'Free rein' to learn about language, culture & technology: a multimodal digital text exchange project between school students in Australia and Japan

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Abstract

As part of an Australia-Japan Foundation project, school students in Australia and Japan created and exchanged multimodal digital texts (MDTs) in order to learn language through authentic communicative practice, raise intercultural capability, and develop 21st century skills and digital literacies. Analysis of teacher and student interview and focus group data using the 4-domain SPeCT (Structures, Practices, Capabilities, and Technologies) model derived from earlier cross-cultural multimodal digital text exchange research revealed that, notwithstanding certain challenges relating to Structures, Capabilities, and Technologies, teachers and students were overwhelmingly positive about the project, whose relatively free nature was seen as fostering learning. The perceived benefits were largely in the domains of Practices and Capabilities: in the former, these related to choice and autonomy, personalisation and inclusivity, and collaboration and peer learning; in the latter, they related to practising language, learning about one's own and others' cultures, and developing 21st century skills and digital literacies. This suggests that within the wider field of telecollaboration and COIL (collaborative online international learning), there is merit in young learners being given some 'free rein', or autonomy, in creating and exchanging MDTs.

Keywords: Multimodal digital text exchanges, digital storytelling, telecollaboration, COIL, autonomy, inclusivity, collaboration, SPeCT

Introduction

Purpose and scope of the study

Digital technologies can assist teachers in transforming student learning (Magana, 2017; Puentedura, 2011). In language learning, there is a growing body of research on the use of digital technologies (Chapelle & Sauro, 2017; Farr & Murray, 2016), notably focusing on telecollaboration and COIL (collaborative online international learning) or VE (virtual exchange) (Helm et al., 2020). Within this broad context, the aim of this 2016-2017 Australia-Japan project was to support middle school teachers in designing projects centred on the creation and exchange of MDTs to support their students' foreign language learning and intercultural capability alongside 21st century skills and digital literacies. The 4-domain SPeCT (Structures, Practices, Capabilities, and Technologies) model (Oakley et al., 2018) was employed to guide the design of the MDT exchanges and as a framework for the study.

As explained below, at the time of the study there was evidence that language education needed improvement (Kirkpatrick & Liddicoat, 2017; Mayfield, 2017). In both Australia and Japan there was a need to investigate ways to support teachers from diverse contexts to build innovative pedagogical practices that would allow their students to interact and collaborate meaningfully. Because teachers in an earlier Australia-China study (Oakley et al., 2018) had found detailed instructions and prescription regarding implementation of digital exchanges difficult due to contextual differences, it was decided in the Australia-Japan project to allow collaborating teachers to co-design their own exchanges, customised to their needs and contexts, with the assistance of university partners.

The SPeCT model is briefly described in this paper but see Oakley et al. (2018) for a fuller description. Structures refers to elements such as institutional policies and regulations, curriculum, and school calendars and timetables. Practices are teachers' pedagogical practices as well as students' practices in their interactions. Capabilities are student and teacher competence levels in language, intercultural skills and technology use, and Technologies refers to the available hardware, software and connectivity. This model prompts teachers as designers of MDT exchange projects to consider how commonalities and differences within the four domains may enhance or inhibit success.

Background to the study

In both Australia and Japan, foreign language learning in schools has not been afforded priority and school graduates are often not proficient in languages learned (Kirkpatrick & Liddicoat, 2017; Mayfield, 2017). In Western Australia, where the Australian side of the project took place, the School Curriculum and Standards Authority (SCSA, 2014a) has stipulated that, where possible, schools should provide at least one foreign language option

from the Foundation Year (5-year-olds) to Year 10 (15-year-olds). Languages education aims to enable:

> "all students to communicate proficiently in a language other than English by providing students with essential communication skills in that language, an intercultural capability, and an understanding of the role of language and culture in human communication" (SCSA, 2014b).

Of particular relevance to this study, comprehension and communication of information using multimodal texts is also part of the Languages curriculum in Australia. Furthermore, both Information and Communication Technologies (ICTs) and Intercultural Understanding are part of the set of "General Capabilities" in the Australian Curriculum (SCSA, 2014c). (NB: Although 'intercultural competence' and 'intercultural literacy' are commonly used in the literature, the term 'intercultural capability' is employed here with reference to its use in the Australian Curriculum and Languages syllabus).

There was a shifting policy landscape in Japan at the time of the study. While foreign language education has been compulsory for senior high school students since 1989 and for junior high school students since 1999, English language education only became compulsory in primary school Grades 5 and 6 in 2011, with plans to include Grades 3 and 4 starting in 2020 (Nemoto, 2018; Sawa, 2020). The curriculum in Japan aims to "develop communicative ability, a positive attitude toward foreign languages, and a deeper understanding of culture" (Underwood & Glasgow, 2018, p. 151). There has been a push to move away from traditional grammar-translation teaching towards project-based learning with English as the medium of instruction (Kirkpatrick & Liddicoat, 2017; Yamada & Maswana, 2019). However, to prepare students for high stakes entrance exams, teachers still use the grammar-translation method (Underwood & Glasgow, 2018), and motivating students to learn English is difficult (Yamada & Maswana, 2019). Regarding ICTs, the Ministry of Education, Culture, Sports, Science and Technology's (MEXT's) Second Basic Plan for Education aims to develop students' independence, collaboration and creativity (MEXT, 2013).

Significance and need for the study

This study provides insights into designing innovative MDT exchange projects for language learning, intercultural understanding, and 21st century skills and digital literacies acquisition in diverse contexts which vary in terms of Structures, Practices, Capabilities and Technologies. This has become even more important since the COVID pandemic, since travel to foreign countries by groups of school students has become more difficult.

Literature review

This literature review briefly describes research informing the study, with the key conceptual areas being: approaches to foreign language teaching; technology and language learning; multimodal digital text creation and exchange; and the SPeCT model for designing and evaluating digital text exchanges.

Current approaches to foreign language teaching

Contemporary foreign language pedagogies promote interaction, preferably in authentic contexts, to enhance learning and motivation. Communicative Language Teaching (CLT) (Rodgers & Richards, 2001), which aims to build competence in communication, has long been the dominant approach in Australia (Lo Bianco & Slaughter, 2009) and, as outlined above, a focus on communicative ability has been proposed in Japan. Globally, the communicative approach is now increasingly complemented by sociolinguistic and sociocultural approaches, encompassing for example social constructivist, situated and intercultural communicative competence approaches, with growing emphasis on multimodality, translanguaging and students' development of voice, agency and identity (Pegrum, 2019).

