

UCLA

UCLA Electronic Theses and Dissertations

Title

Telecollaboration and Students' Language Learning Attitudes in a Dual Immersion Program

Permalink

<https://escholarship.org/uc/item/0tz47419>

Author

Zhang, Junyao

Publication Date

2020

Peer reviewed|Thesis/dissertation

UNIVERSITY OF CALIFORNIA

Los Angeles

Telecollaboration and Students' Language Learning Attitudes
in a Dual Immersion Program

A thesis submitted in partial satisfaction
of the requirements for the degree Master of Education
in Human Development & Psychology

by

Zhang Junyao

2021

© Copyright by

Zhang Junyao

2021

ABSTRACT OF THE THESIS

Telecollaboration and Students' Language Learning Attitudes
in a Dual Immersion Program

by

Zhang Junyao

Master of Education in Human Development & Psychology

University of California, Los Angeles, 2021

Professor Alison Bailey, Chair

In recent years, the number of bilingual or emergent bilingual children in California has risen accompanied by greater enrollment in Dual Language Immersion (DLI) programs which offer instruction in two languages. DLI programs in the United States aim to help children develop bilingualism and multiculturalism. However, students enrolled in DLI programs do not always have positive attitudes towards language learning, potentially impeding the language-learning process (Lee & Jeong, 2013). Telecollaborative language-learning interventions have newly-emerged as a way of improving students' attitudes towards language learning, showing increased willingness to use the target language and exploring the culture in non-academic settings. However, most of the telecollaboration language learning studies were conducted with college students,

especially those who majored in language or would be trained as future teachers. Little work has investigated telecollaborative language learning for use with elementary school students in DLI programs, limiting our understanding of how telecollaborative language learning applies to children. Therefore, this small-scale, mixed-methods study examined the effects of telecollaborative language learning on DLI students' language learning and culture exploration attitudes. In this study, the e-tandem model was applied explanatorily to help seven English-Chinese DLI students make connections with peers in China. However, few changes to language learning or in attitudes were observed in the study, and thus possible improvement of the e-tandem intervention is discussed so that DLI students may gain more from telecollaborative language learning interventions in the future.

Keywords: Dual Language Immersion program, bilingual children, elementary school students, telecollaborative language learning, attitudes

The thesis of Zhang Junyao is approved.

Jennie Grammar

William Sandoval

Alison Bailey, Committee Chair

University of California, Los Angeles

2021

Content

Literature Review	3
Language learning attitudes	3
Dual language immersion program	3
Telecollaborative language learning.....	5
Grounded theory	7
Social language learning theory	8
Significance	8
Research questions	11
Method	12
Participants.....	12
Procedures.....	13
Interventions	13
Data collection	13
Measures	14
Student measures.....	15
Parent measures.....	15
Instruments.....	15
Analytic plan.....	18
Results	21
Mandarin using activities.....	21
Amount of time spent on Mandarin using	21
Types of Mandarin using activities	22
Feelings/attitudes about Mandarin use	22
Chinese culture-related activities	23
Amount of time spent on Chinese culture-related activities	24
Type of culture-related activities.....	24
Feelings/attitudes about Chinese culture	24
Preference for telecollaboration language learning	25
Amount of emails sent during the 10-week session	25
Attitudinal results of the language exchange	25

Topics of email sent and received	26
Feeling/attitudes towards the intervention's penpals.....	26
Parent participation.....	27
Discussion	31
Conjuncture map	31
Future studies	31
Limitations	33
Conclusion	34
Reference	35

Telecollaboration and Students' Language Learning Attitudes in a Dual Immersion Program

Dual Language Immersion (DLI) programs are an effective way of acquiring a second language (L2) for students both from English-only families or non-native English families (Sauceda, et al., 2014; Steele, et al., 2017). The aims of DLI programs include improving students' language proficiency as well as promoting their willingness to explore the target language's culture and use the target language outside their classrooms (Alanís, & Rodríguez, 2008). However, some students have limited access to the target language in environments outside the classroom, limiting their exposure and willingness to engage with the target language (Lee & Jeong, 2013). At the same time, not all children in DLI programs demonstrate positive attitudes towards language learning, and as a result their intention to acquire a L2 could be thwarted (Ajzen, 1991).

People might presume that DLI programs have been successful in achieving their goals, however, it is not necessarily the case (Lee & Jeong, 2013). Since students from English-native families do not always have the partner language in their environments outside the classroom, students can lack a willingness to explore the target language culture and use the program partner or target language outside the classroom (Leung et al., 2018). Also, although half of the children in DLI Chinese-English program would be native Chinese speakers, they don't necessarily interact with their English native peers in non-academic settings using Chinese, for example, during recess or lunch time (Lee & Jeong, 2012). Therefore, interventions which can provide DLI students access to the target language outside the classroom may increase their interests towards the target language. One such method, telecollaborative language learning has been

suggested as a digital accompaniment to traditional classroom experiences, although little work has investigated its use in elementary schools.

Telecollaborative language learning has had recent success in helping college students with their language acquisition process (Luo & Yang, 2018). Telecollaborative language learning is a way of incorporating language learning process with culture: students will be able to make connections with those who are native speakers of the target language and learn about their life experience. Through telecollaborative language learning, students in Two-Way DLI programs can setup connections with students whose native language is the DLI program target language in non-academic settings, and thus increase or extend their exposure to the target language and culture, which may potentially improve attitudes towards learning the target language (Viberg, & Grönlund, 2013). Furthermore, telecollaborative language learning can provide students with a sense of agency which also makes attitudes towards language learning more positive (Kohn, & Hoffstaedter, 2017; Qian, & McCormick, 2012). Although studies have demonstrated that telecollaborative learning can increase college students' positive attitudes towards L2use and overall language acquisition, little to no work has investigated the use of telecollaborative language learning in school-aged children developing dual language skills. Thus, our understanding of how it can be applied to children's language acquisition is still limited. This has implications for considering telecollaborative language learning as an intervention for DLI students to promote positive attitudes towards the target or L2 learning process.

Therefore, the purpose of this study is to examine the influence telecollaborative language learning might pose on DLI students' attitudes towards language learning. Both quantitative and qualitative methodologies are used to assess student attitudes towards language learning in the context of an elementary school DLI program.

Understanding the effect of telecollaborative language learning on young student attitudes towards L2 use will provide a possible solution for improving DLI students' language learning attitudes and thus help DLI programs to achieve their aims.

Literature Review

Language Learning Attitudes

Attitudes are a set of beliefs, emotions and behaviors towards a particular experience, person, and events (Perloff, 2017). In this study, I focused on how DLI students' beliefs, emotions and behaviors towards language learning are changed by telecollaborative language learning.

In this study, I measured three aspects of attitudes. One is the actual participation, that is the frequency and duration of activities using Mandarin, activities related to Chinese culture and interaction with the Chinese students. Another is the emotion responses participants have towards the activities they participate in, for instance, if they like the activities (positive), do not have specific feelings about them (neutral), or dislike the activities (negative). The third one is their belief about bilingualism and biculturalism. They will be asked about their point of view about being bilingual at the beginning and the end of the study to see if they have formed their own opinion about it and if their opinions have changed through the study.

