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RESEARCH ARTICLE

# Pedagogical benefits of Chinese-American virtual exchange: A study of student perceptions

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**Abstract**

Despite the rapid development of virtual exchange in foreign language education, its use in the field of Chinese language education is still rather nascent. Adopting a mixed-methods research approach, this study focuses on examining the pedagogical benefits of a Chinese-American virtual exchange as mediated by students' self-reported data. Two Chinese language classes (i.e. one at the elementary level and one at the intermediate level) at a small liberal arts college in the United States and a group of Chinese-speaking English majors at a Chinese university in Shanghai participated in the exchange. Analyses of four sources of qualitative data (i.e. WeChat group cultural discussion transcripts, Skype conversations, reflection journals, and end-of-program interviews) gave rise to four benefits of the exchange: promotion of cultural learning, improvement of Chinese language skills, enhancement of learning motivation, and establishment of a language learning community. Quantitative analyses of the end-of-semester questionnaire items show that the benefit regarding cultural learning, on average, received the highest rating, followed by community building and motivation enhancement, with improvement of Chinese skills being rated the lowest. Moreover, intermediate-level students evaluated all four benefits with higher ratings than elementary-level students. In particular, the two groups' quantitative evaluations in terms of Chinese skills and motivation differed significantly. However, both groups enthusiastically endorsed the benefits of cultural learning and community building. The pedagogical implications of these results are also discussed.

**Keywords:** virtual exchange; telecollaboration; Chinese; pedagogical benefits

## 1. Introduction

Virtual exchange (VE), also known as telecollaboration,[1] has been defined as "institutionalized, electronically mediated intercultural communication under the guidance of a languacultural expert (i.e., a teacher) for the purposes of foreign language learning and the development of intercultural competence" (Belz, 2003b: 2). In response to the intercultural pivot in foreign language education (Thorne, 2010), VE has developed rapidly and robustly in the past 20 years and has become an emerging separate subfield in computer assisted language learning.

The popularity of VE has generated a tremendous amount of research on this topic. In addition to numerous journal articles, studies on VE interactions have given rise to Peter Lang's book series *Telecollaboration in Education* (e.g. Dooly & O'Dowd, 2012; Guth & Helm, 2010), edited volumes (Belz & Thorne, 2006; Dooly, 2008; O'Dowd, 2007; O'Dowd & Lewis, 2016), and journal special issues (Belz, 2003b; Lewis, Chanier & Youngs, 2011; Lewis, 2017).

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[1]A variety of terminologies have been used for VE. Please refer to Hagley (2020) for a detailed discussion.

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However, research on VE partnerships involving Chinese as the target language has been scarce (Belz, 2003b; Lewis & O'Dowd, 2016). For instance, none of the studies included in the above-mentioned edited volumes and journal special issues discussed VE involving Chinese as a foreign language (CFL) learners. Although VEs have started to emerge in China (Wang & Coleman, 2009), the use of this tool in teaching CFL is still rather nascent. Compounded by a lack of empirical research on this topic, successful VE models for CFL learners have yet to be established. Addressing this scholarly lacuna, this study investigates the benefits of using VE in CFL teaching to further promote this pedagogical tool among Chinese language instructors.

## 2. Literature review

The past two decades have produced a plethora of literature on VE in foreign language education. Many review articles (e.g. Avgousti, 2018; Çiftçi & Savaş, 2018; Lewis & O'Dowd, 2016; Luo & Yang, 2018) have provided critical analyses of VE research and practice. Through systematic reviews of the literature, Lewis and O'Dowd (2016) created a descriptive map of the studies on VE and evaluated the learning outcomes reported in a representative sample of studies, whereas Avgousti (2018) considered the different modalities through which learners interact during VEs and focused on examining VE in relation to the modality used for each reviewed project. Çiftçi and Savaş (2018) conducted a qualitative meta-synthesis of the research papers published between 2010 and 2015 regarding language and intercultural learning within VE environments, outlining key emerging issues and further research and practice directions. Luo and Yang (2018) identified five themes (i.e. models, tasks, challenges, technologies, and new trends) from the past 20 years of VE practice and paid special attention to how each theme's findings could be applied to VEs for CFL learners.

Despite various challenges such as reinforced stereotypes of a target culture, unachieved pedagogical goals, proficiency mismatch, and unequal participation (e.g. Antoniadou, 2011; Belz, 2001; Hauck, 2007; O'Dowd & Ritter, 2006; Ware, 2005), researchers have reported a wide range of beneficial outcomes of VE. The most frequently discussed benefit is related to second language development. VE has been found to be able to facilitate meaningful interaction (Blake & Zyzik 2003), develop L2 pragmatic competence (e.g. Cunningham, 2016), improve grammatical ability (Lee, 2002), and enhance oral communication skills (Abrams, 2003). Another widely discussed benefit is its contribution to the development of intercultural communicative competence (e.g. Belz, 2003a; Helm, 2009). Moreover, VEs have been reported to promote learner autonomy (Schwienhorst, 2000), enhance learner motivation (Jauregi, de Graaff, van den Bergh & Kriz, 2012), develop digital literacies (Helm, 2014), foster higher-order thinking skills (Von der Emde, Schneider & Kötter, 2001), and facilitate the building of learning communities (Darhower, 2007).