Technology and language learning

Digital technologies can support a range of language teaching approaches, from traditional didactic to contemporary communicative and sociocultural approaches (Chun et al., 2016; Hockly, 2016). In recent years a strong focus has emerged on 21st century skills – such as critical thinking, collaboration, and creativity and innovation (Mishra & Kereluik, 2011; P21, 2019) – intertwined with the digital literacies to operationalise them in online and blended environments (Dudeney et al., 2013; Pegrum et al., 2018). These literacies can be developed in myriad ways, including through students' creation and exchange of MDTs.

Such digital text exchanges constitute one option for telecollaboration, which involves collaboration between geographically dispersed learners for the purpose of developing language competence, intercultural competence and/or digital literacies (Barbosa & Ferreira-Lopes, 2021; Helm & Guth, 2016; O'Dowd, 2006). It can be viewed as a subset of COIL or VE, dovetailing with internationalisation-at-home strategies (Helm, 2019; Helm et al., 2020). In line with contemporary sociocultural considerations, telecollaboration projects should be seen "not so much as exchanges between representatives of monolithic languages and cultures but as platforms for the co-construction of understandings across contexts" (Pegrum, 2019, p. 264), where students develop autonomy, voice, and agency as they exchange personal perspectives through creative multimodal texts and jointly build understandings with peers abroad.

However, telecollaboration can present organisational, pedagogical, digital and attitudinal challenges (O'Dowd, 2015), which may contribute to failed communication and negative cross-cultural experiences (O'Dowd & Ritter, 2006; Ware, 2017).

Benefits of multimodal digital text creation and exchange

Creating MDTs is similar to digital storytelling (DS) in that multiple modes of meaning, such as writing, images and audio are combined within a digital text. The key difference is that MDTs may not conform to a narrative structure but may, for example, recount an event, describe a place or simply convey information.

Because of considerable overlap between MDT creation and DS – with the latter effectively being a subset of the former – the benefits of DS are outlined here as this area has been well researched. Although the term 'digital storytelling' is not always used consistently in the literature, one definition is: "the art and craft of exploring different media and software applications to communicate stories in new and powerful ways" (McLellan, 2007, p. 66). Key elements often include the use of the first person to express a point of view, a dramatic question, and emotional content and pacing to draw in an audience (Lambert, 2013). DS texts may be collaboratively written and/or shared with audiences digitally. When used for educational purposes, DS is generally underpinned by constructivist learning theory (Smeda et al., 2014).

The educational benefits of DS in language and literacy education, including foreign language learning, are many (Anderson et al., 2018; Buendgens-Kosten, 2021). Importantly, it allows students to use multiple communicative modes such as writing, speaking, and visuals (Ohler, 2013) to construct and convey meaning. This can be liberating for those who struggle to express themselves in the written mode alone (Dzekoe, 2017) and, indeed, multimodal knowledge representation and communication is now increasingly prevalent due to the availability and affordances of digital technologies (Álvarez Valencia, 2016).

DS has been found to enhance student engagement, foster collaboration, and improve learning outcomes in literacy (Smeda et al., 2014). More specifically, the creation of digital stories can improve oral language production (Razmi et al., 2014), English language achievement in listening, reading and writing (Yang & Wu, 2012), multimodal literacies (Eubanks et al., 2018), and more generic 21st century skills such as critical thinking (Yang & Wu, 2012). There are many studies indicating that DS can enhance students' foreign language achievement, both in primary schools (Del-Moral-Pérez et al., 2019) and secondary schools (Castañeda, 2013).

Creativity also comes to the fore; a Taiwanese study of 6th Grade students found their learning and motivation improved when the pedagogical approach allowed them to be creative rather than following prescribed, structured formats (K.-P. Liu et al., 2018). When

digital stories are used in international exchanges, viewing peers' stories may be especially motivating as students develop intercultural understanding and empathy (Heathfield, 2017; Stewart & Gachago, 2016). Even where there is no intercultural exchange, it has been found that DS can be used as a means for encouraging students to reflect deeply on their own and other cultures, enhancing intercultural awareness (Ribeiro, 2016).

Furthermore, it has been found that DS can support students' explorations of voice and agency (Stewart & Ivala, 2017). Staley and Freeman (2017) found that the creation of digital stories, using a student-centred pedagogical approach, can change the power dynamics between the teacher and the student, supporting student engagement, voice, identity and empowerment. This is important in contexts such as foreign language teaching, where students may be difficult to engage. Also of relevance is Deci and Ryan's (1985) self-determination theory; according to Dörnyei et al. (2014), self-determined behaviour is more likely if a learning task supports autonomy, competence, and relatedness, i.e., a sense of connection with others. Given that many students find language learning anxiety-provoking (Zhou, 2016), DS and DS exchanges can be inclusive if students contribute at their own level of competence, for authentic communicative purposes.

In another study, Kim and Xing (2019) found that through the application of a pedagogy of multiliteracies, language teachers were able to design learning activities that situated the students' learning in authentic cultural practices, as well as helping them harness multiple channels of meaning making – such practices can help students become multiliterate, or able to design texts that incorporate multiple modes of meaning, and do this in a way that acknowledges multiple cultural practices. A pedagogy of multiliteracies (Cope & Kalantzis, 2015) describes learning activity types or knowledge processes that teachers can deploy in designing learning, namely: experiencing; conceptualising; critical analysing; and applying. These knowledge processes are further referred to in the discussion section of this paper.

In terms of student perspectives, a Malaysian study found that Year 5 students viewed the creation of digital stories positively as a means of improving their skills in speaking, listening, reading and writing, with vocabulary learning being emphasised (Leong & Abidin, 2018). A Japanese study of university students found that the majority of students provided positive responses about the potential of DS to help them learn English, although challenges like the time commitment and technical difficulties were raised (Kasami, 2018). Regarding teacher perspectives, a study of an Australian-Chinese DS exchange project concluded that teachers were predominantly positive about their students' active, collaborative, technology-supported intercultural learning, though they highlighted several significant challenges (Oakley et al., 2018).

