. Chen & Starosta, 1998). Key themes that emerged from the cross-case analysis associating with the dimension of intercultural sensitivity were communication, behaviour, task expectations, cultural differences, attitude, translation, technology and responsiveness. Communication and task expectations were common key themes across two case studies; cultural differences key themes across three case studies. When reflected against the intercultural understanding general capability in the Australian curriculum, evidence showed the students in Australia exhibited four sub elements of intercultural understanding at Level 4 on the learning continuum; the expectation they would be typically achieving by the end of Year 6. The

supporting evidence highlighted their growth of intercultural sensitivity against the sub elements as a result of participating in the international, intercultural collaborations.

The coordination and consideration of perspectives emerged as the students in Australia proactively sought their international group members' ideas and perceptions; the importance of exploring these different perspectives leading to a deeper and more sustained exploration of issues that arose during the intercultural communications. Students exhibited open-mindedness during the intercultural communications; the second case study showed an increase in confidence in the students in Australia, evident in the rise in questioning employed to enhance their understanding of their international group members' culture. Perseverance in interpreting their international group members communications demonstrated an emerging readiness to understand cultural differences.

Introductory communications established connections where commonalities were sought, maintaining these throughout the case studies to understand and relate to each other was significant in the intercultural communication process. Social interaction intertwined through the learning process was important in creating a sound community. Differences in communication were recognised. The students in Australia's intercultural sensitivity developed across the case studies, increasing their awareness that there is no one normal way of doing things. With a common language in the first two case studies, expectations were higher of their international counterparts which required flexibility in changing and coordinating their response through the intercultural encounters.

Language difficulties through the synchronous and asynchronous connections evoked different emotions whereby intercultural sensitivity fluctuated as the students in Australia were challenged. The difference in technological skills in the third case study was more evident which fostered empathy in the students in Australia. They exhibited a sense of care in proactively seeking to support their international group members through guiding the group. Anxiety was noted in the international students at the commencement of each case study which alleviated as they progressed, signifying the safe environment the students in Australia were fostering in the online space.

Question 2

The second research question explored:

To what extent can Web 2.0 tools be used to effectively facilitate collaborative projects online with students in upper primary from different countries?

Key themes that emerged from the cross-case analysis associated with the use of Web 2.0 tools to facilitate the collaborative projects online were: technology to collaborate, problems with technology, enjoyment, Google translate issues, technology skills and web tools as a collaboration

space. Technology to collaborate and problems with technology were common themes across the case studies with the school in Spain. The case study with the school in Thailand saw different key themes emerge, although, the key theme of web tools as a collaboration space drew similar responses to the technology to collaborate key theme. The Web 2.0 tools used in this research study were the suite of Google applications: Google Classroom, Google Docs and Google Slides as well as online translation tools, Google Translate and Bing Translate.

Technology enabled the students to collaborate dynamically at the same time in applications, through synchronous and asynchronous connections. The students could construct knowledge through interaction and exploration; authentic learning environments developing their ICCs with students from other countries and cultures. Whilst the Web 2.0 tools of Google applications enabled collaboration and communication internationally and interculturally, reflection and adaptation to the communications and collaborations needed to be addressed to promote consistency in quality and quantity as well as collaboration skills when completing the learning task. Google Classroom enabled social presence and different communication methods such as text, photos, tables and charts; the chat feature significant in the collaborations. This feature identified each group member's contributions, assisting the students and the teachers in knowing who had contributed what as well as promoting accountability of each group member. The synchronous connection of Google Hangouts fostered strong feelings of social connectedness through the dynamic nature of instantaneous feedback and the opportunity to mimic in-person introductions with verbal and non-verbal cues. The Web 2.0 tools used through the Google suite of apps enabled the students to work in a safe environment, significant in the privacy required when working with students in primary school. The platform provided a safe space for the students to develop their digital citizenship skills, the online translation tool enabled the students to communicate interculturally regardless of language. Increase to the consistency, quality and quantity of student responses as well as collaborative skills, requires reflection and improvement.

Structural characteristics of the ICT in the schools saw internet connectivity as an issue for some of the students in Australia, dependent on the device they were using. Access to IT specialist staff supported these students in remediating problems as they occurred. The cultural characteristics of ICT in the schools was evident through the enjoyment in using digital technology to communicate and collaborate interculturally; the potential impact of the learning approach recognised through their sustained motivation and engagement. The students' openness to educational innovativeness was noted through their candidness to adapt and be flexible through the collaborations, which increased across each case study. The difference in technological skills in the third case study could have posed a barrier to the intercultural communication. However, the quick uptake of skills by the students in Thailand supported the flow of communication increasing.

Overarching research question

The overarching research question for this research study was:

Do upper primary students in Australia exhibit ICC development through participation in an online international collaborative project using Web 2.0 tools?

The results from the cross-case analysis indicated the collaborations the students in Australia participated in, interculturally with students from another country, enhanced their ICC development. Intercultural adroitness (behaviour), in all three instances, demonstrated the most importance proportionally in relative rank order followed by intercultural awareness (cognitive) and intercultural sensitivity (affective). All three case studies demonstrated the same order of proportional relative importance in their outcomes. When reflected against the intercultural understanding general capability in the Australian curriculum, evidence showed the students in Australia exhibited between three and four sub elements of intercultural understanding at Level 4 on the learning continuum for each ICC dimension; the expectation they would be typically achieving Level 4 by the end of Year 6. The supporting evidence highlighted their growth of ICCs against the sub elements as a result of participating in the international, intercultural collaborations. The authentic learning environment online enabled the students to genuinely develop their ICC skills and competences in a real context through experiential learning. The structural and cultural characteristics of the ICT in the schools enabled the international, intercultural collaborations to occur.

Implications

This research study contributed new perspectives to the development of ICCs with a younger group of students, these students being in upper primary school. As discussed previously, the study identified a gap in the research in terms of the age of students and should therefore be considered preliminary exploration because further research is required to provide a comprehensive analysis of the effectiveness of its findings. A series of research initiatives to investigate key findings across a diverse range of contexts with a greater number of participants would likely reveal the potential for generalisability. The findings from this study could be used by educators, policy makers and other researchers in the field of ICC and intercultural communication in adapting curriculum opportunities to develop global competences in upper primary students.

Implications for policy

Globalisation and our increasingly interconnected world, evident in the current times of COVID-19 where schooling has flipped classrooms around the world into online learning spaces, sees the implications for the continual updating of policy arise in line with these rapid changes. The updated Declaration on Educational Goals for Young Australians (Education Council, 2019),

international assessments of global competence (Organisation for Economic Co-operation and Development, 2019a) and bodies such as the International Society for Technology in Education with their Student Standards (International Society for Technology in Education, 2016) recognise the need to develop global competences in students due to the complex and global interdependencies in our world. Further, Australia continues to increase its multiculturalism through immigration; intercultural communication competence in the local community and in our schools becoming more prevalent. Continued research in developing primary school students' ICC through international, intercultural collaborative projects and the updating of policies in line with this evidence is required and is a logical development.

Implications for practice

This research demonstrates how intercultural communication competence could be developed with students in upper primary using Web 2.0 tools to facilitate the intercultural communications and collaborations. The collaboration was highly facilitated by the Web 2.0 tools; without these tools the flow, flexibility and dynamic interactions could not have taken place internationally and interculturally. Web 2.0 technology is the key in its ease and seamless use. Students of this age are quick to pick up digital skills through their curiosity seeing its seamless use. Without these digital skills, online collaborative projects would not be possible. The cognitive load of computer literacy required in using these tools sees a more effective integration with the curriculum and teaching of content than has been possible in the past. The tools used to collaborate interculturally must be language independent software where the language of students involved is supported.