With more than 20 years of development in foreign language education, VE is still mainly implemented in Western classrooms based in North America and Europe. This practice has been significantly less popular in the teaching of non-romance languages such as Chinese. Consequently, there is still a lack of research on VE partnerships involving Chinese as the target language (Belz, 2003b; Chun, 2014; Lewis & O'Dowd, 2016). However, this trend has been changing gradually, and research on the performance of CFL learners in VEs has begun to emerge.

A comprehensive, if not exhaustive, search of relevant journals and books has yielded 10 studies on Chinese-English VE involving CFL learners (Chen, 2017; Jiang, Wang & Tschudi, 2014; Jin & Erben, 2007; Luo & Gui, 2019; Ryder & Yamagata-Lynch, 2014; Tian & Wang, 2010; Wang & Tian, 2013; Wang, Fang, Han & Chen, 2016; Wang, Zou, Wang & Xing, 2013; Wang, Zou & Xing, 2011). All these studies, in general, reported positive student attitudes toward VEs. Consistent with the general literature on VE, many of these studies found this practice was beneficial for the development of Chinese language skills via improved fluency and accuracy (Chen, 2017), various types of corrective feedback (Wang *et al.*, 2011), opportunities for

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negotiation of meaning (Wang & Tian, 2013), and students' self-perceived linguistic gains (Tian & Wang, 2010). Moreover, some of these studies reported the positive impact of VE on intercultural learning through the development of intercultural sensitivity (Jin & Erben, 2007), enhanced intercultural awareness (Wang *et al.*, 2013), and students' self-perceptions of improved intercultural competence (Tian & Wang, 2010).

A closer examination of the reported benefits of VE in the CFL context, especially those in terms of intercultural learning, shows that findings were largely based on student ratings of predetermined Likert-scale items (e.g. Jin & Erben, 2007; Tian & Wang, 2010; Wang *et al.*, 2013) or researchers' own evaluation of the VEs in a summary format (e.g. Jiang *et al.*, 2014). To date, no research has focused on examining the pedagogical benefits of using VE in teaching Chinese based on a variety of qualitative data comprising student perceptions.

Moreover, VEs in the CFL context were reported to have faced challenges of various types (Luo & Gui, 2019). For example, in Ryder and Yamagata-Lynch's (2014) study, five out of seven pairs were classified as low functionality groups who expressed disappointment toward the exchange. In the project reported by Jin and Erben (2007), two out of seven pairs dropped out of the exchange in the middle. In the "China-USA Business Café" (Jiang *et al.*, 2014), students of low Chinese language proficiency were not even able to participate in some of the activities. Despite the significant contributions of these pioneering efforts in VE, there is ample room for CFL instructors to further explore the full potential of this pedagogical tool.

A number of areas deserve the attention of CFL instructors. First, existing VEs for CFL learners tended to heavily rely on the eTandem model (O'Rourke, 2007), also referred to as the dual language virtual exchange (DLVE) model (Hagley, 2020), without taking full advantage of the intercultural model (Belz & Thorne, 2006) in project design. Second, VEs in the CFL context typically adopted a single task type rather than a combination of different tasks, the approach favored by many scholars (Hauck & Youngs, 2008; Müller-Hartmann, 2000; O'Dowd & Eberbach, 2004). Third, as a well-documented issue in the general literature of VE (e.g. Belz, 2001; O'Dowd & Ritter, 2006; Ware, 2005), the target language proficiency gap seems to be especially acute in the CFL context (Chun, 2014), as evidenced by studies on Chinese-English VE (e.g. Jiang *et al.*, 2014; Ryder & Yamagata-Lynch, 2014; Tian & Wang, 2010). It is then worthwhile to investigate how CFL students of different proficiency levels perceive the same exchange. Finally, existing VEs examined the effectiveness of a number of technologies, such as Skype (Tian & Wang, 2010), wiki (Wang *et al.*, 2013), or instant messenger (Jin & Erben, 2007). However, WeChat, the most popular mobile social media platform in China, remains underexplored, despite its recognized potential for CFL instruction and VE (Luo & Yang, 2016, 2018).

To bridge these gaps and to further promote VE in teaching CFL, this study attempts to investigate the pedagogical benefits of a Chinese-American VE through various types of data (e.g. interviews, reflection journals, WeChat discussion transcripts, Skype conversations, questionnaire responses). This study employs a mixed-methods research approach, with special attention given to the evaluations of CFL students from two different proficiency levels. More specifically, this study focuses on examining the following two questions:

1. What were the student-perceived pedagogical benefits of the Chinese-American VE as revealed by the qualitative data?
2. How did the CFL students evaluate these benefits quantitatively? Did elementary-level and intermediate-level students evaluate them differently?