Attitudes are an important predictor of intentions (Ajzen, 1991). Therefore, to help the DLI students develop bilingualism and multiculturalism, we need to change their emotions and beliefs about language learning, and gradually change their behaviors.

Dual Language Immersion (DLI) Programs

Some immigrant families chose DLI programs as a way of helping their children to acquire English so that their children can thrive in the U.S.; but English only families also have their children participating in Two-Way DLI programs to acquire a L2.

Students from minority and/or non-English heritage families (e.g., Asian American, Latina/o/x, etc.) may also join the DLI programs to acquire their heritage language or in some cases a third or more language (Porter, 2018).

DLI programs are set to help students to develop multilingualism (Alanís, & Rodríguez, 2008) and multiculturalism (Steele, et al., 2018), which would help them to have better competence in working place in the future, and have a more open mind to other cultures in the world. In Two-Way models of DLI programs, usually students have half of the class time or half of the day (or alternate days/weeks) in English, and the other half of the time, they have classes in another language such as Spanish and French, and in this study, Mandarin (Steele, et al., 2017). Another key feature of a DLI program is that approximately equal numbers of proficient speakers of each of the program languages are enrolled to serve as linguistic models for one another (Bailey, 2020; Bailey & Osipova, 2016).

It is usually presumed that students in a DLI program should be interested in language learning as well as the target language's culture. However, this is not always the case. Lee and Jeong (2013) found that students in DLI programs do not always have positive attitudes towards language learning, and for those who lack target language input outside the classroom (students from English-only families or students trying to acquire a heritage language not frequently spoken at home), the situation is even worse. Although some students are proud that they can speak more than one language, they do not always identify themselves as emergent bilinguals/multilinguals (Leung, Uchikoshi, & Tong, 2018). In these studies, when asked about their opinion about being a bilingual or emergent bilingual, students sometimes would say 'my parents want me to' or 'my parents said...', which makes the researchers doubt: are they really willing to be a bilingual or have their parents decided for them? What's worse, some students

may express that they are having a hard time acquiring the language, and thus may have negative feelings towards language learning (Valdés, 1997).

But why does this happen? Researchers propose that this might be due to student lack of exposure to the target language's culture and target language input in daily life (Leung, et al, 2018; Lee & Jeong, 2013). According to Porter (2018), in the U.S., there are a large portion of DLI students who come from English-native families or trying to acquire their heritage language through DLI program, which means their families are not able or have limit ability to provide them with the target language input outside the classroom. Therefore, intervention is needed for these DLI students to have target language input outside the classroom and to also help them be in touch with the target language's culture. This would not only help them with improving attitudes toward the target language and culture, but would also be beneficial for their language acquisition outcomes as well (Belz & Thorne, 2006; Chun, 2008; Lomicka, 2006; Lawrence, 2013; Hauck & Youngs, 2008). One proposed method for increasing target language input outside the classroom is through telecollaborative language learning, which effectively connects people with different languages from around globe.

Telecollaborative Language Learning¹

Telecollaborative language learning is a method of learning language through online interaction with native speakers (Luo & Yang, 2018). According to sociocultural language learning theory, language learning is an interaction with social and cultural factors (Vygotsky, 1987). Studies have shown this way of learning language would not only provide the students with interaction and connection with the target language's culture, but also would be possible for them to create their own online community culture (Viberg, & Grönlund, 2013). Von der Emde and colleagues (2001) find that

¹ Besides the benefits it could bring to language learning attitudes, telecollaborative language learning is also advantageous for language learning outcomes (Luo & Yang, 2018).

telecollaboration can also cultivate open-mindedness, and is beneficial for developing higher order thinking skills. Also, telecollaborative language learning is renowned for the agency and the social support it provides language learners (Qian, & McCormick, 2012).

Moreover, studies in this field have interesting results: for example, for college students, although telecollaborative language learning may improve student attitudes towards language learning *online*, it might not be beneficial for their *in-classroom* language learning attitudes (Kohn, & Hoffstaedter, 2017). In other words, the telecollaborative language learning is ‘too’ interesting that it makes ordinary in-class language learning seems dull. These findings show that attitude changes are more complicated than we might think. Therefore, attention should be paid to language-learning attitudes and how these could be influenced by telecollaborative language learning.

In this study, seven English-speaking DLI students (six Chinese heritage speakers and one Chinese L2 speaker) had interactions with Chinese students outside their classroom during summer vacation, and they were the support for each other. Social support was expected to improve language learners’ attitudes towards language learning as well as improve their study outcomes (Luo & Yang, 2018). Therefore, telecollaboration might serve as a good intervention for improving DLI student’s attitudes towards language learning.

Telecollaborative language learning does not only bring attitudinal changes, it also brings improvement in language learning outcomes. The approach has been proven to improve L2 pragmatic competence (the ability to use the language; Belz & Kinginger, 2002, 2003; Belz & Vyatkina, 2005; Cunningham, 2016), grammatical competence (the ability to use grammar correctly; Brammerts, 1996; Lee, 2002), lexical capacity (the

ability to use words correctly; Dussias, 2006) and oral speaking skills (Abrams, 2003, Blake, 2000). Telecollaborative language learning can be a very effective way of helping DLI students to develop multilingualism as well as arousing their interest in the target language's culture.

Grounded Theory

This study drew on theory regarding both telecollaborative influence on language learning and sociocultural influences on language learning. There are two models of telecollaborative language learning: 1) the e-tandem model, and 2) the intercultural model (O'Dowd, 2016a). The e-tandem model focuses only on language exchange, usually through online individual interactions like pen-pal-ships and video chatting; while the intercultural model focuses more on language and *cultural* exchange and is more often group interactions where teachers are present to give guidance (Thorne, 2003, 2010). Also, Luo and Yang (2018) stressed the function of teachers in the intercultural model. However, although in the intercultural model teachers are more involved in the activities, for example designing tasks and projects, supervising, and coordinating the online interactions, and guiding in-class discussions and reflections on the online exchange, they are not the main actors in the interaction; students are.

As for the e-tandem model, which is the model applied in this study, more agency is given to the students (O'Dowd, 2016a). In this study, English-native student whose target language is Mandarin would be assigned with another Mandarin-native student whose target language is English and conduct language exchange in the form of email. They could form their own topics of the language exchange, and thus having more agency. Also, unlike intercultural model, more involvement of parents would be needed to better support the language learning of their children. Parent participation is an important factor in virtual learning, especially for elementary students (Welch, 2015).

Therefore, it would be plausible for us to presume that parent participation would also be a prominent factor greatly influence the process and outcomes of the telecollaboration language learning.

Sociocultural Language Learning Theory

Proposed by Vygotsky (1987), sociocultural theory stresses that learning is a process done in the setting of society and culture, and that learning happens in the process of interaction. Language is heavily culture dependent. This means that one might not completely master a language unless one understands the culture in which it is embedded. On the other hand, acquisition of language may be prerequisite for the understanding and appreciation of a culture. To understand culture, one of the best ways for language learners is to interact with native speakers who are deeply influenced by their own culture, and thus can pass it on consciously or unconsciously.

In the past, it is very hard for language learners to have interaction with native speakers, but in an era of internet, and with the help of telecollaborative language learning, it becomes much easier. Therefore, telecollaborative language learning provides opportunities for students to interact with others and thus learn the language they want to acquire through interactions with the target language's culture.