Implications for practice sees the structural and cultural characteristics of ICT in schools analysed and considered during the initial planning stages of an international, intercultural collaborative project facilitated online. These characteristics play a significant part in the success of the collaboration online. Further, given the age of the students, privacy and parental permission is paramount with the use of Web 2.0 tools. As an educator, consideration in how you might target barriers of intercultural communication such as ethnocentrism, prejudice and stereotyping, or the tendency to evaluate should be undertaken prior to the collaboration with participating teachers in both countries/cultures to ensure a common approach is utilised and appropriate for both cultures. These barriers provide valuable teachable moments that should be addressed as they occur to promote positive growth in global competences. Further, given the positive correlations between intercultural sensitivity and the overall intercultural competence of a person, focus on developing this dimension could be incorporated into the learning task and reflected on through targeted reflective questioning in a self-reflection journal, utilised throughout the collaborative process.

Whilst the case studies developed the students in Australia's ICCs to different extents, online collaborations across multiple projects with diverse cultures are suggested to support them

in reaching more critical, sophisticated and complex levels of ICC in the long run. The inclusion of reflective questions to seek critical interpretations through journaling is suggested to enrichen the experience along with targeted teachable moments in relation to negative behaviours stemming from intercultural communication barriers that arise during the collaborations.

Other implications

The findings from this research study have added to knowledge of what ICCs develop through communicating internationally and interculturally on learning tasks using Web 2.0 tools with a younger group of students. The perspective of the findings were from students in upper primary school in Australia. Further recommendations are as follows. Proficiency in a common language supports the intercultural interactions occurring; although the use of an accurate translation tool can be employed. Should a translation tool be utilised, the learning task should be considered in how it will foster collaboration and communication through a variety of means (text, visuals, photos, et cetera). Although learning tasks are only one aspect of the dynamic interactions that can occur, consideration of how the authentic learning environment can develop global competences and foster 21st Century skills of critical and creative thinking as well as collaboration can enhance the learning experience beyond the possibilities in the curriculum, enriching the experience.

Time differences and academic calendars can disrupt the flow of the intercultural communication and collaboration. Weekly time commitments should be established prior with commitment to more than one session per week. Further, the length of the collaboration should be considered in order to allow students the opportunity to establish and maintain connections with their group members and participate in more sophisticated and complex experiences of cultural difference. How the synchronous or asynchronous connections might occur should also be discussed prior to the collaboration with multiple practice runs implemented by the teachers internationally and students within their classes, cohorts or through programs such as Mystery Skype where the tasks are predominantly one-off experiences to grow skills.

Limitations and generalisability

This research study has a number of limitations. It was limited to one upper primary school class in Australia with a selection of six student's perspectives for each case study. The characteristics of the schools involved in the research study may have limited the research findings in regard to their cultural diversity, gender and social economic status. The school in Australia had a high socio-economic status; the school in Spain a medium socio-economic status and the school in Thailand a low socio-economic status. This may have affected the data to a certain extent. The school in Australia was also single gender which may have affected the data in how girls respond to ICC in comparison to boys. Cultural diversity in the school in Spain and Thailand was limited to students directly from those respective countries going back three

generations with the exception of one student from Germany in the school in Spain. The school in Australia had some students whose parents or grandparents had been born overseas; their family's culture evident in some of their values and traditions. The absence or presence of particular cultures may also have influenced the expression of intercultural communication in the data. Another limitation of the study was the absence of a validated tool that could be used as a baseline to measure the students' ICC development. Recommendation for the development of a quantitative tool that can be used with this age group is included in the Future Research section of this chapter.

The researcher's role within the study was to author the qualitative study as well as teach the students at the school in Australia as their classroom teacher, where the setting of the collaboration occurred for these participants. The researcher's role within the study was to facilitate the learning task with the students in her class and allow them to construct their own findings through the intercultural communication, rather than teach them how to communicate interculturally online to ensure the results were fair and reliable. The students' comfort in having a connection with the teacher researcher may have affected the data to a certain extent in their self-reflections. Through critical analysis of the qualitative data, contradictions in their responses were identified and noted in the case studies. Educators responsibility as professionals in their field is to continually evolve and strengthen their practice in line with changing times and circumstances (Kemmis, 2010). A limitation may have been The Hawthorne Effect whereby the students change their behaviour as they are aware they are being studied or when a small group is isolated from the rest of the class for the purpose of research, likely skewing results by feeling chosen (Shuttleworth, 2009). To eliminate bias during the study, all of the students in the class participated in the collaboration and completed the questionnaires and self-reflections as part of the process. This also sees a limitation in the lack of comparison between a control group, although, this would have required the inclusion of a quantitative assessment tool for comparison and method of research (Deardorff, 2015). The researcher facilitated the data collection; every attempt was made to verify interpretations with both the participating students and teachers through member-checking and conversations to maintain the integrity of the emic data.

People from different cultures have different behavioural patterns as whilst Asians (e.g. Malaysians) practice mostly the collectivist communicative and cultural norms, Western Europe practices individualistic communicative and cultural norms (Hei, Ling, & David, 2011). Most of the available literature on communication was conducted in Western parts of the world, in the Western context of communication. Even when Western people assess communication amongst other people, their analysis and conclusions are based on their own communicative and cultural norms (Kim, 2007, 2012). Therefore, the results from this study in a Western context of communication may not answer questions from a different cultural context point of view. This research study was small scale. As a result, its findings should not be generalisable to the wider

population of students in Australia. Instead, it sought to develop an understanding of how students could use Web 2.0 tools to develop their ICC by collaborating interculturally with students from another country, that could be modified in similar contexts.

Further research

This research study could be used as a basis for further research. First, this study could be replicated in other Australian schools where cultural backgrounds are more diverse. As a result of increased international migration, progressively diverse multiculturalism has occurred within schools. To garner a true reflection of how ICCs develop in students in Australia, a diverse range of schools should be involved. Further, co-educational perspectives should be considered. Second, leading on from the first point, this study could be used as a basis of future comparative studies in comparing the degree of diversity, presence of particular cultural groups and social economic status. Third, longitudinal studies could be undertaken with the creation, validation and implementation of an ICC assessment tool for the younger age group, identifying the influence international intercultural collaborations have in developing students in Australia's ICC. Longer online collaborations across multiple authentic learning experiences may support participants in reaching more critical, sophisticated and complex levels of ICC.

Fourth, this study could be replicated in classrooms in other non-Western countries with adaptations to cater for the structural and cultural characteristics of the schools. This would investigate the development of ICC in this age group in a non-Western culture. Fifth, an analysis of how authentic learning environments and task influence the development of ICCs in primary school students in Australia seeking methods to improve student collaboration and the flow of this over the project. Sixth, the inclusion of different cultures from different countries could see an analysis and comparison of the three dimensions of ICC emerging through collaborations, investigating why differences may occur and what influences these.

Seventh, incorporating different methods to delve deeper into participants' insights could enhance understanding from their perspective. These might include self-reflection journals with questions that seek critical interpretation and one-on-one semi-structured interviews to explore themes that emerge in greater detail. Additionally, observational notes on non-verbal behaviours during synchronous sessions would enhance the understanding of students' intercultural communication. Eighth, an investigation into how the structural and cultural characteristics of ICT in primary schools influences the development of ICC in their students through online collaborative projects could be undertaken to refine how these authentic learning experiences are planned for and conducted. Comparison across countries and cultures with different socio-economic status could be undertaken to improve current offerings using this evidence. Ninth, an investigation into influence and differences synchronous and asynchronous Web 2.0 tools have on the development of ICCs in upper primary students, including the use of asynchronous video

communication to explore the use of verbal and non-verbal means of communication interculturally.