## 3. Methodology

### *3.1 The Chinese-American exchange*

The Chinese-American exchange was a 15-week project, involving two Chinese language classes, CHN102 (i.e. second-semester elementary Chinese, 13 students) and CHN112 (i.e. second-semester

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intermediate Chinese, eight students) at a liberal arts college in the United States (US), and 21 English majors at a Chinese university in Shanghai. All the CFL students at the US college were native speakers of English except two female Vietnamese international students, one in CHN102 and one in CHN112. All 21 participants from the Chinese university were native speakers of Chinese and had learned English as a second language for at least seven years.

Each student from the American group was paired up with one from the Chinese group. Two separate WeChat groups for the CHN102 and CHN112 classes were created for participants from both sides to socialize and discuss cultural topics. The exchange comprised four components: one-on-one Skype conversations, WeChat group cultural discussions, one-on-one WeChat conversations, and reflection journals.

On a weekly basis, the students from the American side were required to spend at least half an hour talking to their Chinese partners over Skype on one of the lab computers, preferably half in Chinese and half in English. In order to mitigate the issue of the target language proficiency gap, the instructor provided a list of weekly topics in Chinese within the students' vocabulary range. A list of weekly cultural topics was also suggested for the English half, but students were allowed to switch to any other topics. The Skype conversations were recorded as video files on the department lab computers at the US college.

The two WeChat groups worked as cross-cultural discussion forums. The main language for WeChat group discussions was English and the discussion topics were suggested by the students. For eight weeks in the semester, cultural topics along with specific discussion questions were posted in each WeChat group to generate cross-cultural discussions and comparisons.

In addition, partners were expected to connect with each other individually through WeChat daily to discuss anything they found interesting. They were allowed to type texts, send voice messages in English or Chinese, or videoconference (which did not need to be recorded). Five to 10 minutes of each class meeting in CHN102 and CHN112 were reserved for students to share the most interesting things they learned from this component.

Almost every week, CFL students were required to write a reflective journal on their VE experiences, with the final journal being a holistic reflection of the exchange. The goals and expectations of reflective journals were discussed in class at the beginning of the semester, and a document titled "Guidance for Writing Reflective Journals" was handed out to the students.

The design of this exchange was guided by the principles of both the eTandem model (or DLVE) and the intercultural model; the project incorporated different technological tools (e.g. Skype, WeChat), integrated various types of tasks (e.g. information exchange tasks in Skype, comparison and analysis tasks in WeChat cultural discussion, reflective task in reflection journals), and took measures to alleviate the issue of target language proficiency gap (e.g. providing discussion guides for the Chinese part of Skype conversations and allowing the use of English for WeChat group discussions).

### 3.2 Data collection and data analysis

A variety of data were collected throughout the project, including WeChat group discussion transcripts, Skype conversations, weekly reflection journals, end-of-program interviews, and the end-of-semester questionnaire.

Twelve students at the US college participated in the end-of-program interviews, six from CHN102 and six from CHN112, representing different levels of engagement and involvement during Skype and WeChat group discussions. The interviews were semi-structured and guided by three general questions: (1) What do you think of the Chinese-American exchange this semester? What do you like or dislike about it? (2) What challenges did you encounter during the exchange? (3) Do you have any suggestions for improvement? However, the interviews were open ended, and the participants were encouraged to pursue any topic that interested them. Each

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interview lasted around 15–20 minutes. The interviews were then transcribed and made anonymous for analysis.

Two weeks after the end-of-program interviews, the participants at the US college were asked to fill out an end-of-semester questionnaire. They were asked to give ratings on a list of items eliciting their perceptions of the exchange on a 7-point Likert scale and provide reasons for their ratings. Four of the items addressed the pedagogical benefits of the exchange; this study only examined responses to these four items in the questionnaire.

In order to examine the student-perceived pedagogical benefits of the exchange (i.e. Research Question 1), analysis of the above-mentioned four sources of qualitative data followed the constant comparative method with a three-stage coding strategy: open, axial, and selective coding (Strauss & Corbin, 1998). With no preconceived hypothesis in mind, the two researchers first examined the CFL learners' reflection journals and end-of-program interviews to discern a full range of benefits that emerged and reoccurred from the data. These benefits were then merged and sorted into fewer conceptual categories until the core categories were identified and selected. All the benefits were categorized into one and only one category (Constas, 1992). Meanwhile, data from the WeChat group discussions and Skype conversations were used to triangulate with the analysis. Data analysis was a continuous and recursive process. Over the course of the project, the two researchers continuously compared and cross-checked emerging themes across multiple data sets to look for confirming or refuting evidence.