The SPeCT Model

Emerging from previous research on international exchanges of MDTs, the SPeCT model (the central 'e' was added in the naming of the model in the current research project to represent the word 'exchange' and to facilitate pronunciation; see Figure 1) suggests that when designing and evaluating digital text exchanges, educators should consider the four domains of Structures, Practices, Capabilities and Technologies (Oakley et al., 2018), aiming for appropriate alignment between partner schools. That is, partner schools should consider issues such as timetables (Structures) and digital tools (Technologies) available in planning exchanges; if the variations are too large, challenges arising may be insurmountable.

Although originally developed as a result of digital text exchanges between middle school students in Australia and China, the SPeCT model, as reviewed in Oakley et al., (2018), can be applied to contexts other than schools. Its key advantage is in helping educators identify potential enablers of and barriers to project success through encouraging the analysis of commonalities and differences within the four interdependent domains for the partner schools or classrooms, thereby supporting project design that is fit for purpose

Fig. 1 SPeCT model
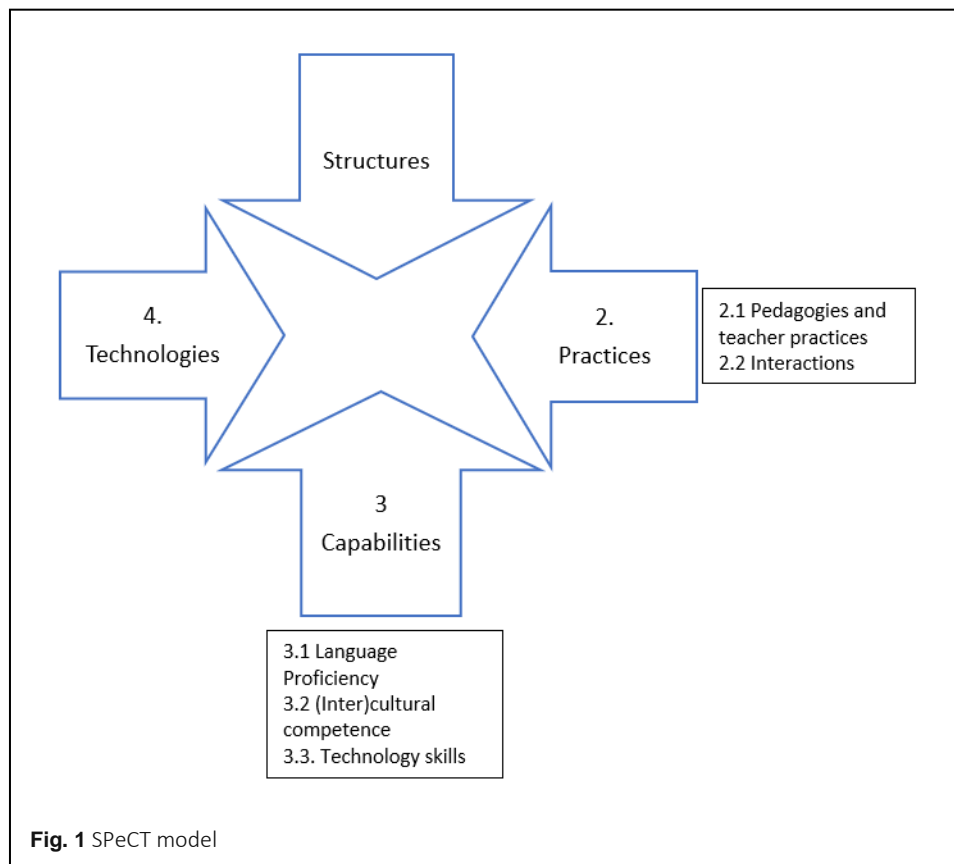
in each specific context. A disadvantage is that it needs to be further elaborated so that teachers who do not have university based co-designers can more easily use it.

The conceptual framing for this study positions the student as a creator or designer of multimodal digital texts for the authentic purpose of sharing with an audience. The teacher is positioned as a designer of learning activities, who should consider Structures, Practices, Capabilities and Technologies in each partner country.

Methodology

The research questions for this study were:

1. What are the commonalities and differences in Structures, Practices, Capabilities and Technologies that support or hinder MDT exchanges between schools in Australia and Japan?

2. What do participants see as the benefits of MDT exchanges that are customised to the context?

The study employed a multiple case study design (Creswell, 2013), with each case comprising a school in Australia and a partnered school or schools in Japan (see Table 1). The multiple or collective case study design was deemed suitable because it allowed each case to be studied holistically, and because comparing the individual cases within a collection can "lead to better understanding, and perhaps better theorizing, about a still larger collection of cases" (Stake, 2005, p. 446).

Table 1 Participating schools, students & teachers

Case	School name & location	Student level	Student ages	No. of students	Language teacher
1	School 1A (Australia) Western Australia	Secondary	14-15	13	Teacher 1A (5+ years' experience)
	School 1J (Japan) Shikoku	Secondary	16	36	Teacher 1J (5+ years' experience)
2	School 2A (Australia) Western Australia	Secondary	14-15	9	Teacher 2A (early career teacher)
	School 2J-1 (Japan) &	Secondary	17-18	21	Teacher 2J (5+ years' experience)
	School 2J-2 (Japan) Kyushu		15-16	17	
3	School 3A (Australia) Western Australia	Primary	10-12	21	Teacher 3A (5+ years' experience)
	School 3J (Japan) Kyushu	Primary	9-12	19	Teacher 3J (5+ years' experience)

Participants

Purposive 'criterion' selection was employed (Cohen et al., 2018). All schools had an appropriate foreign language program (Japanese or English) and teachers were willing to engage in digital text exchanges over the period of a semester to a year. In Case 2, two Japanese schools paired with one Australian school because the English teacher worked in two schools. A fourth Australia-Japan partnership was intended but did not proceed due to logistical reasons. None of the schools had previously been involved in such exchanges.