Conclusions

Students of the 21ˢᵗ Century live in a diverse and rapidly changing interconnected world. With daily intercultural interactions on the rise in Australia and increasing opportunities to collaborate internationally, developing global competences are imperative for students to thrive. Assessing and evaluating ICC is about evolving a life-long competence that translates authentically into the real world. This research set out investigate what ICCs develop in upper primary school students in Australia by participating in online international, intercultural collaborative projects facilitated by Web 2.0 tools. This study found that all three dimensions of ICC were exhibited in the upper primary-aged students in Australia by participating in the case studies. When mapped against the intercultural understanding general capability in the Australian Curriculum, supporting evidence aligned with the sub elements of Level 4 on the learning continuum, typically where students are achieving by the end of Year 6. The significance of the research outcomes are the results that demonstrate an increase of ICCs in younger students of upper primary school age by participating in online international, intercultural collaborations. These opportunities foster authentic learning experiences for students to develop their intercultural understanding. The international and intercultural nature of the research whilst using social technologies as the platform to grow these competences determines how younger students' ICCs can be developed. This new knowledge changes the way curriculum and policy can be adapted to align with globalisation and foster real opportunities for students to develop global competences. Teachers must expand learning opportunities to a new generation of cybercitizens where global conversations can be reimagined. Policy can advance the bigger picture in developing global competences in our students by implementing its importance in overarching educational policies that drive change in all sectors. It is critical that we continue to pursue research on how we can develop ICCs in students from a young age, through authentic learning experiences, as globalisation rapidly increases. Elements of the students' growth in this study could not have been authentically achieved in the traditional classroom setting without the intercultural communications. Schools as small scale societies are ideal communities in which to develop students' global competences and foster positive intercultural relations through local and international collaborative projects using Web 2.0 technologies.

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APPENDICES

Appendix A: Intercultural Understanding - Australian Curriculum

Intercultural Understanding learning continuum

Sub-element	Level 1 — Typically, by the end of Foundation Year, students:	Level 2 — Typically, by the end of Year 2, students:	Level 3 — Typically, by the end of Year 4, students:	Level 4 — Typically, by the end of Year 6, students:	Level 5 — Typically, by the end of Year 8, students:	Level 6 — Typically, by the end of Year 10, students:
Recognising culture and developing respect element						
Investigate culture and cultural identity	share ideas about self and belonging with peers	identify and describe the various groups to which they belong and the ways people act and communicate within them	identify and describe variability within and across cultural groups	identify and describe the roles that culture and language play in shaping group and national identities	explain ways that cultural groups and identities change over time and in different contexts	analyse how membership of local, regional, national and international groups shapes identities including their own
Explore and compare cultural knowledge, beliefs and practices	identify, explore and compare culturally diverse activities and objects	describe and compare the way they live with people in other places or times	describe and compare a range of cultural stories, events and artefacts	describe and compare the knowledge, beliefs and practices of various cultural groups in relation to a specific time, event or custom	analyse the dynamic nature of cultural knowledge, beliefs and practices in a range of personal, social and historical contexts	critically analyse the complex and dynamic nature of knowledge, beliefs and practices in a wide range of contexts over time
Develop respect for cultural diversity	discuss ideas about cultural diversity in local contexts	describe ways that diversity presents opportunities for new experiences and understandings	identify and discuss the significance of a range of cultural events, artefacts or stories recognised in the school, community or nation	discuss opportunities that cultural diversity offers within Australia and the Asia-Pacific region	understand the importance of maintaining and celebrating cultural traditions for the development of personal, group and national identities	understand the importance of mutual respect in promoting cultural exchange and collaboration in an interconnected world
Interacting and empathising with others element						
Communicate across cultures	recognise that people use different languages to communicate	describe how the use of words and body language in interactions may have different meanings for various cultural groups	recognise there are similarities and differences in the ways people communicate, both within and across cultural groups	identify factors that contribute to understanding in intercultural communication and discuss some strategies to avoid misunderstanding	explore ways that culture shapes the use of language in a wide range of contexts	analyse the complex relationship between language, thought and context to understand and enhance communication
Consider and develop multiple perspectives	express their opinions and listen to the opinions of others in given situations	express their own perspectives on familiar topics and texts, and identify the perspectives of others	identify and describe shared perspectives within and across various cultural groups	explain perspectives that differ to expand their understanding of an issue	assess diverse perspectives and the assumptions on which they are based	present a balanced view on issues where conflicting views cannot easily be resolved
Empathise with others	imagine and describe their own feelings if they were put in someone else's place	imagine and describe the feelings of others in familiar situations	imagine and describe the feelings of others in a range of contexts	imagine and describe the situations of others in local, national and global contexts	imagine and describe the feelings and motivations of people in challenging situations	recognise the effect that empathising with others has on their own feelings, motivations and actions

Australian Curriculum Assessment and Reporting Authority. (2015). *Intercultural Understanding*. Retrieved from http://www.australiancurriculum.edu.au/generalcapabilities/intercultural-understanding/introduction/introduction

Intercultural Understanding learning continuum

Sub-element	Level 1 Typically, by the end of Foundation Year, students:	Level 2 Typically, by the end of Year 2, students:	Level 3 Typically, by the end of Year 4, students:	Level 4 Typically, by the end of Year 6, students:	Level 5 Typically, by the end of Year 8, students:	Level 6 Typically, by the end of Year 10, students:
Reflecting on intercultural experiences and taking responsibility element						
Reflect on intercultural experiences	identify and describe memorable intercultural experiences	identify and describe what they have learnt about others from intercultural encounters and culturally diverse texts	identify and describe what they have learnt about themselves and others from real, virtual and vicarious intercultural experiences	explain what and how they have learnt from a wide range of intercultural interactions and experiences	reflect critically on the representation of various cultural groups in texts and the media and how they respond	reflect critically on the effect of intercultural experiences on their own attitudes and beliefs and those of others
Challenge stereotypes and prejudices	identify examples of the acceptance and inclusion of others in given situations	discuss the effects of acceptance and inclusion in familiar situations	explain the dangers of making generalisations about individuals and groups	explain the impact of stereotypes and prejudices on individuals and groups within Australia	identify and challenge stereotypes and prejudices in the representation of group, national and regional identities	critique the use of stereotypes and prejudices in texts and issues concerning specific cultural groups at national, regional and global levels
Mediate cultural difference	identify similarities and differences between themselves and their peers	recognise that cultural differences may affect understanding between people	identify ways of reaching understanding between culturally diverse groups	discuss ways of reconciling differing cultural values and perspectives in addressing common concerns	identify and address challenging issues in ways that respect cultural diversity and the right of all to be heard	recognise the challenges and benefits of living and working in a culturally diverse society and the role that cultural mediation plays in learning to live together

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Appendix B: Specific Learning Design Principles

The 10 specific learning design principles of the authentic learning experience (J. Herrington et al., 2004, pp. 6-7) were used to design the experiences in this research study.

1. *Authentic activities require real world relevance* – the authentic activities in this research study were the dynamic online environments whereby students could collaborate interculturally to complete learning tasks. The focus is not on the learning tasks which were part of their school curriculum but the authentic experience in communicating interculturally in order to complete the task as a group from which ICC could develop in an agile, authentic environment rather than being taught directly, out-of-context, in the classroom.

2. *Authentic activities are ill-defined, requiring students to define the tasks and subtasks needed to complete the activity* – students involved in the intercultural and international collaboration had to communicate with their group members in order to successfully complete the task together.