The themes of pedagogical benefits that emerged from the data were then worded into items in the end-of-semester questionnaire. Student ratings of these items revealed how students evaluated these benefits quantitatively, providing answers to the second research question of this study.

## 4. Results and discussion

### *4.1 Research question 1: What were the student-perceived pedagogical benefits of the exchange?*

Based on the constant comparative method, four themes regarding pedagogical benefits emerged overwhelmingly from the four sources of qualitative data: promotion of cultural learning, improvement of Chinese skills, enhancement of learning motivation, and establishment of a supportive language learning community.

#### *4.1.1 Cultural learning*

Each student in CHN102 and CHN112 discussed cultural gains in one way or another, and the theme of cultural learning consistently emerged from all four sources of qualitative data. WeChat group cultural discussions, Skype conversations, and one-on-one WeChat conversations all contributed to the learning of Chinese culture.

Throughout the semester, the WeChat groups of CHN102 and CHN112 each held cross-cultural discussions on eight cultural topics, including holidays, food, pets, campus life, dating and drinking culture, music, heroes, and social media. The students from both WeChat groups demonstrated "an intense curiosity" (Andrew, end-of-program interview, May 2016) in the daily lives of contemporary Chinese and American individuals. Most of these topics generated interesting cross-cultural discussions, in which students from both sides provided facts, shared knowledge and personal experiences, identified cultural differences, and expressed personal opinions. The following is an excerpt of postings on drinking culture, representing the typical flow of WeChat group cultural discussions (AS = American student, CS = Chinese student).

AS1: Well, in the United States, turning 21 is usually considered a big deal because one is finally considered "legal" and can have alcoholic beverages without repercussions.

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CS1: Interesting. I didn't know that. I remember my uncle started to tease me and asked me to drink during New Year family dinners when I was a little kid ... hahaha.

CS2: The law has fewer restrictions on the drinking age, but I think fewer college people drink in China. When we hang out, we'd choose alcoholic-free drink. Drinking seems to be connected to a formal business relationship.

AS2: Here it is pretty much the opposite, where we drink with friends when we hang out, so it has a social aspect to it, but it is not really a huge part of the business culture.

In addition to text postings, the students also shared real-life photos and web links pertaining to a particular discussion topic. For example, when discussing Chinese New Year traditions, a number of Chinese students posted photos of their own families gathering on the eve of Lunar New Year. When talking about pets, many American students posted photos of their own dogs, cats, and other animals. The topics of music and heroes generated a significant number of web links leading to Chinese and American songs, music videos, movie clips, and book overviews. These materials provided additional authentic cultural input and were very much appreciated by the students: "I love the photos from our Chinese friends. I now know what real Chinese people eat and wear during Chinese New Year and how they decorate their house. The links are cool too. I always check them out when I have time. Most of the time I do not understand much, but I still like to see" (Mat, reflection journal, March 2016).

While the WeChat group discussion created a cultural forum for everyone involved, the one-on-one Skype and WeChat conversations helped foster real, personal relationships conducive to in-depth, rich dialogues. Students reported a wide variety of cultural topics discussed through these private interactions, including Chinese politics, censorship, women's rights, vacationing, parenting styles, and education systems, just to name a few. Various cultural gains resulted from such personal and private conversations.

Some students used the one-on-one conversations as an opportunity to reinforce what was learned from the textbook: "Through the Skype conversations, I learned a lot about the Chinese culture, but with more updated, real life knowledge compared to the textbook ... I learned the words for different sports in the textbook, but what types of exercise they usually do and their opinions on these exercises through Skype" (Monica, end-of-program interview, May 2016).

Some students used these conversations as a way to further explore their own academic interest. A film major at the US college reported, "My Skype conversations would sometimes generate further inquiries and further learning. My partner and I talked about movies we liked to watch ... I was unfamiliar with popular Chinese films. I looked into it a little more, and it turns out that Chinese cinema is on the rise, as the industry grows domestically every year, even challenging Hollywood imports at the box office" (Andrew, reflection journal, April 2016).

Others reported their change of attitudes toward Chinese culture as a result of the private conversations: "Whenever we talk about Communism in the United States, it is always seen as a dirty word and people never seem to want to talk about it for too long of a time. [Erica] was able to help me uncover the truth about the Communist government, and while I still don't believe in everything the government does, I have a better understanding of what it means to live in China" (Walter, end-of-program interview, May 2016).

Finally, these personal conversations prompted the American students to reflect on their own culture and life experience. For example, a student considered it "a fantastic idea" for Chinese parents not to allow their children to date before they enter college: "I remember many nights being heartbroken, which I now view as energy being wasted over things that were essentially distractions. This focus on academics demanded in Chinese culture is something that is definitely lacking in America" (James, final reflection journal, May 2016). An athlete student marveled at "how little the Chinese students pay attention to sports." This sharp difference made her question

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her own life at first, but then analyze the value of being an athlete: "One thing field hockey prepares me for is the skills I gain from the interactions with other people on my team under high-stress. It is hard to replicate the training of these skills outside of the sports-world" (Meg, final reflection journal, May 2016).