Data collection

At the end of the project, individual semi-structured interviews were conducted with all participating teachers, while group interviews were conducted with students from each participating Australian school but, for logistical reasons, not the Japanese schools; however, written comments on the student interview questions were obtained from one school in Japan (1J), with some illustrative quotes being included in the Results below. In Australia the teacher interviews were carried out by Skype, and the student interviews were carried out by Skype (A1 and A2) or face-to-face, either by the first author or (in one case) a research assistant. In Japan, the interviews were conducted by the relevant university partners, except for one conducted by the first author because the teacher was a native English speaker (see Table 2). Differences in interview modes were for logistical reasons such as schools' remoteness, participants' languages, and teacher preference. A standard interview schedule was used (see Appendix 1).

Structured around the 4-dimensional SPeCT model developed by Oakley et al. (2018) for the design and analysis of MTD projects for language and cultural exchange, the questions for teachers focused on their observations and perceptions of students' creation and sharing of stories, the hardware and software used, learning and other outcomes, and challenges encountered. While teachers' views were informed by their assessment of students' texts as part of their regular classroom practices the research did not measure

Table 2 Data collection activities for each case

Data collection	Case 1	Case 2	Case 3
Teacher interviews - Australia	Skype interview – Author 1	Skype interview – Author 1	Skype interview – Research assistant
Teacher interviews - Japan	Face to face interview – Author 3	Skype interview – Author 1	Face to face interview – Author 5
Student group interviews - Australia	Australia – Skype interview – Author 1	Australia – Skype interview – Author 1	Australia – Face-to-face interview – Author 1
Student group interviews - Japan	Interview given in written form – Author 3	Not conducted	Not conducted

student achievement, which fell outside the scope of the study. The questions for students in Australia focused on what they enjoyed most, what difficulties they encountered, and what they thought they learned about language, culture, and technology.

Data analysis

The first two authors, who had overseen the project from Australia, carried out thematic analysis of all interviews using a priori codes relating to the SPeCT dimensions, followed by additional inductive analysis using NVivo. A priori codes were the dimensions and sub-dimensions of the SPeCT model, such as Capabilities; Capabilities\Language Proficiency; Practices; Practices\Interactions. Many of the codes that arose through inductive analysis were sub-codes of these a priori codes, such as Practices\Pedagogies and Teacher Practices\Scaffolding. Cross-case analysis (Miles et al., 2014) allowed the identification of commonalities and differences across all cases. (NB: All quotes in this paper are reproduced verbatim, with only minor bracketed additions for clarification. Some were translated from Japanese to English by the authors.)

Ethics

This project was carried out in line with ethics approval granted by the University of Western Australia. All participating teachers and students were provided with information letters and consent forms and informed that participation in the study was voluntary. Letters and forms were translated into Japanese for the participants in Japan.

Implementation of the multimodal digital text exchange project

Each school was supported by university partners in Australia, who had been involved in a previous, more tightly structured Australia-China exchange project (Oakley et al., 2018), or university partners in Japan, who had been informed about this earlier project, the resulting recommendations to plan with the SPeCT model in mind, and a range of suitable apps. Schools then worked with their partner school(s) and a university academic to co-design an MDT exchange procedure customised to their contexts, taking into account Structures such as schedules and timetables and the Technologies available (see Table 3), as well as Capabilities of staff and students and Practices such as preferred pedagogies. Training included the provision of a detailed flowchart for the running of the exchanges and data collection, as well as bespoke professional development and discussion of suitable apps so that teachers could effectively co-design the digital text creation and exchange. No particular text model was prescribed, although Lambert's (2013) notions of storytelling about 'a place in my life', 'an event in my life' and 'things I do' closely align with what was asked of students. Nor was any particular process for creating and exchanging the

Table 3 Key elements of Structures & Technologies

	Case 1		Case 2		Case 3	
	Australia	Japan	Australia	Japan	Australia	Japan
Compulsory or elective language	Elective Japanese	Compulsory English	Elective Japanese	Compulsory English	Elective Japanese	Compulsory English
Time allocated to language (mins per week)	160	135	200	100	50	45
Within class or extra-curricular	Within class	Extra-curricular	Within class	Within class	Within class	Within class
Hardware	BYOD iPads	Class set iPads	BYOD laptops	Class set iPads	Class set iPads	3 iPads loaned by researchers
Sharing mechanism	Vimeo managed by teachers		Google Drive managed by teachers		Email managed by teachers	

MDTs prescribed; as intended, participants in each case co-designed their own processes according to their contexts.

Case 1

School 1A was a large independent K-12 school in a coastal regional town in Western Australia and School 1J was a secondary school in a large town on the smallest of the four major islands in Japan (further details are not included in order to preserve anonymity). The School 1A-1J exchange was highly successful, despite the challenge of a large imbalance in student numbers (see Table 1) and differences in weekly time allocation (see Table 3). Class sets of iPads were used at School 1J within the confines of the school grounds, whereas students at School 1A created materials autonomously on their individually owned iPads. The 1J students used several different apps, introduced by the university partner, to create multimodal texts, which gradually became more linguistically complex (due to the content) and more technologically complex (due to the apps used). Working collaboratively in small groups, the 1J students started off with self-introductions created with *Comic Life 3* (plasq LLC), where they captioned photographs of some of their favourite things, before using *iMovie* (Apple) to turn their digital texts into narrated videos. In their second set of texts, created with the same apps, students provided more details of their school and daily lives, and offered insights into local and national customs. The third set of texts covered pop culture and utilised the two previous apps plus *Tellagami* (Tellagami Labs) (not compatible with more recent versions of iOS) and *Book Creator* (Red Jumper); the fourth concerned daily routines; and the fifth showed local attractions, with this final set utilising seven different apps.

Similar tasks were completed by students at School 1A. By the formal end of the project, the Australian students were completing the fourth task using *Comic Life 3* and *Book Creator*. Because Japanese was an elective subject, the teacher wanted to engage them through the digital exchange to encourage them to re-enrol the following year. The 1A students were already comfortable using their iPads, so the teacher, who was less confident in her own technological knowledge, gave them the autonomy to discover how to use the apps recommended by the Japanese partner school.

In each text exchange, Japanese students received feedback from Australia in English, and gave simple feedback about language and content to their Australian partners in Japanese, on each multimodal text exchange, with teachers assuming a mediating role in distributing materials and translating feedback. For example, the teacher at 1J noted: "If a Japanese high school student made an error in expressing [something], an Australian junior high school student corrected it. Take an example of this: Sheep don't eat glass. They eat grass." The classes subsequently met in a synchronous Skype call, after which the teacher and eight students from Australia visited their partner school in Japan and the places they had been introduced to in the MDTs.