3. *Authentic activities comprise of complex tasks to be investigated by students over a sustained period of time* – a range of tasks were set for the students to investigate, solve and explore in order for intercultural communication to occur over a sustained period of time to discover what intercultural communication competences emerged.

4. *Authentic activities provide the opportunity for students to examine that task from different perspectives, using a variety of resources* – the focus of this research study was to communicate interculturally to collaborate and complete the learning task. The online connection to communicate with their international and intercultural group members fostered an authentic environment to develop their intercultural communication competences whereby the students had to be agile, flexible in their thinking to address similarities and differences, and communicate interculturally exploring different perspectives (behaviours, skills and attitudes) each student had.

5. *Authentic activities provide the opportunity to collaborate* – the intercultural online collaborations provided real-world opportunities to develop their intercultural communication skills in an authentic learning environment rather than learning about the competences through teacher-directed activities in the classroom.

6. *Authentic activities provide the opportunity to reflect* – the sustained timeframe of the collaborations provided time for the students to reflect on their individual contributions and social interactions with their group members. Questionnaires on conclusion of each case study provided further time for reflection, prior to the next case study commencing.

7. *Authentic activities can be integrated and applied across different subject areas and lead beyond domain-specific outcomes* – the authentic activity in communicating interculturally to complete a learning task with students from another country and culture not only developed their intercultural understanding but stemmed into learning areas from the tasks as well as the general capabilities of critical and creative thinking, interpersonal skills and ICT capabilities.

8. *Authentic activities are seamlessly integrated with assessment* – the authentic learning environment to foster the development of intercultural communication competences in students assesses the emergence of these competences through their intercultural interactions online during each collaboration. This reflected real-world assessment through self-reflection questionnaires to consider their effectiveness in completing the

task collaboratively which required a certain degree of successful intercultural communication.

9. *Authentic activities create polished products valuable on their own right rather than as preparation for something else* – hereby lies difficulty in that the process of intercultural competence development, is a state of permanent change and can never be fully achieved in an individual (Deardorff, 2006). The activities of intercultural communication continue to culminate but do not result in a whole product.

10. *Authentic activities allow competing solutions and diversity of outcomes* – the authentic activity of communicating interculturally with students from another country and culture provided real contexts that fostered diversity and competing solutions as they progressed through the process of collaborating on learning tasks. Should they not have completed a learning activity together that required collaboration interculturally and focused on superficial fact exchanges instead, or, alternatively, learnt how to develop their ICCs in their classroom out of context, the authenticity would be lacking.

Appendix C: Participation – Parent of student U18 letter of invitation

Edith Cowan University

Data collection (PARENTS - Students under 18)
Information Sheet

Research Title: Impact of collaboration through Web 2.0 technologies in the primary school classroom on intercultural communication competence.

Dear Parent/Parents,

My name is Rebecca Duyckers. I am currently undertaking my PhD study through Edith Cowan University, Perth, Western Australia.

May I kindly seek your consent for your child to participate in my study exploring the impact of collaboration through Web 2.0 technologies in the primary school classroom on intercultural communication competence? The study aims to explore student's development in intercultural communication competence after collaborating with students from a different culture to complete academic learning tasks. It also seeks identify the effectiveness of Web 2.0 tools to collaborate when students speak different languages.

As part of this study your child will undertake a questionnaire before completing learning tasks with students from a different country using Google Docs. The communication your child makes in the online feed will be collected as qualitative data in addition to written journal responses he/she writes reflecting on the process. On completion of the study your child will undertake the same questionnaire. Your child may also be selected to be interviewed in a focus group which will take place at their school. The discussions will be audio recorded and are expected to take approximately 30-45 minutes.

All the responses will remain strictly confidential, only the researcher and her supervisors will have access to the responses. The information will not be used to identify individuals or groups, other than for the purpose of addressing the focus of this study. Your child will not be identified in any of the reports or publications associated with the study. This study has been approved by the Human Research Ethics Committee from Edith Cowan University.

Your child's participation is purely voluntary and may withdraw from the study at any time.

The discussions will be conducted at your child's school, will be audio recorded and is expected to take approximately 45-60 minutes.

Please contact me or my research supervisors, Dr Martin Cooper on ▓▓▓▓▓▓▓▓▓▓and Dr Jeremy Pagram on ▓▓▓▓▓▓▓▓▓ you have any questions regarding this study.

If you wish to speak with an independent person about the conduct of this study, please contact Ms Kim Gifkins, the Senior Research Ethics Advisor for the University on ▓▓▓▓▓▓▓▓▓

Thank you for your valuable time.

Kind regards,

Rebecca Duyckers
PhD student
Edith Cowan University, 2 Bradford Street, Mount Lawley 6050 WA, AUSTRALIA ▓▓▓▓▓

Centre Name Web: www.ecu.edu.au Phone: 134 ECU (134 328)

Informed Consent Form (PARENTS – Students under 18)

Research Title: Impact of collaboration through Web 2.0 technologies in the primary school classroom on intercultural communication competence.

Researcher: Rebecca Duyckers (PhD student)

I, (Mr/Mrs) ……………………………………………………………………………… parent of student ……………………………………………………………………………………………………have read the included information sheet and been informed about all aspects of this study. I am happy to give my consent for my child to participate in the study, complete the questionnaires, and be involved in a focus group interview, which will be conducted in the school. I agree for the focus group interview to be audio recorded on the understanding that this is for verification purposes and will not be used for any other purposes. I agree that journal responses and my child's communication with other students through Google Docs can be used as qualitative data for this study. I understand participation is voluntary and that my child may withdraw from the study at any time. I understand that the study has been approved by the ECU Human Research Ethics Committee.

I agree that the research data gathered for this study may be published provided my child is not identifiable in any of the reports that are produced.

Signed …………………………………………………………….. Date …………………………………

School………………………………………………………………………………………………………

Appendix D: Cover letter transcribed by Spanish teachers

Benvolgudes famílies,

Ens adrecem a vosaltres per comunicar-vos que estem posant en marxa un treball col.laboratiu amb una escola de

Els alumnes de 6è de l'escola treballaran per grups d'alumnes de la mateixa edat de l'escola Treballaran junts alguns aspectes de l'assignatura de Naturals, comunicant-se en anglès a través de les eines Google.

Pensem que aquest projecte incorpora els principals pilars del projecte educatiu de l'escola: L'ús de l'anglès com a llengua vehicular, el treball cooperatiu, l'ús de les eines tecnològiques que faciliten la comunicació i la cooperació i l'interès per altres cultures mitjançant una activitat d'investigació científica.

Per això ens agradaria molt que donéssiu la vostra autorització per poder portar a terme el projecte amb la totalitat dels alumnes i transmetéssiu vosaltres també la rellevància del projecte als vostres fills i filles.

Rebecca Duyckers, tutora del grup d'alumnes amb el qual posarem en marxa aquest projecte, a més, està realitzant una Tesis Doctoral a la Edith Cowan University, sobre l'impacte que té la col.laboració entre alumnes de Primària a través de tecnologies Web 2.0, en la competència de Comunicació Intercultural dels nens i nenes. És per aquest motiu que s'adreça a vosaltres per informar-vos del seu treball de recerca i per demanar-vos la vostra autorització per a poder dur a terme aquest projecte amb la participació del vostre fill/a.

Al correu que us adreça comenta que el seu estudi, a part d'analitzar com es desenvolupa la competència de Comunicació Intercultural dels alumnes, també pretén analitzar l'eficiència de les eines Web 2.0 a l'hora de fer un projecte de col.laboració entre alumnes de llengües maternes diferents. Per a poder realitzar aquesta investigació es demanarà al vostre fill/a que contesti un qüestionari tant abans com després de realitzar l'activitat de col.laboració. És possible, també, que el vostre fill/a sigui seleccionat per participar en una conversa guiada de grup sobre un tema proposat. Aquesta conversa, que tindrà una durada d'entre 45 i 60 minuts, es realitzarà des de l'escola i l'audio en serà enregistrat. És per això que necessitem el vostre consentiment.