Significance

The field of telecollaborative language learning has generated a lot of studies, especially in Europe, and most of them with college students (Helm, 2015; Müller-Hartmann, 2006). Most of the studies are conducted between different European countries, such as the Netherlands, Spain, Germany, etc. (Little, 2016). However, there are few studies conducted on learning Chinese as a second language (LCSL) with telecollaborative language learning (Luo & Yang, 2018). As a language used by at least 1.4 billion people in the world, Chinese is becoming more and more prevalent in the

world. There are 10 schools in Los Angeles Unified School District providing their students with Mandarin/English DLI programming, not an astonishing number but growing (LAUSD, 2019). The number of people acquiring Chinese as their L2 in the U.S. is also rising, especially among young children (Thomas, 2017). Therefore, LCSL with telecollaborative language learning is a field which should not be ignored.

Also, for most studies concerning telecollaborative language learning, the participants are usually young adults, specifically, college students (Helm, 2015). While some attention in the field has been transported to secondary education students (Belz & Kinginger, 2002), only a few studies have been conducted with elementary school-aged students (Jauregi & Melchor-Couto, 2018; Austin et al., 2017). However, it is known that to learn a language, it would be best to start at an early age, and this is part of the reasons why elementary schools are providing their students with DLI programs (Alanís & Rodríguez, 2008). The populations of immigrant children and emergent bilingual children in the U.S are rising in recent years (Thomas, 2017). Many young children are acquiring a second even third language to develop multilingualism, and to prepare for their future educational and career opportunities (Alanís & Rodríguez, 2008). Therefore, it would be important to learn whether telecollaborative language learning can be an effective method to help improve the language-learning attitudes of elementary school-aged students. In this study, a conjecture map was applied to present the process of the intervention. What I expected the students to do as their task is to participate in a language exchange with Mandarin native peers, and I hoped that they could develop more positive attitudes towards the target language and culture. Their emails and all other observable interactions would be regarded as a presentation of their language exchange process. See figure 1 for more information.



Figure 1 Conjecture map of the study

Research Questions

Attitudes towards language learning were assessed by weekly interviews with participating students. Student activities were quantified to describe in what ways and how frequently students are engaging in second language use outside the classroom. Descriptive analyses were used to assess the effect of telecollaborative language learning on student attitudes. This project was guided by the following research questions:

- 1) How does telecollaborative language learning influence elementary school DLI students' willingness to use Mandarin outside the classroom? And what are students' feelings about usage?

For this research question, I expected that telecollaborative language learning would bring a positive influence on elementary school DLI students' willingness to use Mandarin outside the classroom, such that students would demonstrate higher frequency of use and also greater diversity in activities in which Mandarin is used, especially for literacy activities. I also expected that their feelings towards these activities would also be more positive after their participation of the study.

- 2) How does telecollaborative language learning influence elementary school DLI students' willingness to explore the target language's culture? And what are the students' feeling towards Chinese culture?

Based on current literature, I expect that telecollaborative language learning would bring positive influence on elementary school DLI students' willingness to explore Chinese culture, which means they might demonstrate higher frequency and greater diversity in activities related to Chinese culture. I also expect that their feelings towards these activities would also be more positive

after their participation of the study.

- 3) How do elementary school DLI students' preference for and feelings about telecollaborative language learning intervention change over the course of the study?

Elementary school DLI students may have positive feelings towards telecollaborative language learning intervention by the end of the study. During the process, they might spend more time on telecollaborative language learning gradually, and would be likely to extend their pen-pal-ship after the study.

Method

Participants

Seven students from a Mandarin/English Dual Language Immersion (DLI) program in a U.S. public elementary school participated in the study. The students from the U.S. school came from families which provide their children with limited or no access to Mandarin home input. Six of the U.S. students come from Chinese heritage families and one U.S. students come from a Latinx family background. Seven students from China matched on same age group and gender were involved in the study but they are not from DLI programs but they had been exposed to three to five years of English language learning. The Chinese students are included only as the telecollaborative partners for the U.S. students in this study only. I did not collect data from them. The students (both Chinese or American nationals) are around the age of 8-10. See Table 1 for U.S. participants' gender and language backgrounds. More specifically, the family language policies of the U.S. students were quite complex and variable: For the Mandarin heritage speakers, Amy's parents spoke Mandarin and English with her, but she is reluctant to speak Mandarin with them; Alice and Andy were more willing to use

Mandarin with their families, but not in other settings (e.g., school). Angel and Angela, and Anthony are 3rd generation immigrants, their parents don't speak their heritage language with them, but only use the heritage language when communicating with the students' grandparents.

Table 1. Language and gender information for U.S. participants

Name	Gender	Language background	Family language policy
Amy	Female	Mandarin heritage speaker	Both Mandarin and English at home
Alice	Female	Mandarin heritage speaker	Both Mandarin and English at home
Andy	Male	Mandarin heritage speaker	Both Mandarin and English at home
Andrew	Male	Spanish heritage speaker	Both Spanish and English at home
Angela	Female	Cantonese heritage speaker	English at home
Angel	Female	Cantonese heritage speaker	English at home
Anthony	Male	Taiwanese heritage speaker	English at home

Procedures

Intervention. In this study, the e-tandem model of telecollaboration is applied as an intervention designed for DLI program. However, small changes were made to help students set up cultural exchanges between them. For example, tips and/or prompts about culture and life events were provided to students every week, and they were encouraged to organize their interaction around these tips and prompts (for example festivals like Thanksgiving, Mid-Autumn Festival etc., and life events, such as how do you feel during the COVID-19 period, what do you learn in school, what games you usually play etc.).

Students from both countries were randomly assigned into seven dyads (One Chinese student and One U.S. student for each dyad, same gender) and be penpals with each other for a duration of ten weeks, ten minutes per week. Participants were asked to write to each other at least one time a week through e-mail. Both groups of students were encouraged to write about their own life and culture in their e-mails in simple English (U.S. students)/Mandarin (Chinese students). Every week, a prompt (for

example festivals like Thanksgiving, Mid-Autumn Festival etc., and life events, such as how do you feel during the COVID-19 period, what do you learn in school, what games you usually play etc.) was given to the students via email, and thus they could write their email based on the prompt, and they were also encouraged to develop their own topics (such as how they spend their summer, what movies do they like etc.). Also, students were encouraged to ask for clarification whenever they were confused by the language the other student in the dyad used, and to express their opinions freely.

Data collection. U.S. students were interviewed at the beginning of the study and every week following on their attitudes towards language learning by the end of the week. Each interview lasted approximately ten minutes and occurred on Fridays so that they could have enough time to interact with their penpals during the preceding week days (the content of their email exchanges was confidential and not collected and analyzed). Their parents would also be interviewed on their observation of their children's change in attitudes and behavior of language learning at the beginning and the end of the study. The interviews were conducted through an online platform (*Zoom* and *WeChat*) and audio-recorded for later transcription. Transcription of each student interview was conducted manually and occurred within three days of collection in order to maximize retention of information.

Observation notes were also made during the interviews and included in the transcripts. In the notes, I wrote about my observations of the interviewees' emotional/affective reactions, for instance their facial expressions, tone of voice, gestures, and body language. Also, I noted the adjectives, adverbs, and other words the interviewees used during the interview which have strong emotion tendency (for example very negative or positive).