Case 2

School 2A was a medium-sized secondary school in the northern corridors of the major city in Western Australia. Schools 2J-1 and 2J-2, both of a similar size, and one an all-girls school, were located on one of the southern islands of Japan. The partnership between School 2A and Schools 2J-1 and 2J-2 was viewed positively by teachers, although they also faced highly unequal student numbers (see Table 1) and issues with school calendars and timetables. Moreover, School 2A students did not have access to iPads so could not use the same apps as students at Schools 2J-1 and 2J-2 (see Table 3). The Japanese schools worked within regular English class time, mainly using *Comic Life 3* and *iMovie,* to produce digital texts in the form of videos, sending six to the Australian school. These included traditional story retellings and videos of the students role-playing everyday scenarios, as well as explaining some of their favourite things such as food and drink.

At the end of the project, the Japanese schools had received one video of the Australian students singing a Japanese song and a link to a website with self-introduction videos, as well as broad feedback showing appreciation for their digital texts. The Australian students worked on the project in class, using mobile phones for video creation and laptops for posting the videos on their website, where they later also posted a manga-style comic strip created on their laptops using *Comic Life 3.* Unfortunately, because the schools in Japan did not have Wi-Fi in the classrooms, the teacher there had difficulty showing his students the website.

Case 3

Case 3 involved primary schools. School 3A was a small independent school on the outskirts of the major city in Western Australia, while School 3J was a medium-sized school on one of the southern islands of Japan. Case 3 teachers, whilst experiencing challenges associated with different calendars and timetables, as well as limited technology, internet restrictions and no Wi-Fi at the school in Japan, reported that the exchange had been meaningful and inclusive for the students.

School 3J was loaned three iPads, allowing students to use *Book Creator* and *PuppetPals* (Polished Play LLC). The first text was a series of single-page self-introductions composed by children working individually in English, with considerable support from the teacher and university partner. The second text, created by the whole class, showcased the school and aspects of school life students thought would be of interest to their peers in Australia. It consisted of typed sentences in English and Japanese, photographs taken on an iPad, and an audio recording of a simple sentence in English followed by a more in-depth explanation in Japanese. The children in 3J tended to write in Japanese first, then translated their texts into English with the help of their teacher, and finally recorded their narrations and chose their images. In giving feedback to Australian children, 3J children wrote responses on paper and these were typed up or scanned and emailed to Australia by the teacher.

Book Creator was the main app used by the Australian school on class iPads. The first text produced was an introductory video of the students speaking Japanese. Later texts included photographs of Australian native flowers and the school grounds, with students writing captions in Japanese, sometimes in Romaji and sometimes in Hiragana.

Results

The results are described according to the dimensions and subdimensions of the SPeCT model.

Domain 1: Structures

There were commonalities as well as imbalances in Structures. Significantly, commonalities in the curriculum – with both countries favouring a communicative approach to language teaching and attempting to integrate 21st century skills, including ICT skills or digital literacies – proved to be motivating for teachers.

However, the Australian school year commenced in January and the Japanese school year in April, which made it difficult to organise an exchange over a longer period of time. This issue was exacerbated by the research study schedule which commenced in the middle of the year. There were also imbalances in the time allocated each week for language lessons and the time allocated for the digital texts, with one school (1J) needing to conduct the

project outside school hours. It was commented by students in Australia, and teachers in both countries, that they would have liked more time to spend on the exchange.

In addition, English is the main foreign language taught in Japan, whereas in Australia a range of foreign languages are taught, and they are often electives in secondary schools. Class sizes, therefore, were smaller in the Australian schools, leading to a disparity in the number of digital texts sent and received.

Restrictive school policies also affected the exchange. In one school in Japan teachers and students could not access Wi-Fi due to permissions required from the school (an illustration of how Structures can impact the available Technologies). Moreover, in most cases, school rules prevented students venturing outside the school grounds to take photos and videos for their texts due to school rules. Exceptions were School 1A, where students owned iPads; School 1J, where students went on after-hours excursions to take photographs; and School 2A, where some students took photographs outside school with their own mobile phones.

Domain 2: Practices

Domain 2.1. Pedagogies and teacher practices

The implementation of the digital text exchange and the accompanying pedagogical practices varied considerably, but common themes were nonetheless identified. As expected in telecollaboration, a key theme to emerge under this subdimension was incentives to practise language. The nature of the project encouraged students to practise their oral language more, especially their pronunciation, with their target audience in mind. Teacher 1A, for example, said: "They have to record that voice and that means they are practising words so many times", while Teacher 2J noted: "A lot of times they would just wing it and … when I would check it I would say, 'Well this is all wrong!' and then they would have to do it all again". School 2A students reported that they would practise their oral narrations several times, as did School 3A students, with the former indicating that the exchange had also spurred them to learn new words so that they could communicate better with their Japanese peers.

Choice and autonomy also emerged as a key theme, with this concept being mentioned over 20 times in the interviews. In most of the secondary schools and one primary school, students were given considerable freedom to create texts as they pleased, often assisting each other (a point elaborated on further below). For instance, most teachers did not specify to students whether they should write a script or storyboard first, or the process they should use to compose their digital texts, with students able to make these decisions for themselves. Teacher 1A reported: "I showed them a very simple example and then I said, 'Off you go, you're on your own, you can do whatever you like'". Teacher 2J encouraged his students

to do "just what they were comfortable with" whether composing texts in English, or writing in Japanese then translating; he explained: "I would just say, 'This is your theme!' and I would sit down and they knew what to do … what's the word – learner autonomy!" Similarly, Teacher 2A spoke of the importance of giving students "free rein" to create: "I wanted them to push themselves to, like, come up with the ideas".

The school 3A students enjoyed choosing to learn in their own way. One commented: "We had freedom of how we made it … we could learn it kind of how we wanted to learn it, so that made it really fun to learn"; another noted that he "felt a lot more independent and trusted with the iPad"; a third liked the freedom to design multimodal texts and decide "how you customise it … you put what you like in, you put different colours, photos [in]". Although students clearly appreciated their autonomy, they would have liked even more freedom to create footage in a wider variety of places outside school. A 1J student summed up the open ethos of the exchange this way: "Participation in this project was unlike a regular class where we are taught by a teacher; rather, we researched ourselves and came up with our own English to use".