Tota la informació relacionada amb el projecte serà tractada de forma confidencial i només la persona encarregada de la recerca i els seus responsables hi tindran accés. La

informació dels alumnes serà utilitzada única i exclusivament per a propòsits relacionats amb aquest estudi. El vostre fill/a no apareixerà identificat amb cap dels informes o publicacions associats amb l'estudi.

La realització d'aquest estudi ha estat aprovada pel Human Research Ethics Committee de Edith Cowan University.

Al final de la carta de la Rebecca D. trobareu els noms, telèfons i adreces de correu electrònic dels responsables de l'estudi que realitzarà per si voleu contactar amb ells per demanar més informació.

L'autorització que heu de firmar és en anglès. A continuació, però, en teniu la traducció per aquells que la necessiteu:

Títol de la recerca: *L'impacte que té la col.laboració entre els alumnes de Primària a través de tecnologies web 2.0 en la Competència de Comunicació Intercultural.*

Responsable de la Recerca: *Rebecca Duyckers (estudiant de Doctorat)*

Jo, (Sr./Sra) ………………………………………………………. pare/mare/tutor de l'alumne/a …………………………..., després d'haver llegit el full informatiu adjunt i estar informat/da dels diferents aspectes d'aquest treball de recerca, dono el meu consentiment perquè el meu fill/a participi a l'estudi, empleni els qüestionaris i pugui participar a la conversa guiada de grup sobre un tema proposat, que es durà a terme a l'escola. Estic d'acord en que l'audio d'aquesta conversa sigui enregistrat i utilitzat única i exclusivament com a mostra dels aspectes investigats en el treball de recerca. Dono el meu consentiment també perquè els escrits i la comunicació entre el meu fill/a i altres alumnes a través de Google Docs pugui ser utilitzat com a informació qualitativa de l'estudi. Sóc conscient de que la participació a l'estudi és voluntària i que el meu fill/a pot deixar de participar-hi, si així ho desitjo, en qualsevol moment. Sóc coneixedor/a de que aquest estudi ha estat aprovat per l' ECU Human Research Ethics Committee.

Estic d'acord en que la informació recollida durant aquest estudi pugui ser publicada sempre i quan el meu fill/a no aparegui identificat en cap dels informes que es facin.

Signat ……………………………………………………….. Data………………………..

Escola …………………………………………………………………………………………

Appendix E: Letter of invitation – Principal permission

School Principal
School Name
Address
Country

Date

Subject: Seeking permission to collect research data from your school

Dear Principal (insert name),

I am undergoing my PhD study at Edith Cowan University, Perth, Western Australia. As part of my study titled, "Impact of collaboration through Web 2.0 technologies in the primary school classroom on intercultural communication competence", I wish to collect data from the Year 6 teachers at (insert school name) towards preparations for my final thesis.

For your information, my research seeks to explore the development of intercultural communication competence students acquire when collaborating with students from a different culture using Web 2.0 tools. The study aims to explore and understand in depth, the key dimensions of intercultural communication competence (cognitive, affective and behavioural abilities) students develop when collaborating with students from a different culture using Web 2.0 tools. It also seeks to identify the effectiveness of Web 2.0 tools when students from two different countries, with two different languages collaborate to complete learning tasks.

Google Docs is a free web-based application where documents can be created, edited by a group of people and stored online. Files can be accessed from any computer or mobile device with an internet connection and a web browser (such as a phone or iPad). Edits and contributions by each group member can be identified for each document. Google Docs is an example of Web 2.0 technologies because it facilitates interaction, real-time content creation and collaboration between Internet users.

It is expected that the findings from this study will be used to write my thesis and associated publications. Neither your school, teachers, or students will be identifiable in any of these reports or publications.

I seek your approval to allow me to collect data, both quantitative and qualitative from the Year 6 students and their teachers. Quantitative data collected would be a pre-test and post-test questionnaire students complete prior to commencing and at the end of the study. Qualitative data includes student communication feeds in the web tools, student written journal reflections, student focus group interviews, teacher observation notes and teacher semi-structured interviews. Interviews with students (30-45 mins) and teachers (45-60 mins) will be conducted on conclusion of the data collection and take place at school. This data will be collected in such a way that there are no undue disturbances to normal teaching activities. I intend to collect my data in one academic year, 2016.

I wish to mention here that my study has been approved by the Human Research Ethics Committee from my University and I will follow due procedures for the conduct of this study with strict adherence to the Research Ethics. Further details on my study and Research Ethics can be obtained by contacting my supervisors, Dr Martin Cooper on ▆▆▆▆▆▆▆▆ or Dr Jeremy Pagram on ▆▆▆▆▆▆▆▆ or Ms Kim Gifkins the Senior Research Ethics Advisor for the University on ▆▆▆▆▆▆▆▆

A copy of research instruments and other necessary information are attached here for your information and reference.

Kind regards,

Rebecca Duyckers
PhD student
Edith Cowan University
2 Bradford Street, Mount Lawley 6050 WA, AUSTRALIA

Appendix F: Letter of invitation – Teacher permission

Edith Cowan University

Data Collection (TEACHERS)
Information Sheet
Research Title: Impact of collaboration through Web 2.0 technologies in the primary school classroom on intercultural communication competence.

Dear Sir/Madam,

My name is Rebecca Duyckers. I am currently undertaking my PhD study through Edith Cowan University, Perth, Western Australia.

May I kindly seek your participation in my study exploring the impact of collaboration through Web 2.0 technologies in the primary school classroom on intercultural communication competence? The study aims to explore student's development in intercultural communication competence after collaborating with students from a different culture to complete academic learning tasks. It also seeks identify the effectiveness of Web 2.0 tools to collaborate when students speak different languages.

Google Docs is a free web-based application where documents can be created, edited by a group of people and stored online. Files can be accessed from any computer or mobile device with an internet connection and a web browser (such as a phone or iPad). Edits and contributions by each group member can be identified for each document. Google Docs is an example of Web 2.0 technologies because it facilitates interaction, real-time content creation and collaboration between Internet users.

As part of the study students will complete learning tasks with students from another country. Your role as a teacher is to give students a questionnaire to complete, take observational notes during the collaborative process and provide time for students to write reflections on the process in a journal throughout the time period. On conclusion of the study students will complete the questionnaire again. A semi-structured interview will take place between you and the researcher at a time of convenience for you, at your school. The interview will be audio recorded and is expected to take 45-60 minutes.

All the responses will remain strictly confidential, only the research and her supervisors will have access to the responses. Neither yourself, your school, or your students will be identifiable in any of the reports or publications associated with the study. This study has been approved by the Human Research Ethics Committee from Edith Cowan University.

Your participation is purely voluntary and you may withdraw from the study at any time.

Please contact me or my research supervisors, Dr Martin Cooper on _____ or Dr Jeremy Pagram on _____ if you have any questions regarding this study.

If you wish to speak with an independent person about the conduct of this study, please contact Ms Kim Gifkins, the Senior Research Ethics Advisor for the University on _____

Thank you for your valuable time.

Kind regards,

Rebecca Duyckers - PhD student
Edith Cowan University, 2 Bradford Street, Mount Lawley 6050 WA, AUSTRALIA _____

Informed Consent Form (TEACHERS)

Research Title: Impact of collaboration through Web 2.0 technologies in the primary school classroom on intercultural communication competence.