Measures

Student measures. In this study, several constructs were measured: 1) willingness to use Mandarin outside the classroom; 2) willingness to explore Chinese culture outside their classroom; 3) preference for telecollaborative language learning.

To operationalize the constructs, I 1) measured the amount of time they reported using Mandarin outside their classroom, and if these activities are related to literacy, and the themes of these activities, as well as their feelings towards these language use activities from their facial expression and affect when discussing these activities.; 2) measured the amount of time they reported spending on Chinese culture-related activities, and the themes of these activities, as well as their feelings towards these cultural activities from their facial expression and affect when discussing these activities.; 3) measured the amount of time they mentioned their positive/negative attitudes towards telecollaborative language learning intervention, and themes that arose from their interactions (e.g., if they wanted to keep their penpal after the intervention).

Parent measures. Parent participation or involvement was also measured based on the observations of the interviewer: namely, how frequently the parent was present during the student interviews, and if they were communicating directly with me during the interview. Parents were also given pre- and post- intervention interviews to collect their opinions about the intervention. In these interviews, they were also asked if the students actively involved them in the process of language exchange, for example if they were providing help for students reading and writing the email and/or if they talked with students about the content of their emails.

Instruments

To measure the first four student-centered constructs mentioned above, the following questions, which were adapted from Lee and Jeong's (2013) study with

Korean-English elementary school DLI students, were used as a template to guide the semi-structured interviews.

The following questions were used as a template to guide the semi-structured interviews for students before and after the intervention implementation:

- Do you want to be bilingual? Why? What do your parents think about being bilingual? What do you think about being bilingual?
- Do you think you should know how to read and write in Chinese (Mandarin), or is just knowing how to speak it enough? Why is literacy in Chinese (not) important to you?
- Do you want to attend a DLI program again next year? Why?
- Do you usually use Mandarin outside your classroom? Name your three favorite and three least favorite activities you do in Chinese (Mandarin), for example looking up words in dictionary or using it online.
- Do you usually have activities related to Chinese culture outside your classroom? Please tell me about some of them? For example, celebrating Chinese festivals or playing typical Chinese games. Tell me about a time you did XYZ.

The following questions were used as a template to guide the semi-structured interview for participants during the 10-week interview session:

- How many hours do you spend on activities using Mandarin pre day besides your interaction with your Chinese pen pal?
- How many hours do you spend on activities involving reading and writing Mandarin pre day besides your interaction with your Chinese pen pal?
- What activities do you have using Mandarin in the past week? Name as many

as you can. Do you like these activities? Why?

- How many hours do you spend on activities related to Chinese culture pre day besides your interaction with your Chinese pen pal?
- What activities do you have related to Chinese culture in the past week? Name as many as you can. Do you like these activities? Why?
- How many hours do you spend on interaction with your Chinese pen pal in the past week?
- What did you talk about during your interaction? Did you talk about other thing besides the prompts I gave you?
- Do you like the interaction? Why?
- Which one do you prefer? In-class study or interaction with your Chinese pen pal?

The following questions were used as a template to guide the semi-structured interview for parents before and after the intervention implementation. The answer for these interviews were used as reference to provide some background information to establish a deeper understanding of participants' attitudes towards language learning:

- Do you think your child wants to be bilingual and why?
- Do you observe any activities your child doing outside their classroom using Mandarin or related to Chinese culture? What kind of activities are those? When doing these activities, do they also want you to be involved?
- How often do you observe your child read and/or write in Chinese outside the classroom? If observed, what is s/he reading and/or writing?
- Do you usually talk about the language exchange with your child(ren)? (only in post-intervention interview)

- How do you feel about the language exchange intervention? Do you have any suggestion for latter activities like this? (only in post-intervention interview)

Analytic Plan

Table 2 provides overview of the quantitative and qualitative analytical approaches for each of the three research questions and what student and parent data contributed to each.

Table 2. Overview of research questions and analytical approaches

	Quantitative	Qualitative
RQ1: How does telecollaborative language learning influence elementary school DLI students' willingness to use the target language outside the classroom? And what are students' feelings about usage?	Student interviews: How many hours do you spend on activities using Mandarin pre day besides your interaction with your Chinese pen pal? How many hours do you spend on activities involving reading and writing Mandarin pre day besides your interaction with your Chinese pen pal?	Student interviews: What activities do you have using Mandarin in the past week? Name as many as you can. Do you like to have activities using Mandarin? Why? Parent interviews: Do you think your children are more willing to use Mandarin with you? Student observations: Are they showing positive facial expression when talking about the Mandarin usage activities?
RQ2: How does telecollaborative language learning influence elementary school DLI students' willingness to explore the target language's culture? And what are students' feelings about Chinese culture?	Student interviews: How many hours do you spend on activities related to Chinese culture pre day besides your interaction with your Chinese pen pal?	Student interviews: What activities do you have related to Chinese culture in the past week? Name as many as you can. Do you like activities related to Chinese culture? Why? Parent interviews: Do you see your children involve in more Chinese culture-related activities? Do they want you to be involved as well? Student observations: Are they showing positive facial expression when talking

about Chinese cultural
activities?

Table 2. Overview of research questions and analytical approaches

	Quantitative	Qualitative
RQ3: Do elementary school DLI students' preference for and feelings about telecollaborative language learning intervention changed over the course of the study?	Student interviews: Did you receive/send your email for the last week?	Student interviews: What would you like to talk about during your interaction? Do you like the interaction? Why? Parent interviews: How do you think about this intervention? Student observations: Are they showing positive facial expression when talking about the language exchange intervention?

(continued)

Analyses of RQ1: Language usage outside the classroom and feelings about this. To address RQ1, I reported the number of activities, and the amount of time they spend on them (counted by hour), and themes of activities they have in the past week using Mandarin in general, but individual data was given through charts. I also categorized these activities according to which form of language the students are using, for example reading, writing, speaking, and listening. The number of activities they had for every week were analyzed, and the number and proportion of activities fall into different categories were also presented in descriptive data to see if there are any changes. Special attention was paid to literacy activities (writing and reading). Histograms for each dyad showing these changes are presented in result as well. Descriptive differences among dyads are also reported.

For the qualitative analysis, I first transcribed the interviews verbatim. I paid attention to the content and themes of their Mandarin usage activities by adding notes to NVivo (QSR International, 2020) to capture these aspects in the transcripts. The coding was only conducted with the transcript, but I referred to my observation notes and transcripts for the students' emotions and tone when they mention these activities

for their affective responses to these activities. During the analysis, I focused on their tone and the language they used when they speaking about their experience: whether it's positive, neutral, or negative. When doing the analysis, special attention was paid to adjectives and/or adverbs to describe the activities they are having. Also, I focused on their language used to express their feeling (for example 'I don't like it', 'I feel okay' or 'I really like it') and if they are giving reasons for their preference.

Analyses of RQ2: Culture-related activities outside the classroom and feelings about these. To address RQ2, I reported the number of activities, and the amount of time they spent on them (counted by hour), and type of activities (reading Chinese poetry in either language; playing Chinese traditional games; celebrating Chinese traditional festivals etc.) they had in the past week related to Chinese culture. The amount of time they spend on these activities were presented, and the number and proportion of activities of different types (discerned according to the themes of the activities) were also be presented as a form to see if there are any changes. Table showing these changes was presented in the results as well. Differences between dyads would also be reported by presenting the descriptive data for each dyad.