Inclusivity, supported through the personalisation of content promoted by teachers and the personalisation of approaches facilitated by digital technologies, was another theme to emerge under this subdimension. It is worth noting that inclusion in education stems from human rights principles and is embedded in educational policy in many countries (UNESCO, 2015). Teacher 1J stated: "Even students who were not good at communicating enjoyed their activities of our project" and: "Every Japanese student could communicate with Australian students, using an iPad". Teacher 2A found that students of mixed abilities could participate: "it was a really good project for everyone contributing what they could, and sharing strengths, and helping each other in areas that they were weaker with." Teacher 2J observed:

> They could find like their little niche for the comic – those who were good at drawing would do a drawing, for the self-introductions people who are good at English could do that … they all could participate in some way.

Echoing these teacher perspectives, School 3A students found composing digital texts enjoyable because they could "personalise" them.

There were frequent allusions to collaborative and peer learning, which supported students' growing autonomy as well as the inclusivity of the project. Teacher 2A said:

> We also had some of the stronger students helping some of the newer students, because I've got some kids in that class who only started Japanese this year … I had them paired up to help with the pronunciation ... it was really nice to see them work together so collaboratively.

Teacher 1A observed: "There are always a couple of students who are very good at doing things and they are showing the other students some of the tricks". Students were often given autonomy in managing their collaboration, as explained by Teacher 1J: "[S]ome students shared their same roles, while others divided their roles in order to make for a faster progress in the task". It was also noted by primary students at School 3A that the project helped them with their "partner", i.e., collaborative, skills. A 1J student noted: "I enjoyed cooperating with my group members, discussing with them and having fun making the eBooks. I feel I get along better with my peers now than before".

Domain 2.2 Interactions

Despite collaborative interactions within each school, the frequency and quality of the interactions between the students in the two countries caused disappointment. Interactions through exchanging the digital stories were relatively limited because the text creation process took longer than anticipated and there were scheduling issues. Some students and teachers would have liked more synchronous interactions, and more direct student-student interactions not mediated by teachers. Furthermore, the number, type and quality of texts exchanged between schools varied, with reasons ranging from students' linguistic competence levels to the available technologies.

Students' feedback on their peers' digital texts was rather limited. Examples of feedback provided by 3A students were: "I think you should have said a bit more but it was good", and "Well done on your English". Teacher 1A observed that the feedback "was very, very broad, like 'the way you do things is different from ours'", and Teacher 2J noted: "[T]hey just said that they enjoyed it". Teacher 3A suggested that because of low levels of student linguistic capability, it was difficult to provide feedback, and Teacher 1A indicated that students were unsure as to what kind of feedback they should give. While sometimes students did provide error correction alongside appreciative content-focused comments, overall, this must be recognised as a shortcoming of the project; the participating teachers and students were not offered explicit guidelines on giving and receiving comments and feedback to enhance the value of the exchanges.

Domain 3: Capabilities

Domain 3.1 Language proficiency

Teachers all found that the project had motivated students' language use. Teacher 3A expressed delight that "students are more engaged than in other language learning activities", while Teacher 2A said: "I think it really expanded their language use because they were so eager to return in kind, like, the enjoyment they got from the videos". School 3A students agreed they had learned more Japanese: "Sometimes when we wrote things

and showed it to [Teacher 3A], she would correct our grammar and we would learn new ways to say things"; they went on to add: "Making a video and remembering a script is very different from writing down notes … [these were] new ways to help us remember Japanese". School 1J students indicated that they felt motivated, with one noting: "I feel like I want to use English more than before", and another stating: "Writing English is very relevant to our English learning, but without a project like this one there is no exchange with real people". School 3J students were surprised to see Australian children speaking Japanese and although they thought their level was not high, they appreciated the effort they had put into making self-introductions in Japanese.

A key theme to emerge was students' differing language capabilities. For example, School 1A students were still at beginner level in their third year of learning Japanese, whereas the partner School 1J students varied widely in English capability and had been learning the language more intensively over four years. Such discrepancies were not insurmountable, as students were encouraged to look up new language in online translators, assist each other, or consult teachers; Teacher 2J said: "A lot of them would look things up themselves or they would come and check with me". Moreover, when they lacked adequate language, students could make full use of multimodality, using images to help convey meaning.

Domain 3.2 (Inter)cultural competence

Another theme concerned variations, not so much in students' pre-existing intercultural capability, but their opportunities to develop their understandings of their own cultures and those of the partner country. (NB: The term 'cultures' rather than 'culture' is used here to acknowledge that there is a plurality of cultures within any given country; Bowe et al., 2014.) For instance, students at School 1J were able to include content about their everyday home lives and local attractions because they harnessed their iPads as genuinely mobile devices and ventured out of the classroom to gather raw content. As noted by their teacher:

> [My] students introduced autumn festival, which represented one of the Japanese cultural aspects. For example … the local temple. Learning their own culture before creating e-books was the best way to learn about an Australian culture.

Notwithstanding the limitations faced by many students, who were obliged to concentrate on their school grounds and the interests they could capture or represent there, there was still scope for exploring their own cultural context in the process of getting to know a different context. As Teacher 2J commented:

> [O]ne of the tasks was to introduce a festival or a special day that we celebrate in Japan, compared to other places, and for a lot of them that have no knowledge of what's outside, you know, what's different … so they had to sort of look it up and think about what is different.

Teacher 3J observed: "Students were able to feel closer to Australia through this interaction with their peers and also it gave them an opportunity to reflect on their own culture". Unsurprisingly, many participants commented on lifestyle differences that came to light through the exchanges. A School 3A student listed newly gained insights into Japanese students' daily routines:

> I learnt that they have a lot more … class periods, and they are a lot shorter than what we have over here. And also with their sport, they have lots of stuff after school and they … don't get home until, like six or five.