Researcher: Rebecca Duyckers (PhD student)

I ……………………………………………………………………………………… have read the included information sheet and been informed about all aspects of this study. I am happy to participate in the study which will be conducted in my school. I agree for qualitative data I record observing students to be used for the purposes of the study. I am happy to be involved in a semi-structured interview which will be conducted in my school. I agree for the interview to be audio recorded on the understanding that this is for verification purposes and will not be used for any other purposes. I understand participation is voluntary and that I may withdraw from the study at any time. I understand that the study has been approved by the ECU Human Research Ethics Committee.

I agree that the research data gathered for this study may be published provided I am not identifiable in any of the reports that are produced.

Signed ……………………………………………………………. Date …………………………………

School……

Appendix G: Student post-collaboration questionnaire questions

1. How did you approach the communication aspect to collaborate and complete your learning task?
2. When communicating with your group members from another country, did you experience any difficulties? What were these difficulties?
3. What did you notice during the collaboration between your group members when communicating?
4. Was your group effective in communicating to complete your learning task?
5. Were there any misunderstandings within your group? Explain.
6. Did you notice any cultural differences when communicating with your group members from another country?
7. What were they?
8. How did you react to these cultural differences?
9. What differences with students from the other country did you notice when collaborating to complete your learning task?
10. How does technology help you to complete your collaborative task with students from the other country?
11. Did you experience any difficulties with technology? Explain.
12. If you were to use this way of learning again with students from another country using web tools, what could be improved?

Appendix H: Student post-Google Hangouts session reflection questions

1. Please reflect on the Google Hangouts session and answer the following questions.
2. After collaborating with your group members through Google Classroom where you have spoken through messages written in text, how did you find the Google Hangouts session?
3. What did you notice during the Google Hangouts session?
4. How did you approach any difficulties that you faced during your Google Hangouts session?
5. What was different about this type of communication through Google Hangouts in contrast with the communication you have through Google Classroom?
6. What were the positives about the Google Hangout session with your group members in Spain?
7. Did you notice any cultural differences when communicating with them? If so, please explain.
8. What do you believe is the purpose of the collaborative task with students from a different country using technology?
9. What do you believe you have gained following the Google Hangouts session?
10. What situations do you think this would help you in?

Appendix I: Teacher post-collaboration questionnaire questions

1. What is your role in the study?
2. What student behaviours have you observed throughout the collaborative process online?
3. When have you observed these behaviours?
4. Has there been a noticeable change in behaviour when the students communicate with the students from another culture to collaborate during the study?
5. Are students demonstrating a degree of comfort when interacting with students from a different culture online? Explain how?
6. Are students engaged in the communicative collaboration to complete their learning task online? How?
7. Have the students faced difficulties with communication when collaborating online? What were these difficulties?
8. Did the students persevere when faced with difficulties? What did they do to work through any difficulties?
9. To what degree has students sought knowledge of other cultural orientations to further increase their intercultural communication competence?
10. What perceived benefit have you observed in the students during or after the study?
11. Do you have any other observations to add?

Appendix J: Example of Australian researcher's journal

Being the second collaboration with the same school but a different cohort, the students in Australia are facing similar challenges at the beginning of the collaboration where their group members in Spain are finding their feet in a new style of collaboration through the online format and communicating with students who they don't know and have not seen. Whilst this is the second collaboration in this manner for the students in Australia, it is the first for the students in Spain. (Cohort 2). It is interesting to note the similarity of the ~~~~~~~ students in Australia's behaviours in the beginning stages in comparison to the first collaboration.

Appendix K: Case study one - Group journal example

Appendix L: Case study one - Group task sheet example

Task Sheet - Group 1

Statement: Light can pass through any material.

Group Members:

Documents each group will have on Google Drive:
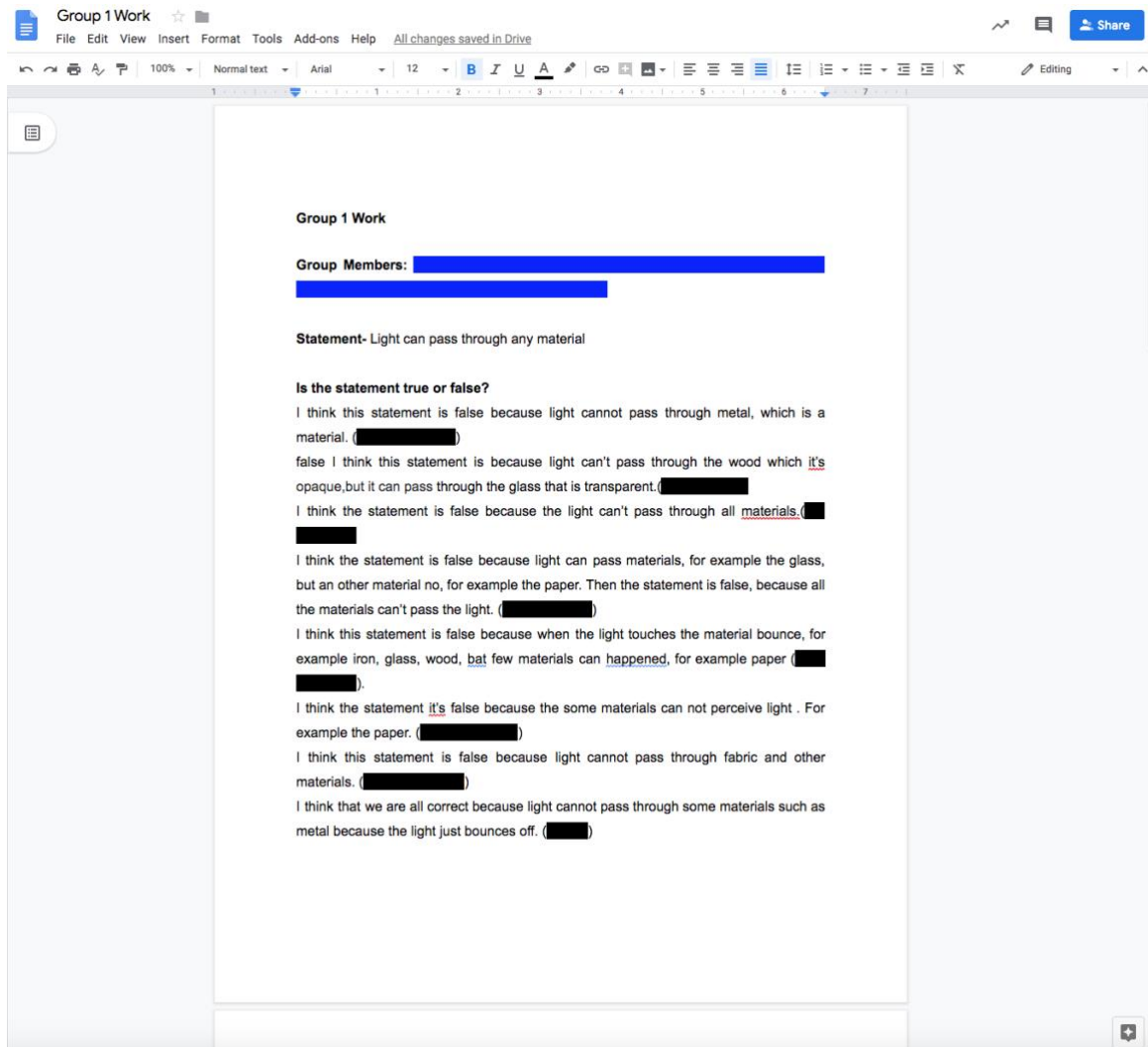
- Group Journal
- Task Sheet (this sheet)
- Group work (where the tasks below are completed)
- Google Presentation (using slides)

For each task below, please use a heading in your *Group Work* document.