For the qualitative analysis, I paid attention to the content and themes of their Chinese culture relevant activities adding notes into the transcripts in NVivo. I also referred to my observation notes for their emotions and tone when the students mention these activities to see if there are any changes in their affective responses towards culture-related activities. During the analysis, I focused on their tone and the language they used when they speaking about their experience: whether their comments it's positive, neutral, or negative. When doing the analysis, special attention was paid to adjectives and/or adverbs to describe the activities they are having. Also, I focused on their language used to express their feeling (for example 'I don't like it', 'I feel okay'

or ‘I really like it’) and if they were providing reasons for their preference.

Analysis of RQ3: Engagement in the intervention and feelings towards it. I report the descriptive, quantitative data of whether students sent and/or received emails during the ten-week interview session. I present the descriptive data for every dyad to compare the differences between them. For the qualitative analysis, I reported the content/topic of their interaction for that week, and compared them with the prompts I gave that week. Using NVivo, I also examined the transcripts and noted the students’ emotions and tone when they mention these interactions to see if their affective responses have changed during the process. During the analysis, I focused on their tone and language they used when they speaking about their preferences for experiences: whether it’s positive, neutral, or negative. When doing the analysis, special attention was paid to adjectives and/or adverbs to describe their activities. Also, I focused on their language used to express their feelings (for example ‘I don’t like it’, ‘I feel okay’ or ‘I really like it’) and if they were giving reasons for their preferences.

Results

In this section, I presented the findings obtained from the interview with the seven U.S. students during the ten-week session. I organize the section by research questions discussing amount, types and feelings related to Mandarin usage and Chinese culture, as well as students’ overall impressions of the intervention.

Mandarin using activities

Amount of time spent on Mandarin using: no great increase in Mandarin usage was observed from the interview. And although there are some students spend more time using Mandarin, this change may not be caused by language exchange intervention. For instance, while I was having the interviews with the students, their

parents were sometimes present, and heard what I said during the interview. Some of them later told me that they thought that giving their children more Mandarin using activities would be a great idea, and thus they carried it out. What should also be noted is that most of the Mandarin-using activities students participated in focused on language acquisition, i.e. learning Chinese characters, doing translating on apps etc., and they did them not for interest purpose but for acquiring Mandarin. Meanwhile, some of them showed that they are forced to have these activities by their parents. For example, Andy thought his summer camp is a waste of time because he was only reviewing what he had learned but not learning anything, however, he attended it nonetheless.

See Table 3 for time students spent on Mandarin usage during the 10-week session.

Types of Mandarin-using activities: Generally speaking three types of Mandarin-using activities were observed during this ten-week session: 1) speaking with/writing to family members who *only* speak Mandarin, 2) learning and/or reviewing the language (summer camp, language learning app, language learning videos, Chinese tutor etc.), and 3) watching cartoons or movies with Chinese subtitles/audio. What should be noted is that some of the activities, e.g. summer camp, are limited to during the summertime only and so not always freely available to children all year long. Additionally, most of the activities students mentioned were mediated by their parents, e.g. hiring a Chinese tutor, deciding to watch Chinese videos, etc.

It should be noted that among all the Mandarin-using activities U.S. children are having during the 10-week session, literacy activities actually took up a big part. See Table 3 for types of Mandarin-using activities students have during the ten-week session.

Feelings/attitudes about Mandarin use: According to the observations I made

during the interviews, U.S. students' attitudes towards Mandarin use varies according to people. Angel and Angela's attitudes towards Mandarin usage are the most positive among all participants. When talking about their Chinese tutoring, they were always smiling, and they were especially happy when talking about the Chinese cartoons and/or videos their tutor showing them.

Amy, Alice, and Andy's attitudes are more neutral. For Alice and Andy, most of their Mandarin usage activities are assigned by their parents. But Andy was smiling and showed happiness when he was mentioning Mandarin usage activities relevant to his families. Amy wasn't having any other Mandarin activities besides talking with her grandmother. Therefore, she felt that these talks were a part of her daily life, and thus not really having any attitudes towards the usage.

Andrew and Anthony were not having really positive attitudes towards their Mandarin usage activities. But their situations were different. Andrew expressed his lack of chance to use the language: it is hard for him to find resources since he was born in a Spanish- and English-speaking family, and was not deeply connected to Mandarin speaking community. The only Mandarin usage activities he had during the ten-week session is watching Netflix show with Chinese subtitles, and he told me that their translation wasn't really make sense, thus he showed lack of interest in these kind of activities. But he and his mother asked me if I could tell them more ways of using Mandarin. Anthony, on the other hand, showing negative attitudes because he thought his Chinese summer camp was dull. He was not feeling negative about the language usage but the content of his summer camp: when asked about the content of the summer camp, which is reviewing what he had learned at school, he drawled his words, showing impatience.

Chinese culture-related activities

Amount of time spent on Chinese culture-related activities: No great increase in Chinese culture-related activities was observed from the interview. Even worse, some students, for example Andrew and Andy, almost had no Chinese culture-related activities during the 10-week session of the study. But what is interesting is that by the end of the interview, Andy started to look up for Chinese films which were introduced to him by his pen pal, and thus this pen-pal-ship helped him in promoting his interests towards Chinese culture. He also asked the interviewer during the interview about the musical instrument he did not know before but was introduced to him by his pen pal, which shows his interests in culture exploration. Although he was not spending much time on culture-related activities, this change is promising.

See Table 3 for time students spent on Chinese culture-related activities during the 10-week session.

Type of Culture-related activities: Generally speaking, there are two types of culture-related activities students have during the ten-week session: 1) celebrating Chinese festivals with family, and 2) watching Chinese show/movie/cartoon or reading Chinese stories.

It's interesting that Andrew mentioned to me that even though he wants to have more Chinese culture-related activities, he does not know how to do it. He is the only student in this study who are not from Asian American family, and he have complained to the interviewer during his interview saying he cannot find any culture-related activity to do. This problem may also exist for other families as well. See Table 3 for types of Chinese culture related activities students participated in during the 10-week session.

Feelings/attitudes about Chinese culture: Not all students had Chinese culture-related activities during the ten-week session. Among those having culture-related activities (Alice, Angel and Angela), Alice's attitudes were neutral while Angel and

Angela were more positive. Alice was showing a neutral face when talking about these activities. But when I mentioned that I read about those stories she read when I was young, she got more interested and started smiling. Angel and Angela was especially interested in the Chinese cartoons their tutor showing them, and were really happy to talk about those videos as well.

Preference for telecollaboration language learning

Amount of emails sent during the 10-week session: Not all students sent emails every week. This is true for both U.S. and Chinese students. Although this study originally attempted to compare the amount of time students spent on telecollaborative language learning, they did not always know how much time they spent on reading and writing the email. From the result of this, we can see that for those dyads who are establishing common ground during the ten-week session, more emails interactions were taking place between them, which means their interests were aroused around their penpals.

See Table 4 for how many email(s) they got/sent.