Another Australian student was surprised to learn that students in Japan had to help clean the school. Teacher 2A agreed that her students had learned about differences between lifestyles in Japan and Australia, but indicated that, importantly, they had also noticed similarities: "I think it was more of a realisation that, wow, these Japanese students are just students like us!". Interestingly, a School 1J student commented: "I learnt how to produce materials that would gain the interest of the Australian students".

Domain 3.3 Technology skills

Another theme emerged regarding an imbalance, though not necessarily a barrier, in students' pre-existing technology skills or digital literacies, with students in Australian schools generally having more developed ICT capability. Students at School 1A, for example, commenced the project with good familiarity with the iPad, but not the apps being used. On the other hand, the students at School 1J needed to be explicitly taught how to use both the iPad and the apps, though they rapidly built their technological capability. A School 1J student stated: "I'm not very good at using computers or technology … I learnt about the importance of educational technology like this through this project". It was found that most students acquired the necessary technology skills quite easily, with teachers taking a hands-off approach. Even the primary school students in Case 3 did not report a barrier in respect of their differing technology skills.

Domain 4: Technologies

Another theme concerned differences not only in technology skills, but in the related area of what technologies were available in schools (which, as noted earlier, was sometimes related to Structures like school policies). At both Case 1 schools, readily available

technology enhanced the number and quality of interactions between the students and increased the range of places used for text creation, giving the content authenticity. The availability of mobile technologies which could be used in a genuinely mobile way, as discussed above, was important in facilitating contextual or situated learning, with students able to share multimodal recordings generated in their everyday settings.

  Some schools were more adventurous than others. At School 1J, for example, students were introduced to a wide range of apps to help them communicate through digital technologies, whereas students at School 1A only used two. School 3J had little technology available but, due to the enthusiasm of the teachers on both sides, the exchange continued via email and Skype even after the iPads were returned. The Case 2 schools experienced the most technological issues; the Japanese schools had limited Wi-Fi, and the Australian school had to use laptops instead of mobile devices. Still, students managed to exchange some digital texts. Another technology consideration was the need for teachers to manage the sharing platforms which, although time-consuming, did at least ensure the appropriateness of content being exchanged.

Discussion

In line with the research questions, the discussion focuses on the commonalities and differences in Structures, Practices, Capabilities and Technologies that supported or hindered MDT exchanges between schools in Australia and Japan. Interwoven into the discussion are the perceived benefits of such exchanges.

  Despite telecollaboration programs often encountering problems because of organisational, pedagogical, digital and attitudinal challenges (O'Dowd, 2015), educators in the exchange project reported here were able to find enough commonalities in Structures, Practices, Capabilities and Technologies to co-design and implement MDT exchanges that were seen to be successful overall. Teachers were able to make the exchanges work despite differences: in Structures such as schedules, timetables, and the number of participating students; in Capabilities, including linguistic and technological skills; and in the available Technologies and their permitted uses. Significantly, there were differences not only between countries, but often between schools in the same country.

  Despite the challenges that needed to be navigated, teachers and students overwhelmingly found the creation and exchange of MDTs beneficial and enjoyable, which is often the case in DS for language learning (Buendgens-Kosten, 2021) and telecollaboration in general (Gutiérrez & O'Dowd, 2021).

  As explained in the results section of this paper, the greatest perceived benefits coalesced around commonalities in the domains of Practices and Capabilities. In the latter area, broadly applicable themes emerged of incentive to practise language, building interest in exploring one's own and others' cultures, and developing ICT and digital literacy skills,

despite differing opportunities to do so. However, for many of the teachers and students, the most important commonalities emerged under Practices. Choice and autonomy, related to 21st century skills, were seen as outstanding features of the exchanges, often coupled with personalisation that opened up scope for greater inclusivity, and supported by students' collaboration and peer learning (with these also reinforcing the development of language, intercultural and digital literacy skills under the Capability domain). With reference to the aforementioned work on self-determined behaviour (Dörnyei et al., 2014), it can be seen that the MDT exchanges supported autonomy while also enhancing relatedness, in that students worked collaboratively. This aligns with language learning research that explores the use of DS to encourage learner autonomy in language learning (K.-P. Liu et al., 2018) and that shows collaborative DS to lead to superior achievement, greater autonomy and better emotional experiences (M.-C. Liu et al., 2018). Furthermore, the personalised, inclusive aspect of our project engaged students in using language at the level of their competence for authentic communicative purposes, even where students in the partner class had a different level of language competence. There is a great deal of research on the merits of personalised learning (Li & Wong, 2021) and it is worth progressing this in the context of digital text exchanges.

Of the four Domains of the SPeCT framework, Structures, Capabilities and Technologies may be seen as factors that influence (and can be influenced by) Practices, particularly Pedagogies and Teacher Practices. This sub-domain can be discussed in terms of pedagogies of multiliteracies (Cope & Kalantzis, 2015). The most prominent knowledge processes engaged in by the students were "experiencing the known" and "applying creatively", within the authentic pedagogy of the MDT exchange. In "experiencing the known", there was an emphasis on highlighting student interest, identity and student experience. As noted by Cope and Kalantzis (2015, p. 18), in experiencing the known, "Learners bring their own, invariably diverse knowledge, experiences, and interests into the learning context." In "applying creatively", there was a strong emphasis on the expression of individual and cultural perspectives, whereby students applied what they knew (about the foreign language, their known world and culture, and the tools and techniques for creating digital texts) to a novel situation, namely the creation of an MDT for an authentic audience in a partner country.

The similarities between the current findings and those from an earlier Australia-China exchange project (Oakley et al., 2018) should be noted. Most noticeably, in the domain of Structures, scheduling issues created challenges in both studies, as did imbalances in the number of students; in the domain of Capabilities, varied language levels and technology skills were problematic, with the language disparities being greater in the China study; and in the Technologies domain, there were differences between countries in technological access, which were once again greater in the China study, since Structural regulatory

considerations in China complicated technology availability and rendered the sharing of digital texts challenging.

In both studies, advantages for students' language learning were identified. In the first study, it was the teachers in China who most emphasised the language learning benefits for their students, which was related to their higher initial proficiency levels in the target language; whereas in the second study, where language gaps were smaller, both Australian and Japanese teachers thought that students had benefited linguistically. Of significance was the intentionally less prescribed design in the current study, leading to greater benefits in terms of autonomy as well as a greater sense of inclusivity. This meant that, despite the varied capabilities of participating students, teachers felt that everyone had a chance to meaningfully contribute and learn. Indeed, the exchanges offered benefits for teachers' learning too, though this was less emphasised in the Japan study, perhaps because the teachers allowed students more autonomy to take the lead on app choice and digital story development; teachers thus often took on the role of overseeing the process rather than engaging in it in a more hands-on way.