In conclusion, the students viewed cultural learning as an extremely important learning outcome of the Chinese-American exchange, which offered "a completely unexpected and interesting way to learn about a different culture" (Sophie, end-of-program interview, May 2016).

#### 4.1.2 Chinese language skills

As the Skype conversation was the only component in which the use of Chinese language was mandatory for half the time, it served as the main source for American students to develop Chinese skills in this exchange. Despite commonly reported frustrations with Skype scheduling because of the time difference, all the students in CHN102 and CHN112, interestingly, mentioned their improvement in Chinese skills in one way or another.

Linguistic gains were reported in a wide range of areas, including vocabulary, pronunciation, tones, grammar, listening comprehension, and speaking. The most frequently discussed linguistic benefit was the learning of new vocabulary, especially those words the students were "interested in learning, but not covered in the textbook" (Monica, end-of-program interview, May 2016). Here is an explanation why learning new words happened very frequently during Skype conversations: "My partner was not familiar with the specific vocabulary we were studying ... There were a lot of new words being thrown around, I had to ask for clarification of certain words often, and use these new words in order to further our conversation, which led to learning a lot of new words I would never have learned otherwise" (Nick, final reflection journal, May 2016).

Correction of pronunciation was commonly perceived as necessary and effective during Skype conversations. As an American student explained, "My partner sometimes did not understand me when I spoke Chinese. I would repeat what I said. At a point, she would suddenly realize what I meant and then start to correct my pronunciation. I usually picked up very quickly. I am glad she corrected me on the spot. My pronunciation is much better now" (Theo, end-of-program interview, May 2016).

Similarly, appreciation was frequently expressed toward Chinese partners' help with tones. Such corrective feedback not only increased American students' tonal accuracy but also changed some of their beliefs toward Chinese language learning: "There were many times when my partner would not understand me because my tones were incorrect. Her constant correction on my tones helped me learn the importance of tones in the Chinese language. Now when I study, I really pay attention to the tones and my ability to pronounce the words using the tones" (Meg, final reflection journal, May 2016).

Incomprehensibility also led Chinese partners to correct American students' grammar mistakes, resulting in improved mastery of these grammar points. Here is an example: "The *ba* construction is difficult, but I tried to use it during Skype. [Erica] had a problem understanding me and then ended up correcting me. I was able to make the correction on the spot. I just got it right away perhaps because I was using it in a real conversation" (Walter, reflection journal, April 2016).

Improvement in listening comprehension was another commonly reported linguistic gain, as "it is essential to be able to understand your native Chinese partner for the conversation to even continue" (Jay, reflection journal, March 2016). To some degree, the students were forced to improve their listening comprehension skills due to the real-time and interactive nature of Skype conversations: "My partner talked very fast, so I had to learn to pick up words quickly and improve my comprehension skills" (Josh, end-of-program interview, May, 2016); "It was incredibly hard at first for me to understand what my partner was saying, I was a little embarrassed, but my embarrassment only made me try harder the next time" (Andrew, final reflection journal, May 2016).

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The Skype conversations were also perceived to have enhanced American students' Chinese-speaking skills, as they were able to "speak more fluently," "respond to their partner more quickly," or "formulate more complex sentences" (end-of-program interviews, May 2016). Here are some examples of student perceptions: "It forced me to think on my feet and be able to formulate questions off the top of my head" (Josh, end-of-program interview, May 2016); "I had to be quick about my responses to [Erica] in order to avoid awkwardness in the conversations" (Walter, reflection journal, March 2016); "A lot of speaking to [Jack] was very random and forced me to improvise which I do not practice as much during class" (Ben, final reflection journal, May 2016); "Being put in a situation where you are solely reliant on your Chinese knowledge to hold a conversation for 15 minutes is the best way to improve speaking quickly" (James, final reflection journal, May 2016).

In summary, the Skype conversations helped improve Chinese skills in three ways: authenticity, reinforcement, and correction. These interactions provided an authentic conversational context in which Chinese partners "spoke very fast" "with expansive vocabulary" and perhaps "with a local accent," and, moreover, learners had "no control over how the conversation would go" (reflection journals, March–May 2016). These features provided learners "the chance to apply the structures and new words learned in class to real life situations" (Monica, final reflection journal, May 2016). Not only was the linguistic knowledge learned in class reinforced in these real-time conversations, but also the mistakes that hindered comprehension were corrected, resulting in improved Chinese language skills.