Attitudinal results of the language exchange. According to the results of the data analysis, most of the dyads did not meet the expectations I formally had before the study was conducted. At the end of the ten-week session, only two out of the seven dyads who completed the ten-week session said they would like to write to their penpal later. Two of them said they don't know, and the other three families said they would not go on with this penpal-ship. There are four reasons why students don't want to go on with the penpal-ship: 1) their penpals are not responding as frequently as they would like, 2) the new school year is starting and they don't have time to write emails and read emails, 3) they previously had penpal-ship experiences and they made their decision based on past experience, and 4) they have great difficulties reading their penpals'

email.

However, Anthony, the Taiwanese heritage speaker showed some increase in his interest towards Chinese culture, but what most interested him was his penpal. In fact, when asked why he wants to go on with the penpal-ship, he said because he wants to finally meet his penpal in person one day. Another reason for his growing interest in the language exchange process is that he found a mutual hobby with his penpal, which led to increase in the amount of emails sent and received. Also, what should be noted is that most of the dyads, although they did not show an increase in their interest towards Chinese culture and learning Mandarin, they did show more interest in their penpals. By the end of the study, two out of seven dyads regard their penpals as a ‘friend’ and three of them regard their penpals as ‘someone to talk to’.

Topics of email sent and received: Although I gave a topic prompt every week, students developed their own topics pretty early during the ten-week session. Amy was the first one to develop her topic with her penpal in week four. All seven dyads developed their own topics by the end of the ten-week session. There were two types of topic they developed on their own: 1) daily life events, and 2) shared hobbies.

Feeling/attitudes towards the intervention’s penpals: U.S. students showed rising interest towards their penpals during the ten-week session, especially those who want to go on writing with their penpals. Anthony, for example, received an email from his penpal when having interview with me on Week 9, and he was so excited that he completely forgot about me and started to read and write back.

Interviewer: Yeah. I am really happy about your change. So for the last week, did you have any other activities using Chinese?

Anthony: No.

Interviewer: So –

Anthony: Wait! My penpal said something. (really excited)

(for the following five minutes he was checking emails and writing back)

Andy, on the other hand, showed disappointment when his penpal didn't respond to his emails in Week 6:

Andy: So... What's the topic for this week?

Interviewer: Ugh it's about music. Did you like, write about that topic?

Andy: Well, last week I talked about my vacation, I forgot what it was, but I just talked about where I've been and what I do every day. (paused for a while) He hasn't responded to me for a while (sounds very disappointed)

According to their own words, it could be claimed that students are looking forward to their penpals' emails. But for some of the students, it seems that they don't really care if they received email or not. Angel and Angela were happy to have the emails, but they felt okay if they didn't receive anything. Compared to what Andy showed in his interview, they didn't show any disappointment during their interviews even though their penpals were not as responsive as Andy's penpal.

Parent participation. Parent participation was measured as observed presence during the student interviews. Also, as I got some indication of how involved parents were by whether I needed to remind students to write their emails to their penpals, and if students reported asking for help from their parents when reading emails. Roughly speaking, Alice, Andrew and Anthony's parents were more engaged in the process: they were always present when their children having interviews, and didn't usually need me

to remind them. Moreover, Alice's mother was helping her with the email. However, Alice and Andrew's penpals' parents were not. On the other hand, Amy's parent was not participating a lot in her language exchange process: her mother was not present at her interviews, and sometimes she needed me to remind her to write emails, but her grandmother was helping her with her email. But her penpal's parent did. For other families, Angel and Angela's parent was not present very much during their interview, but they didn't usually require me to remind them to send their emails. This is also true for Andy's parent. However, Angel and Angela's penpals' parents are not as involved as Angel and Angela's parent were, and not as much as the parents of Andrew and Alice's penpals. The parent of Andy's penpal was really involved in the language exchange process of his son.

It is interesting that when parents from both sides are participating a lot in the study, the results of their children's language exchange would be more prominent. Anthony is the student who got the best result from the ten-week session: he set up a friendship with his penpal, and showed increasing interest in Chinese culture. However, when only one of the students from the dyad has a more engaged parent, the results of their language exchange were not as desirable compared to the dyads with both students' parents involved. This is especially true for Andrew. Although his parent was really involved (I think his mother was even more interested in the study than him), his penpal's parent was not paying attention to the language exchange at all. Without the involvement of his parent, his penpal only wrote to him four times during the ten-week session.

Table 3 Amount of times spent on different types of activities ²

Activities/Name	Amy	Alice	Anthony	Andrew	Angel	Angela	Andy
Reading Chinese stories	—	12 – 15 minutes/Week 6, 8, 10	—	—	—	—	—
Watching Chinese videos	—	110 minutes/Week 6; 21 minutes/Week 9	—	40 minutes/Week 4	10 minutes/Week 4, 5; 30 minutes/Week 9	10 minutes/Week 4, 5; 30 minutes/Week 9	70 minutes/Week 4, 5, 6
Celebrating Chinese festivals	—	—	—	—	—	—	90 minutes/Week 2
Communicating with (extended) family	No track of time/ Week 1, 2, 3, 4, 5, 6, 7, 8, 9, 10	—	—	—	—	—	No track of time/ Week 1; 10 minutes/Week 5, 6, 7, 8
Chinese tutor/summer camp	—	60 minutes/Week 1, 3, 4, 5, 6, 7, 8, 10	420 minutes/Week 5, 6, 7, 8	—	90 minutes/Week 1, 2, 3, 4, 5, 6, 7, 8, 9, 10	90 minutes/Week 1, 2, 3, 4, 5, 6, 7, 8, 9, 10	—
Chinese app	—	—	—	—	—	—	140 minutes/Week 7, 8, 9, 10
None	—	—	Week 1, 2, 3, 4, 9, 10	Week 5, 6, 7, 8, 10	—	—	—
Missing data	—	Week 2	—	Week 1, 2, 3, 9	—	—	Week 3

² Bold denotes time spent on culture-related activities.

Table 4 Amount of emails sent and received

	Amy	Alice	Anthony	Andrew	Angela	Angel	Andy
Sending one email	Week 2, 7, 8	Week 1, 3, 5, 8	Week 1, 2, 3, 4, 5, 6, 7, 8	Week 1, 4, 6, 7, 8	Week 1, 2, 3, 5, 6, 7, 8	Week 3, 5, 6, 8, 10	Week 2, 4, 5, 6, 7, 9, 10
Sending two email	—	—	Week 9, 10	—	—	—	Week 8
Not sending email	Week 1, 3, 4, 5, 6, 9, 10	Week 4, 6, 7, 9, 10	—	Week 2, 3, 5, 10	Week 4, 9, 10	Week 1, 2, 4, 7, 9	Week 1
Receiving one email	Week 2, 3, 5, 6, 7, 8	Week 1, 4, 8, 9	Week 1, 2, 3, 4, 5, 6, 7	Week 4, 5, 6, 10	Week 1, 2, 3, 5, 6, 8	Week 1, 3, 8, 10	Week 2, 4, 7, 8, 9, 10
Receiving two email	—	—	Week 9, 10	—	—	—	—
Not receiving email	Week 1, 4, 9, 10	Week 3, 5, 6, 7, 10	Week 8	Week 1, 2, 3, 7, 8	Week 4, 7, 9, 10	Week 2, 4, 5, 6, 7, 9	Week 1, 5, 6
Missing data	—	Week 2	—	Week 9	—	—	Week 3

Discussion

Conjuncture map

In this study, the usage of conjuncture map provides a clear view of the process of the intervention. This study points out possible ways to improve current conjuncture map. More emphasis should be given to artifacts produced by participants. Not only the content of their email could be regarded participants' artifacts, the common ground they built through their emailing process can also be considered as artifacts. Moreover, for future studies focusing on elementary school students' e-tandem model telecollaboration language learning, not only students should be considered participants, their parents and teachers should also be an important part of the intervention.