This study was not without limitations. Firstly, because the SPeCT model provided the framework for the research, student learning was not the main focus, thus data on student achievement were not collected other than through teacher reports on what they had observed in their normal classroom assessments. Secondly, teacher and student practices were not observed longitudinally due to funding limitations. Thirdly, most of the responses from the participants in Japan (except Teacher 2J) had to be translated into English for analysis, and some nuances of meaning may have been lost. Finally, future projects of this nature should place greater emphasis on structuring and guiding the process of students offering feedback to their exchange partners, and it would be worth exploring not only cross-cultural digital text exchanges but cross-cultural digital text composition.

Conclusion

This paper has described an Australia-Japan MDT exchange project where participating academics and teachers used the SPeCT model to co-design exchanges that took into account commonalities and differences between the contexts of the partner schools and classrooms. SPeCT was also used as a frame for analysis, suggesting that it can be usefully employed by educators to guide both the design and evaluation of digital text exchanges. A comparison with Oakley et al. (2018) suggests that the SPeCT domains established in the earlier study are indeed of general relevance to assisting in the design and evaluation of international exchanges of MDTs, although further research to fine-tune the model would be desirable. The Practices domain of SPeCT does not specify preferred pedagogical approaches, and it is suggested that Cope and Kalanzis' (2015) version of the pedagogy of multiliteracies may assist educators in designing appropriate pedagogies for their contexts.

That is, they may use a combination of pedagogical moves to encourage particular knowledge processes or learning activity types, depending on their pedagogical goals. However, the expansion of the SPeCT model to embed the pedagogies of multiliteracies requires further study.

An important implication of the current study is that through giving teachers some autonomy to (co-) design MDT creation and exchange processes that are customised to their contexts, using the SPeCT model as a guide, there is potential to establish projects that better fit the needs of the students and teachers concerned. The greater emphasis on autonomy and inclusivity in this study compared to the Australia-China study highlights the potential value of less prescriptive exchange designs, where teachers can tailor learning experiences to their contexts and allow students free(r) rein to personalise their learning and develop their linguistic, intercultural and technological skills in relevant and engaging ways. The findings show that this freedom to design was as aspect of the project appreciated by teachers and students alike.

In conclusion, the study makes an important contribution to research in providing three case studies of digital text exchanges that were designed and evaluated using the SPeCT model. It is hoped that educators will be able to use the SPeCT model and the case studies to inform their own practices. Importantly, it does not appear to be necessary for teachers to set up tightly structured digital text exchange projects; from the cases presented, it is suggested that giving students free(er) rein may enhance engagement and learning.

Appendix 1

Guiding Questions for Teacher Interviews

Domain 1: Structures

- How easy or difficult was it to align the school structures (e.g., policies, calendars, timetables) to facilitate the exchange of digital stories between Australian and Japanese students?
- How easy or difficult was it to negotiate the organisation of the exchange with your counterpart teacher(s) in Australia/Japan?

Domain 2: Practices
Domain 2.1: Pedagogies and teacher practices

- What did you personally learn through this project (e.g., in terms of teaching practices, language, culture, or other areas)?
- What similarities and differences did you notice between Australian and Japanese teachers' teaching practices?
- Have you adapted or changed your teaching practices in any way as a result of this project?

Domain 2.2: Interactions

- How well did your students interact with the students from Australia/Japan?
- What kind of feedback did your students receive on the digital stories they created? What did they learn through receiving this feedback?
- What kind of feedback did your students give on the digital stories they received? What did they learn through giving this feedback?

Domain 3: Capabilities
Domain 3.1: Language proficiency

- How did the project help your students learn English/Japanese?
- How did the students in your class go about writing the digital stories?

Domain 3.2: (Inter)cultural competence

- How did the project help your students learn about the foreign (Australian/Japanese) culture?
- How did the project help your students learn about their own (Australian/Japanese) culture?

Domain 3.3: Technology skills

- How did the project help your students learn about digital technologies (hardware and software)?
- How did the project help your students learn specifically about mobile technologies such as smartphones or tablets (but NOT laptops)?
- How did the project help your students learn about new literacies and digital literacies?

Domain 4: Technologies

- Which technologies (hardware and software) were most useful in this project?
- What technological challenges (with hardware, software, internet connectivity, etc.) did you face in this project, and how did you overcome them?

Concluding Questions:

- What was the best part of the project, and why?
- What were the main challenges? Were these overcome, or can you suggest how they could be overcome?
- If you could suggest one major improvement for future projects of this kind, what would it be?
- Were there any unexpected outcomes of this project? If so, what were they?
- Would you like to continue or extend any aspects of this project in the future (e.g., digital storytelling, collaboration with schools in the other country)?

Appendix 2

Guiding Questions for Student Interviews

- What did you like best about making the e-books/videos/websites (multimodal texts)?
- How do you think creating the multimodal texts helped you learn Japanese/English, if at all?
- How do you think creating the multimodal texts and being part of the project helped you learn about culture in Japan/Australia, if at all?
- How do you think creating the multimodal texts and being part of the project helped you learn more about your own culture, if at all?
- What did you learn about using technology through creating the multimodal texts and exchanging them?
- How did you decide which mode of communication to use – i.e., when to use a picture, a video, audio, writing?
- What kinds of difficulties did you have when creating the multimodal texts and exchanging them, if any?
- Did you use your mobile devices out of school to take photos, videos, etc., to put into your multimodal texts?
- What changes would you make to this project to make it better?
- What did you personally get out of being part of this project?

Abbreviations
CLT: Communicative Language Teaching; COIL: Collaborative Online International Learning; DS: Digital storytelling; ICTs: Information and Communication Technologies; MDTs: Multimodal digital texts; SPeCT model: Structures, Practices, Capabilities and Technologies (model for organising and evaluating digital exchanges); VE: Virtual exchange.

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The authors declare that they have no competing interests.

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