Nevertheless, it should be noted that some students, especially those taking elementary Chinese, confessed to not being able to benefit much linguistically from the exchange due to their limited Chinese proficiency: "I mostly spoke in English with my partner because my Chinese is not at a conversational level yet. The program may have helped more at a higher level" (Lauren, end-of-program interview, May 2016). Therefore, it might be meaningful to see how improvement of Chinese skills as a learning outcome was assessed quantitatively by the students as a whole and by elementary-level and intermediate-level students as separate groups.

#### *4.1.3 Motivation*

Enhanced motivation in learning Chinese is another frequently discussed benefit, as reflected in the students' highly positive perceptions toward the exchange as a whole. They described the Chinese-American exchange as "interesting," "fun," "enjoyable," "innovative," "a new format to learn Chinese," and "a great platform for intercultural learning" (end-of-program interviews, May 2016). They found the VE "an extraordinarily good idea," the cultural discussions "invigorating and quite humorous," and the process of partnering with a Chinese student and constantly engaging with them "a great way to learn the language" (reflection journals, March–May 2016).

Many factors contributed to enhanced motivation. Having a "fun," "friendly," "cool," "outgoing," or "knowledgeable" conversation partner stood at the top of the list (end-of-program interviews, May 2016). Many students felt motivated to learn Chinese because they wanted to learn more about their partners' lives. A number of students planned to study abroad and visit their partners in China after the exchange was completed. Here is an example further illustrating the positive impact of a great Chinese partner: "I honestly looked forward to going to the language lab on Thursday nights to meet up with [Erica] because she has such a bright personality and it was always good to hear her voice after a long week of busyness. Also, she is always supportive of me when I struggle with speaking Chinese, which is a great morale booster. She has even complimented me on my Chinese!" (Walter, reflection journal, March 2016).

Next on the list was the perception that the exchange "opened the door to learning in a new environment in addition to a classroom setting" (James, final reflection journal, May 2016). The students seemed to be particularly attracted to the "creative," "new," or "different" aspects (end-of-program interviews, May 2016) to learning brought about by the exchange: "This program,

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innovative and different, was a nice addition to the traditional Chinese classes because I have never had so much going on with learning Chinese. It was great being able to learn about the culture in a fun, engaging way. It motivates the want to learn Chinese by making me want to visit China and explore the culture first hand" (Peri, final reflection journal, May 2016).

The students welcomed "this new format of learning" also because learning became more "effective," "authentic," and "practical" (end-of-program interviews, May 2016). In this new environment, students were given the chance to "put learned skills to use," and "converse freely while listening to the authentic way in which native speakers speak" (final reflection journals, May 2016). As Paul commented in the end-of-program interview, "This program allows me to learn Chinese better because I need to use the vocab and grammar patterns that we learn in class in a casual conversation, which for me is the best way to learn something new. I see how a native Chinese speaker really talks and it definitely motivates me to continue working, learning and studying Chinese."

The perceptible learning gains resulting from the exchange also played an important role in boosting students' motivation. Some students associated their motivation with cultural learning: "I was very motivated in participating in the exchange because it allowed me to get a real personal feel for what Chinese culture and people are like ... By being able to talk freely with someone I get to know better and better each week, I feel like I am learning about Chinese culture in a way that a book could never teach me" (Monica, end-of-program interview, May 2016). In contrast, others seemed to value the linguistic achievement more: "Skyping with my Chinese friend definitely helped motivate me to learn Chinese ... She would teach me words that I didn't know ... She also helped me with my tones very often" (Tiffany, final reflection journal, May 2016).

Interestingly, even the challenges encountered during the exchange became a source of motivation for many students. It often happened that the American students could not understand their Chinese partners during Skype due to fast-paced speech, advanced vocabulary, or complex grammar, or could not make themselves understood because of mispronounced tones, incorrect use of words, or ungrammatical sentences. All these communication breakdowns drove many of them to study Chinese more diligently. As Josh reflected in his final journal, "It made me realize I have a lot to learn and really motivated me to improve." This sentiment was echoed by Nick in the end-of-program interview: "This only furthered my desire to learn the language as it showed me just how much more I have to learn, but also how far I have come thus far in my study of the language."

However, it should be noted that challenges as a source of demotivation were also present in the data, especially among the elementary Chinese class. As an American student complained, "too much assignments and scheduling frustrations make motivation hard" (Theo, final reflection journal, May 2016). It is thus interesting to see how the students, as a whole, evaluated the benefit of enhanced motivation quantitatively and whether elementary-level and intermediate-level Chinese language students assessed it differently.

#### 4.1.4 Learning community

Many scholars agree that strong learning communities provide substantial learning advantages (Lichtenstein, 2005; Zhao & Kuh, 2004), and close relationships among members constitute an important defining characteristic of a good learning community (West & Williams, 2017). "Friendship," "bonding," "attachment," "connection," and "rapport" were frequently used by the students in the data, which all contributed to students' perception of a Chinese language and culture learning community, virtual or physical, fostered by the VE. In this community, "students sympathize[d] with each other about the struggles and success of the program" (Monica, end-of-program interview, May 2016). It was a space "constructed by the students themselves" and "focused on helping each other learn the language" (Andrew, final reflection journal, May 2016).