Future studies

This study has inspired a lot of new elements which should be heeded by future studies. First, documentation of parent participation should be expanded and considered more centrally in future intervention designs. From the analysis of the interviews, I found that three out of the seven U.S. students sometimes 'forgot to write back', and they needed me (facilitator) or parents to remind them about writing the email. Also, at least five participants said they sometimes need help from parents or online translators to understand the emails. For example, Amy said she was asking for help from her grandmother when reading the email, and she was not the only one asking for help from a parent: Alice sometimes asked for help from her mother, too; Andrew, admitted that he sometimes used an online translator when it was hard for him to understand because his parents don't read in Chinese. Furthermore, from the analysis of the interviews, I found that different levels of parent participation tend to lead to different results for telecollaborative language learning. With higher parent participation, students tend to

gain more from this ten-week session. But parent participation is not always good for students' cultivation of interest in their penpals as well as the language and culture. For example, if parents for students in the same dyad participated differently in the language exchange, it might not be helpful for their children to gain improvement from this intervention: Alice's parent participated a lot in her language learning and exchange process, but her penpal's parent did not, and thus she was unsatisfied with the frequency of her penpal responding to her email, which led to her refusal to continue in the penpalship after the study concluded. Therefore, future studies might focus on in which ways parent participation can contribute most to students' increase in their interest towards language learning and culture exploration.

Second, not only parent participation should be taken into account, but also teacher participation should be minded in future study. Teachers, while serving as a coordinator, should also help students with setting up their topics. In this study, I gave prompt so that students have something to write in their emails, however, to elicit the interests of the students, more individualized topic prompt should be given to each dyad. For instance, if both students in one dyad like watching movies, prompt relevant to movies might be better compared to prompt about painting or books etc. Therefore, prompts should be tailored to help students find their common ground and start their conversations and exchange of language and culture based on it.

Third, more help should be offered to help students establish a common ground between them during the intervention. For example, in future studies, students may not be randomly assigned into different dyads, but assigned into different dyads based on their common interests and hobbies. Therefore, they would have more to talk about in their language exchange from the start of the intervention, and with common ground, it might be easier for them to explore other topics as well.

Limitations

This study might not have provided an intense enough language exchange for students to foster their interest in their penpals, language exchange, language learning, and culture exploration. Six out of seven dyads had less than 20 emails going back and forth between them, and the only dyad who had more than 20 emails is Anthony and his penpal, who had the best outcomes. I expect that if students could learn more about each other and find shared hobbies or interests with more intense interaction and more frequent language exchange, it might be helpful for them in reaching the goals of the intervention, as we see from Anthony. Therefore, it is reasonable to have longer telecollaborative language learning sessions in future study, so that students would have more time to develop their common ground, and in that way a greater increase in students' interests in language exchange, language learning and culture exploration might be observed.

This is not the only limitation of this study. There were only seven dyads in this study, which means the sample group is rather small. And thus, inferential statistical approaches such as ANOVA were unable to be conducted. Therefore, if it is possible to have more dyads in the study, not only quantitative analysis can be conducted, but more data can be acquired and more could be gained through this study.

Moreover, in this study, parent participation was only measured with observation of presence/non-presence at the student interviews, their interaction with the interviewer during the parent pre-post interviews, and if they were providing help for the reading process of the emails. Its relationship with the attitudinal outcomes was not made clear. It is also understandable that parents don't all participate in the same way. For example, some parents didn't help their children in reading the email because they don't read in Chinese. This is especially true for Angel and Angela's parents, and

Andrew's parents. It is also plausible that some parents were not present during the interview because their children ask them not to be. Parents could also participate by asking their children about the content of their emails and discuss with them about what they want to write in their next email, like Angel and Angela's parents did.

However, considering the importance parent participation had in virtual learning among young children (Welch, 2015), it is plausible to believe that parent participation would also be fairly essential for telecollaboration language learning for young children as well. Therefore, more attention should be paid to parent participation. Therefore, if parent participation can be more systematically and extensively measured in a future study, it would be helpful for us to understand the impact of telecollaboration with school-age children much better.

Conclusion

Telecollaboration language learning can be a good supplement for DLI learning, for it provides students with a touch of the target language's culture, as well as knowledge of the people. In addition, friendships are also formed in the process, which is beneficial for students' interest in target language culture exploration and language learning. However, to fulfill its biggest contribution, many factors should be considered. Parent participation, establishment of common ground, and intensity of language exchange are all factors revealed in this study which might impact how young students experience telecollaboration language learning as an effective supplement to their primary school DLI education.

Reference

- Abrams, Z. (2003). The effects of synchronous and asynchronous CMC on oral performance. *Modern Language Journal*, 87(2), 157–167.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211.
- Alanís, I., & Rodríguez, M. A. (2008). Sustaining a Dual Language Immersion Program: Features of Success. *Journal of Latinos and Education*, 7(4), 305–319.
- Albarracín, Dolores, et al. *The Handbook of Attitudes*. Laurence Erlbaum Associates, Inc., 2005.
- Austin, N., Hampel, R., & Kukulska-Hulme, A. (2017). Video conferencing and multimodal expression of voice: Children’s conversations using Skype for second language development in a telecollaborative setting. *System*, 64, 87–103. doi: 10.1016/j.system.2016.12.003
- Bailey, A.L. (2020). Young Children’s Language Attitudes with Implications for Identity in a U.S. Dual-language Immersion Classroom. In W. Ayres-Bennett & L. G. Fisher (eds.). *Multilingualism and Identity: Interdisciplinary Perspectives*. Cambridge, UK: Cambridge University Press.
- Brammerts, H. (1996). Language learning in tandem using the internet. In M. Warschauer (Ed.), *Telecollaboration in foreign language learning* (pp. 121–130). Honolulu, HI: University of Hawaii Second Language Teaching and Curriculum Center.
- Belz, J.A., & Kinginger, C. (2002). The cross-linguistic development of address form use in telecollaborative language learning: Two case studies. *Canadian Modern Language Review*, 59(2), 189–214.
- Belz, J.A., & Kinginger, C. (2003). Discourse options and the development of