Task:

1. Write a paragraph to introduce yourself in your *Group Journal*.

2. Read through the statement above about light.

3. Do you think this statement is True or False? In your *Group Work* Google doc write your response to the statement and explain why. (Each group member must write their response. what will be your group's hypothesis.

4. In your *Group Work* doc identifier:

   * the keywords in your statement or question;

   * what you know about the topic; and

   * what you need to know.

1. Look for information and think of an experiment to demonstrate your hypothesis. Discussion between group members on this will be through a section with the heading 'Research' where you will share information and links to websites, videos, etc.

2. Make the experiment and record it (film it). (This will be completed by the part of your group in Spain and the part of your group in Australia so there will be two recordings of your experiment). You can edit the video using the Youtube tools.

3. Create a group *Google Presentation* (4-5) slides where we can find the initial statement, your hypothesis and the experimental activity.

Appendix M: Case study one – Group work example

Group 1 Work

Group Members: ████████████████████████
████████████████████

Statement- Light can pass through any material

Is the statement true or false?

I think this statement is false because light cannot pass through metal, which is a material. (████████)

false I think this statement is because light can't pass through the wood which it's opaque,but it can pass through the glass that is transparent.(████████)

I think the statement is false because the light can't pass through all materials.(████████)

I think the statement is false because light can pass materials, for example the glass, but an other material no, for example the paper. Then the statement is false, because all the materials can't pass the light. (████████)

I think this statement is false because when the light touches the material bounce, for example iron, glass, wood, bat few materials can happened, for example paper (████████).

I think the statement it's false because the some materials can not perceive light . For example the paper. (████████)

I think this statement is false because light cannot pass through fabric and other materials. (████████)

I think that we are all correct because light cannot pass through some materials such as metal because the light just bounces off. (████████)

Appendix N: Case study two – Group journal example

Group 1 - Group Journal

File   Edit   View   Insert   Format   Tools   Add-ons   Help

What are the limits/controls of the task? (Problems we might face)

- The alarm does not make any noise ▮▮▮▮▮
- That we will not have enough pieces to construct it. ▮▮▮▮▮
- The alarm won't be able to sense things. ▮▮▮▮▮
- We don't have any detector and because this we complicated:Marti Serra(25/10/2016)
- It's too difficult to be able to make a burglar alarm, you must know a lot of technology. ▮▮▮▮▮
- It's probably that the alarm does not work. ▮▮▮▮▮
- Is probably to do not work the alarm because the detector is very important for the alarm works, do not sew much technology .We don't not have necessary materials . ▮▮▮▮▮
- It's difficult to make alarm because, you must know a lot of technology and any peces to construct it. ▮▮▮▮▮

What questions do we have?
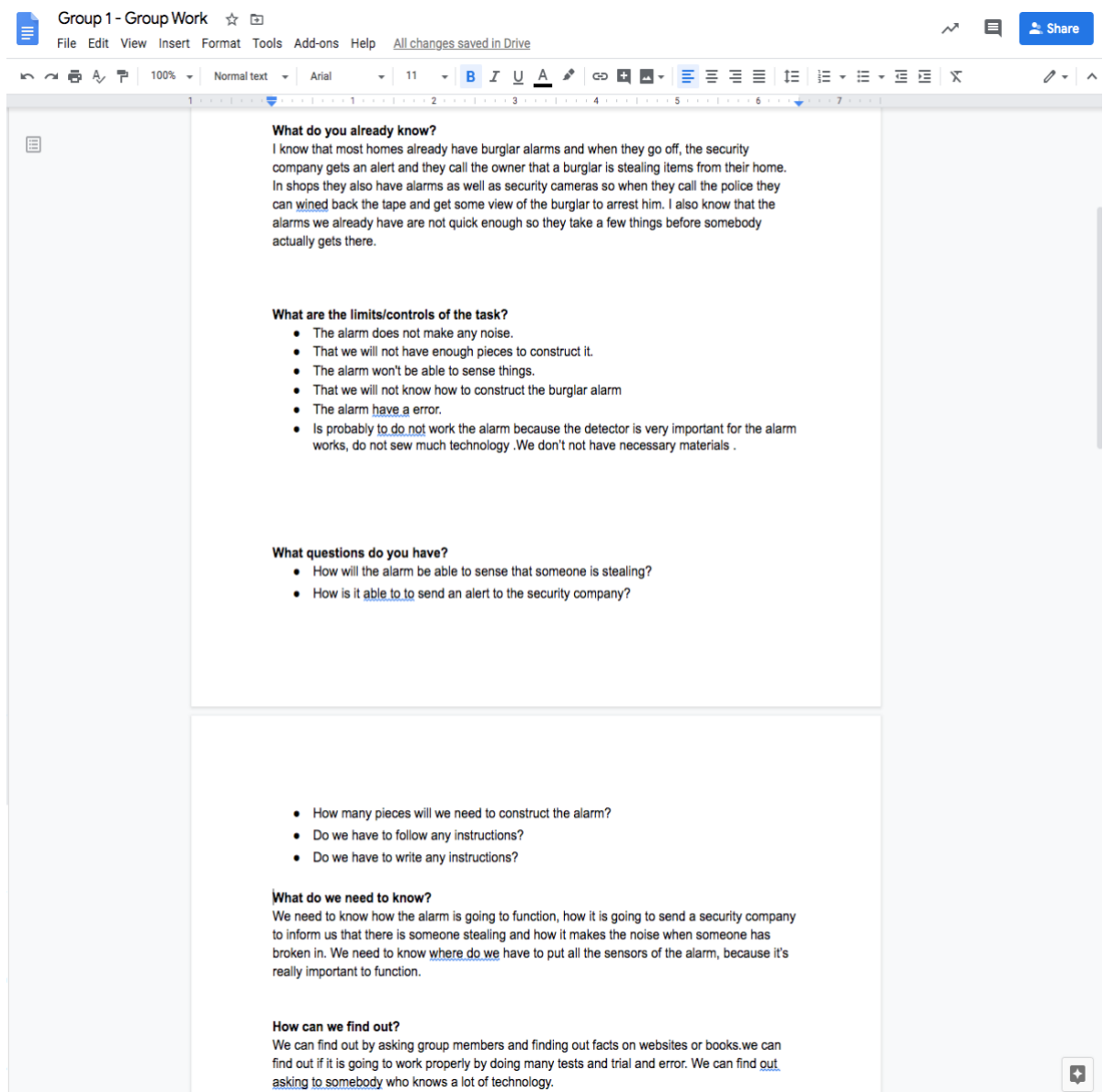
How will the alarm be able to sense that someone is stealing? ▮▮▮▮▮
How will the alarm know when to make the noises? ▮▮▮▮▮
How do we know how to construct the alarm? ▮▮▮▮▮
Do we follow any instructions? ▮▮▮▮▮
How is it able to to send an alert to the security company? ▮▮▮▮▮
How many pieces will we need to construct the alarm? ▮▮▮▮▮
I am really agree with you, I don't know how to construct or how will the alarm noise?
Do we have to write the instructions for the security? ▮▮▮▮▮

With wich batery will go? ▮▮▮▮▮
Will not be difficult? Which material could we use? ▮▮▮▮▮
With wich batery will go? ▮▮▮▮▮
How many peaces I need to construct the alarm? ▮▮▮▮▮
What is the detector necessary ? ▮▮▮▮▮

What do we need to know?