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Different types of relationships combined to structure and strengthen this community, including the friendships between partners, the bonding in the Chinese class, and the connection established among all the Chinese and American students through the WeChat groups. As one American student commented, "This program not only provides me a new opportunity to learn Chinese language and culture. It also, interestingly, allows me to socialize with my classmates in the Chinese class more, have a close relationship with my Chinese partner, and get acquainted with many other Chinese friends in the WeChat" (Jay, final reflectional journal, May 2016).

Many elements helped to make this community possible. The Skype conversations and one-on-one WeChat interactions helped to build close friendships between partners, which was the most frequently discussed aspect of this community: "You end up developing a nice friendship with your partner. It does not matter that you have never met them in your life. It matters that you both have the same goals of wanting to learn a new language and culture. Because you end up developing somewhat of a relationship with your partner, you get to ask questions that you can't ask your teachers. By being able to do this, you get to learn more than what they put in the textbooks" (Abby, final reflection journal, May 2016). As discussed previously, the friendships between partners became so strong that some even continued to be in touch with each other after the program was completed.

The WeChat group cultural discussions played a central role in constructing the actual space of communication for the community, where everyone could see one another's opinions and make comments on them. The students viewed this common space as valuable because it not only helped connect Chinese and American students as a whole group but also strengthened the bonds among the American students in the Chinese class: "The group WeChat was very helpful. It was nice hearing from so many different people and their ideas, giving me a more than singular idea of what people thought. I learned a lot about Chinese society, but I also learned a lot about my friends in my Chinese class ... and their interests" (Chris, final reflection journal, May 2016).

The personable Chinese-American group rapport was in part attributed to the fact that students from both sides were peers with similar interests and challenges: "It is nice our Chinese partners are the same age as us and are also attending colleges, it provided us with a basis of comparison. Many issues that are relevant and important to us are also relevant to them. This could range from school work, extra curriculars, social lives, dating scenes, parent relations, and a variety of other possibilities. This made the WeChat group cultural discussions one of the most interesting parts of the program" (Josh, final reflection journal, May 2016).

Meanwhile, the WeChat group helped build up the bonding of the Chinese class partly because the American students used this space to not only learn language and culture but also socialize through it. As mentioned by Maria in the end-of-program interview, "We sometimes share just a Chinese restaurant link in the WeChat and say something like: Anyone has tried this restaurant? How is it? I know it's a bit random, but it helps bring our class closer together."

### *4.2 Research question 2: How did CFL students evaluate the benefits quantitatively?*

Analyses of the qualitative data gave rise to the four pedagogical benefits, as previously discussed. However, it should be noted that there were also students who perceived the exchange to have little impact on motivation enhancement and improvement of Chinese skills. Moreover, students in CHN102 tended to have more critical comments toward the exchange than those in CHN112. It is thus interesting to see how the students evaluated the four pedagogical benefits quantitatively and to what degree elementary-level and intermediate-level students' evaluations differed.

The four pedagogical benefits were phrased into four positive statements in the end-of-semester questionnaire (e.g. "This Chinese-American Telecollaborative Learning Program has helped improve my Chinese skills"). The students were invited to provide a rating on a 7-point Likert scale to indicate to what degree they agreed or disagreed with the statements, with 1 corresponding to "strongly disagree" and 7 indicating "strongly agree."

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**Table 1.** Means and standard deviations of perceived benefits

| | | Chinese skills | Cultural learning | Motivation | Community |
|---|---|---|---|---|---|
| CHN102 | *M* | 3.92 | 5.92 | 4.69 | 5.00 |
| | *SD* | 1.71 | 1.04 | 1.25 | 1.15 |
| CHN112 | *M* | 5.88 | 6.38 | 5.88 | 5.63 |
| | *SD* | .99 | .74 | 1.25 | 1.19 |
| Combined | *M* | 4.67 | 6.09 | 5.14 | 5.24 |
| | *SD* | 1.74 | .94 | 1.35 | 1.18 |

As shown in Table 1, when the data from the students in CHN102 and CHN112 were combined, the benefit regarding cultural learning received the highest rating ($M = 6.09$, $SD = .94$, $n = 21$), followed by learning community ($M = 5.24$, $SD = 1.18$) and motivation ($M = 5.14$, $SD = 1.35$), with improvement of Chinese skills being rated the lowest ($M = 4.67$, $SD = 1.74$). These results show that the Chinese language students, on average, highly evaluated the benefit of cultural learning, with the least amount of variance indicated by the biggest mean ($M = 6.09$) and the smallest standard deviation ($SD = .94$). In contrast, the students' opinions on the improvement of Chinese skills differed the most ($SD = 1.74$) and were the least enthusiastic among the four, on average ($M = 4.67$). The students' average evaluation on enhanced motivation followed a similar pattern to that of Chinese skills, with motivation having a slightly higher mean and lower standard deviation. These findings corroborated with the qualitative data that the outcomes on Chinese skills and motivation received mixed student comments.