- pragmatic competence by classroom learners of German: The case of address forms. *Language Learning*, 53(4), 591–647.
- Belz, J.A., & Thorne, S.L. (Eds.). (2006). *Internet-mediated intercultural foreign language education*. Boston, MA: Thomson Heinle.
- Belz, J.A., & Vyatkina, N. (2005). Learner corpus analysis and the development of L2 pragmatic competence in networked intercultural language study: The case of German modal particles. *The Canadian Modern Language Review*, 62(1), 17–48.
- Blake, R. (2000). Computer mediated communication: A window on Spanish L2 interlanguage. *Language Learning & Technology*, 4(1), 120–136.
- Chun, D.M. (2008). Computer-mediated discourse in instructed environments. In S.S. Magnan (Ed.), *Mediating discourse online* (pp.15–45). Amsterdam: John Benjamins Publishing Company.
- Çiftçi, Emrullah Yasin, and Perihan Savaş. “The Role of Telecollaboration in Language and Intercultural Learning: A Synthesis of Studies Published between 2010 and 2015.” *ReCALL*, vol. 30, no. 3, 2017, pp. 278–298.
- Cunningham, D.J. (2016). Request modification in synchronous computer-mediated communication: The role of focused instruction. *The Modern Language Journal*, 100(2), 484–507.
- Dual Language/Bilingual Programs Office / School Directory. (n.d.). Retrieved from <https://achieve.lausd.net/Page/7524#spn-content>
- Dussias, P.E. (2006). Morphological development in Spanish-American telecollaboration. In J.A. Belz & S.L. Thorne (Eds.), *Internet-mediated intercultural foreign language education* (pp. 121–146). Boston: Thomson Heinle.
- Hauck, M., & Youngs, B. L. (2008). Telecollaboration in multimodal environments: the impact on task design and learner interaction. *Computer Assisted Language*

- Learning*, 21(2), 87–124. doi: 10.1080/09588220801943510
- Helm, F. (2015). The practices and challenges of telecollaboration in higher education in Europe. *Language Learning & Technology*, 19(2), 197–217.
- Jauregi, K., & Melchor-Couto, S. (2018). Successful telecollaboration exchanges in primary and secondary education: what are the challenges? *Future-Proof CALL: Language Learning as Exploration and Encounters – Short Papers from EUROCALL 2018*, 112–117.
- Kohn, K., & Hoffstaedter, P. (2017). Learner agency and non-native speaker identity in pedagogical lingua franca conversations: insights from intercultural telecollaboration in foreign language education. *Computer Assisted Language Learning*, 30(5), 351–367.
- Lawrence, G. (2013). A working model for intercultural learning and engagement in collaborative online language learning environments. *Intercultural Education*, 24(4), 303–314. doi: 10.1080/14675986.2013.809247
- Lee, J. S., & Jeong, E. (2013). Korean-English dual language immersion: Perspectives of students, parents and teachers. *Language, Culture and Curriculum*, 26(1), 89–107.
- Leung, G., Uchikoshi, Y., & Tong, R. (2018). “Learning Cantonese will help us”: Elementary school students’ perceptions of dual language education. *Bilingual Research Journal*, 41(3), 238–252. doi: 10.1080/15235882.2018.1483978
- Little, D. (2016, April). Learner autonomy and telecollaborative language learning. In *New directions in telecollaborative research and practice: Selected papers from the second conference on telecollaboration in higher education* (pp. 45-55).
- Lomicka, L. (2006). Understanding the other: Intercultural exchange and CMC. In N. Arnold & L. Ducate (Eds.), *Calling on CALL: From theory and research to new*

- directions in foreign teaching* (pp. 211–236). San Marcos, TX: CALICO.
- Luo, H., & Yang, C. (2018). Twenty years of telecollaborative practice: implications for teaching Chinese as a foreign language. *Computer Assisted Language Learning*, 31(5-6), 546–571. doi: 10.1080/09588221.2017.1420083
- Mehisto, P., & Marsh, D. (2011). Approaching the economic, cognitive and health benefits of bilingualism: Fuel for CLIL. In *Content and Foreign Language Integrated Learning: Contributions to Multilingualism in European Contexts* (pp. 21–48). Peter Lang.
- Müller-Hartmann, A. (2006). Learning how to teach intercultural communicative competence via telecollaboration: A model for language teacher education. *Internet-mediated intercultural foreign language education*, 63-84.
- Nielson, K. (2011). Self-Study with Language Learning Software in the Workplace: What Happens? *Language Learning and Technology*, 15(3), 110–129.
- O’Dowd, R. (2006a). *Telecollaboration and the development of intercultural communicative competence*. Munich: Langenscheidt.
- Porter, L. (2018). Journeying Together: Improving Parent Relations within Dual-Language Immersion Programs as a Model for Cross-cultural Understanding and Collaboration. *Journal of Interdisciplinary Studies in Education*, 6(2), 19–31.
- Qian, K., & McCormick, R. (2012). Building course cohesion: the use of online forums in distance Chinese language learning. *Computer Assisted Language Learning*, 27(1), 44–69. doi: 10.1080/09588221.2012.695739
- QSR International (2020). NVivo (version 12) [Computer software]. <https://www.qsrinternational.com/nvivo-qualitative-data-analysis-software/home>
- Perloff, R. (2017). *Dynamics of Persuasion: communication and attitudes in the twenty-first century*. London: Routledge.

- Sauceda, M. J., Watson, M. M., & Shwalb, D. W. (2014). Effects of an elementary school dual-immersion program on prejudicial attitudes. *PsycEXTRA Dataset*. doi: 10.1037/e541122014-001
- Smith, P. H., & Arnot-Hopffer, E. (1998). Exito Bilingüe: Promoting Spanish Literacy In A Dual Language Immersion Program. *Bilingual Research Journal*, 22(2-4), 261–277. doi: 10.1080/15235882.1998.10162725
- Steele, J. L., Slater, R. O., Zamarro, G., Miller, T., Li, J., Burkhauser, S., & Bacon, M. (2017). Effects of Dual-Language Immersion Programs on Student Achievement. *American Educational Research Journal*, 54(1_suppl). doi: 10.3102/0002831216634463
- Steele, J. L., Slater, R. O., Li, J., Zamarro, G., Miller, T., & Bacon, M. (2018). Dual-Language Immersion Education at Scale: An Analysis of Program Costs, Mechanisms, and Moderators. *Educational Evaluation and Policy Analysis*, 40(3), 420–445. doi: 10.3102/0162373718779457
- Thomas, B. A. (2017). Language policy, language ideology, and visual art education for emergent bilingual students. *Arts Education Policy Review*, 118(4), 228–239.
- Thorne, S.L. (2003). Artifacts and cultures-of-use in intercultural communication. *Language Learning & Technology*, 7(2), 38–67.
- Thorne, S. (2010). The intercultural turn and language learning in the crucible of new media. In S. Guth & F. Helm (Eds.), *Telecollaboration 2.0: Language and intercultural learning in the 21st century* (pp. 139–165). Bern: Peter Lang.
- Valdés, G. (1997). Dual-Language Immersion Programs: A Cautionary Note Concerning the Education of Language-Minority Students. *Harvard Educational Review*, 67(3), 391–430. doi: 10.17763/haer.67.3.n5q175qp86120948
- Viberg, O., & Grönlund, Å. (2013). Cross-cultural analysis of users' attitudes toward

- the use of mobile devices in second and foreign language learning in higher education: A case from Sweden and China. *Computers & Education*, 69, 169–180.
- Von der Emde, S., Schneider, J., & K€otter, M. (2001). Technically speaking: Transforming language learning through virtual learning environments (MOOs). *Modern Language Journal*, 85(2), 210–225.
- Welch, A. (2015). The Role of Primary Students and Parents in Virtual Schools. *Distance Learning*, 12(2), 33-37.