We need to know how the alarm is going to function, how it is going to send a security company to inform us that there is someone stealing and how it makes the noises when someone has broken in. ▮▮▮▮▮
We need to know that we have all the right materials to use and how it is going to function properly ▮▮▮▮▮
We need to know how to put the sensors in the alarm. ▮▮▮▮▮
We need to know how to draw an alarm circuit ▮▮▮▮▮
We need to know where do we have to put all the sensors in the house, because it's really important to function correctly the alarm. ▮▮▮▮▮
Whe have know that the alarms go with time when the door opens whe had a time to desconect ▮▮▮▮▮

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Appendix O: Case study two – Group work Google doc

What do you already know?

I know that most homes already have burglar alarms and when they go off, the security company gets an alert and they call the owner that a burglar is stealing items from their home. In shops they also have alarms as well as security cameras so when they call the police they can wined back the tape and get some view of the burglar to arrest him. I also know that the alarms we already have are not quick enough so they take a few things before somebody actually gets there.

What are the limits/controls of the task?

- The alarm does not make any noise.
- That we will not have enough pieces to construct it.
- The alarm won't be able to sense things.
- That we will not know how to construct the burglar alarm
- The alarm have a error.
- Is probably to do not work the alarm because the detector is very important for the alarm works, do not sew much technology .We don't not have necessary materials .

What questions do you have?

- How will the alarm be able to sense that someone is stealing?
- How is it able to to send an alert to the security company?

- How many pieces will we need to construct the alarm?
- Do we have to follow any instructions?
- Do we have to write any instructions?

What do we need to know?

We need to know how the alarm is going to function, how it is going to send a security company to inform us that there is someone stealing and how it makes the noise when someone has broken in. We need to know where do we have to put all the sensors of the alarm, because it's really important to function.

How can we find out?

We can find out by asking group members and finding out facts on websites or books.we can find out if it is going to work properly by doing many tests and trial and error. We can find out asking to somebody who knows a lot of technology.

Appendix P: Case study three – Scientific investigation

Science investigation - collaborative project with students in Thailand

The learning task students will complete follows the scientific investigation process and involves the students communicating with each other, encouraging intercultural communication, understanding and developing their technology skills. Students will use Google docs and include photos, as well as the English and Thai translation for each piece of writing. It will also involve mathematical skills through the measurement of the vegetable's width and height, recording this information into a data table in the Google doc. This data will also be used to create a graph using 'Sheets' within the Google suite. The subject matter explored through the growth of vegetables in two different countries with different climates and geographical location addresses both the Science and Geography curriculum in terms of plant growth, soil type, weather conditions, geographical location and vegetation in the surrounding areas.

Students at both schools will work through a science investigation. The process will allow the students in Thailand to be exposed to a variety of English words in the context of a scientific investigation including subject specific terminology. The use of photos and having both English and Thai versions of each written response next to each other will enhance the Thai student's understanding of the written representation of the English version of words.

Communication via email with ▮▮▮ will allow ▮▮▮ and ▮▮▮ to adapt the task as we progress through to provide more/less scaffolding, slow down or speed up the task, etc. This will be used as qualitative data, too. ▮▮▮ will confer with her teaching team prior to our communication.

This process will provide the teachers in Thailand who are involved in teaching the students with Professional Development through the exposure and accumulation of new digital technology skills and participation in a global learning task which contains multiple facets. The teachers will be provided with any support they need by ▮▮▮ to allow them to grow professionally and implement new learnings directly into their teaching.

Science investigation: (translate underneath for students in Thailand)
We are going to plant some different vegetable seeds and monitor their growth over a couple of months. We will observe how fast the seeds grow and record how high, how wide and how fast they grow. We will also record the weather conditions each week and what the soil is like.

We will take photos of the seeds growing each week and write what we see. (observational notes)

We will see each country's seeds and how they grow in different environments.

I wonder which country will be able to grow their vegetables faster?

Parts of the scientific investigation to create in shared Google doc

Introductions and communications with group members
Hypothesis curation
Variables
Equipment
What seeds we will plant (chilli plants, carrots, spring onions, cabbages)
Photos of planting location
Photos of you planting the seeds
Describe the soil that you are planting your seeds in. Include a photo to show what it looks like.
What is the weather like on the day you are planting your seeds? (Include the day, date)
What seed is your group investigating the growth of?
Data collection in table (Day/date/weather/growth(height)/growth(width). Any other observations? Photos section.
Colour code each section of the table. Green for school in Australia; aqua for school in Thailand
Collection of data over 7 weeks - communicate with teacher to discuss progress
Using the data, create graphs to demonstrate the seeds growth in height and width over the investigation
Explain what the data is portraying in the graph - what happened? Why do you think this happened?
Use the information in your table to discuss the outcomes evident in the graph.
Was your original hypothesis correct?
How could you improve the investigation?
What are some questions stemming from this investigation that you could further explore?

Appendix Q: Example used to demonstrate with Thai students

Science
วิทยาศาสตร์

We are going to plant some different vegetable seeds and monitor their growth over a couple of months. We will observe how fast the seeds grow and record how high, how wide and how fast they grow. We will also record the weather conditions each week and what the soil is like.

พวกเราจะไป ปลูก เมล็ดพันธุ์ผัก บางอย่าง ที่แตกต่างกัน และตรวจสอบ การเจริญเติบโต ของพวก เขา ในช่วงสองสาม เดือน เราจะ สังเกตเห็น วิธีการที่รวดเร็ว เมล็ด เติบโตและ บันทึก ว่าสูง วิธี กว้างและ วิธีการที่รวดเร็ว พวกเขาเติบโต นอกจากนี้เรายัง จะบันทึก สภาพอากาศ ในแต่ละ สัปดาห์ และสิ่งที่ ดิน เป็นเหมือน

We will take photos of the seeds growing each week and write what we see. (observational notes)

เราจะ ถ่ายภาพของ เมล็ดพันธุ์ที่ เจริญเติบโตในแต่ละ สัปดาห์ และเขียน สิ่งที่เราเห็น (บันทึก การสังเกต)

We will see each country's seeds and how they grow in the different environments.
เราจะเห็น เมล็ด ของแต่ละประเทศ และวิธีการที่ พวกเขาเติบโต ในสภาพแวดล้อม ที่แตกต่างกัน

I wonder which country will be able to grow their vegetables faster?

ผมสงสัยว่า ประเทศที่ จะสามารถที่จะ ปลูกผัก ของพวกเขา ได้เร็วขึ้น?

In your group each school (████████████████ will come up with a hypothesis and record the variables that we will keep the same.

ในกลุ่มของคุณ แต่ละโรงเรียน (████████████████) จะเกิดขึ้นกับ สมมติฐาน และบันทึก ตัวแปร ที่ เราจะเก็บไว้ เหมือนกัน

First, you will see your group members below with a photo and their name.
Do you have any questions you would like to ask them?

ครั้งแรกที่คุณ จะได้เห็น สมาชิกในกลุ่ม ของคุณด้านล่าง ที่มี ภาพและ ชื่อของพวกเขา
คุณมี คำถาม ใด ๆ ที่คุณ อยากจะถาม พวกเขา?

Group Members (Photos and Names)	สมาชิกกลุ่ม (รูปถ่าย และชื่อ)

Communication to get to know your group members:
การสื่อสาร จะได้รับรู้ สมาชิกในกลุ่ม ของคุณ :

████████

เพิร์ธ วิทยาลัย

Our hypothesis is:
สมมติฐาน ของเราคือ :

If I change the location I grow my vegetables in to Perth, Australia then the vegetables will grow slower/faster because ......

ถ้าผม เปลี่ยนตำแหน่ง ที่ผม ปลูกผัก ของฉันใน เพิร์ธ ประเทศออสเตรเลีย แล้ว ผัก จะเติบโต ช้า / เร็วขึ้นเพราะ ......

████ School