When examined separately, students in CHN112 (i.e. intermediate level) rated each of the four pedagogical benefits with a higher mean than those in CHN102 (i.e. elementary level). In other words, intermediate-level students perceived themselves to have benefited more from the exchange than elementary-level students, especially in terms of improving Chinese skills ($M = 5.88$ vs. 3.92) and enhancing motivation ($M = 5.88$ vs. 4.69). However, both groups provided the highest rating for the benefit of cultural learning, indicating that the exchange promoted the learning of culture effectively. The lowest rating of all the four benefits went to the improvement of Chinese skills ($M = 3.92$) by the elementary-level students in CHN102. This was likely because their low Chinese proficiency level was a barrier to sufficient comprehensible input (Krashen, 1985) during Skype conversations, minimizing the benefits of this activity. Thus, corroborating previous studies (e.g. Jiang *et al.*, 2014; Ryder & Yamagata-Lynch, 2014; Tian & Wang, 2010), this study also indicates that the target language proficiency gap poses a potential challenge for Chinese-English exchanges.

In order to see whether elementary-level and intermediate-level students' quantitative evaluations toward the four pedagogical benefits differed significantly, four independent-samples *t*-tests were conducted to compare means. The statistics on the Levene's tests (e.g. $F = 2.52$, $p = .13$, for Chinese skills) indicate that the data passed the equal variance assumption for *t*-tests. Results show that the mean differences were significant for Chinese skills ($t = -2.93$, $p = .009$) and motivation ($t = -.211$, $p = .049$), which means that elementary-level students evaluated the two benefits significantly lower than the intermediate-level students. In contrast, the two groups' opinions on the effectiveness of the exchange in promoting cultural learning and establishing a Chinese learning community did not differ significantly. In other words, based on student perceptions, this VE was successful in teaching culture and building language learning communities, but improvements needed to be made in developing language skills and boosting learning motivation for elementary-level students. The differences found between students of different Chinese proficiency levels are explainable. Because of their lack of Chinese skills, elementary-level students

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conducted WeChat group discussions and Skype conversations mostly in English. Thus, their interactions with the Chinese students helped with cultural learning and community building but had very limited effect on Chinese proficiency and motivation in learning the language. These findings also provide empirical support to the pedagogical intuition that students' target language proficiency level is a key factor to consider in the design of VEs (Luo & Yang, 2018).

## 5. Conclusion

This study focused on examining students' self-perceived pedagogical benefits of a Chinese-American online exchange, revealing the powerful potential of VE in teaching CFL. The findings of this study offer a number of pedagogical implications for the design of future VE exchanges for CFL learners. First, WeChat proved to be an effective technology for Chinese-American VE. It is highly recommended that CFL instructors make use of this tool in future VEs. Second, due to the limited Chinese proficiency of elementary-level students, tasks aimed toward beginners need to be designed mindfully. The eTandem model or DLVE aimed at target language learning may serve intermediate or advanced-level CFL students better. Third, this exchange did not make use of collaborative tasks, which may be incorporated into the design of future Chinese-American exchanges. Finally, due to the 12-hour time difference between China and America, Skype scheduling posed a huge challenge, and class-to-class group videoconferencing was not possible during this exchange. In the future, turning to Chinese international students within the US for intercultural exchange might be a solution.

This study has a number of limitations. First, a number of methodological concerns need to be addressed. For example, the sample size of this study ($n = 21$) is rather small; given the small sample size, there is a possibility that the average values of a 7-level Likert scale used in the questionnaire may not represent students' quantitative evaluations of each benefit accurately; there was no control group in the research design; and the qualitative approach adopted for data analysis may be subject to researcher bias. Therefore, the findings of this study need to be interpreted with caution. Second, only elementary-level and intermediate-level CFL learners participated in the exchange. Future studies may add advanced-level students and compare student perceptions from three different proficiency levels. Third, this study only examined CFL learners' perceptions of the exchange. According to the instructor from the China side, the exchange was enthusiastically received among the Chinese students, whose perspectives may form an interesting future study. Lastly, this study did not examine students' production data in terms of linguistic and intercultural gains. Future studies may conduct longitudinal case studies to compare students' linguistic and intercultural competence before and after VEs through the examination of their production.

**Supplementary material.** A detailed description of the Chinese-American exchange, the end-of-semester questionnaire, and the suggested Skype conversation topics are provided as supplementary material. To view supplementary material referred to in this article, please visit https://doi.org/10.1017/S0958344021000203

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