Empirical Article

The Effect of Asynchronous Virtual Exchange on Intercultural Competence among Undergraduate Students

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This article was not written with the assistance of any Artificial Intelligence (AI) technology, including ChatGPT or other support technologies.

Abstract

This paper examines whether participating in a five-week asynchronous video exchange program would affect the intercultural competence of undergraduate students at a university in Japan. Participants collaborated with Taiwanese university students on the topic of sustainable tourism and exchanged self-introduction videos, presentations on local tourism, and feedback. A mixed-methods approach was employed in this study. The Intercultural Competence Scale for University EFL Learners was used to gather quantitative data, and participants' scores were significantly higher in the post-test in four out of five dimensions. As for qualitative data, a survey with open-ended questions was administered to explore how participants perceived the virtual exchange experience. Several themes emerged including communication, culture, and interpersonal interaction, and participants demonstrated traits related to intercultural competence. Findings in this study have provided evidence to support the positive effects of asynchronous video virtual exchange on cultivating intercultural competence among undergraduate students.

Introduction

Virtual exchange has been rapidly developing in the past thirty-five years since Peter Copen, the founder of the

International Education and Resource Network, initiated a pilot program known as the Moscow Schools Telecommunication Project (iEARN, 2007; Virtual Exchange Coalition; 2022). Ever since, networks and initiatives for virtual exchanges have blossomed, resulting in the establishment of the European Commission eTwinning initiative, the SUNY Center for Collaborative Online International Learning, the Latin American COIL Network, the Stevens Initiative, the Erasmus+ Virtual Exchange Initiative, and the Japan COIL Association, to provide several examples. While COIL has often been used to develop the foreign language skills of students (Corbett, 2010; Lewis & O'Dowd, 2016; Thorne, 2010), it can also be a way to develop skills for connecting people from different cultural backgrounds. The importance of connecting people across the globe and fostering global consciousness is apparent. Gacel-Ávila (2005, p. 123) sets this as an objective of higher education:

> In this new global environment, one of the basic and fundamental functions of a university should then be the fostering of a global consciousness among students, to make them understand the relation of interdependence between peoples and societies, to develop in students an understanding of their own and other cultures and respect for pluralism.

In order to achieve a global consciousness, students must develop Intercultural Competence (IC), the attitudes, skills and knowledge required to successfully interact with those of different cultural backgrounds (Byram, 1997; Deardorff, 2006). Internationalizing the curriculum through virtual learning spaces such as COIL can help develop these attitudes, skills and knowledge (Cuevas Álvarez et al., 2021). Educators can provide opportunities for students to collaborate with people from around the world. This, in turn, provides experiences vital to the development of IC. Therefore, COIL projects can play an important role in the development of global consciousness.

Additionally, there are other benefits of COIL projects. There are times when it is not possible for students to engage in study abroad programs, such as during the recent pandemic restrictions on international travel (Japan Student Services Organization, 2022). Despite this, teachers may want to continue providing intercultural experiences. Through COIL projects, students may be able to gain some of the opportunities that were lost (Munoz-Escalona et al., 2022). Teachers could use COIL projects to provide learning experiences that contain content and language learning in a virtual setting. Another point to consider is that the low cost of conducting COIL (Zhang & Pearlman, 2018) enables inclusiveness, so students who might not have been able to afford study abroad could also have opportunities to engage in intercultural communication. Therefore, conducting a COIL project on the theme of sustainable tourism could create opportunities for students to participate in intercultural communication, which would lead to the development of both IC and skills such as communication, collaboration, global awareness, and problem-solving.

In this paper, a study on a COIL project conducted at a university in Japan is discussed. This study employed an asynchronous approach using video exchange due to time differences between different regions and institutions. The research questions of this study were as follows:
1. Could asynchronous video virtual exchange contribute to the development of IC among students?
2. What did students learn through the COIL project?

Literature Review

Benefits and Empirical Studies of COIL

Collaborative online international learning (COIL), according to Rubin and Guth (2015), centers around the idea of "develop[ing] intercultural awareness through direct interaction with peers in geographically distant locations using digital technologies" (p. 16). Rubin (2017) further emphasized that the key point of COIL is that it is "experiential and collaborative student learning" in learning environments that are multicultural, based on a syllabus developed by instructors from different cultures (pp. 33-34).

A notable feature of COIL is that it helps participants to become more proficient in working with people who have cultural backgrounds different from their own (Appiah-Kubi & Annan, 2020, p. 110). COIL project participants can obtain opportunities to engage in intercultural communication without travelling abroad by utilizing online platforms (Munoz-Escalona et al., 2022, p. 91). COIL is also a way to add international elements to university classrooms (Mestre-Segarra &

Ruiz-Garrido, 2022, p. 2). In other words, as Zhang and Pearlman (2018) mentioned, it can be a "cost-effective solution for universities to internationalize curricula, develop new partnerships globally, and provide their students international learning opportunities and global competencies" (p. 3). COIL at its initial stage focused mainly on cultural exchange but is now integrated in courses of different fields with specific academic goals (Bysouth & Ikeda, 2019, p. 114).

Another feature of COIL is its applicability to a wide variety of teaching contexts and contents. Minei et al. (2021), for example, outlined the framework of a synchronous COIL project that universities could adopt as a semester-long activity to foster the participants' interpersonal, intercultural, technological, and linguistic skills based on their implementation of the project between American and Russian universities. According to their suggestion, an effective COIL project starts with assignments to prepare students for international interaction, and guided conversations on culture and society along with reflection papers can be utilized as main tasks. They pointed out that the reflection can be modified to make it suitable for the course (p. 342), indicating that the framework is adaptable to different types of courses. Similarly, Zhang and Pearlman (2018) summarized the development of COIL projects at their institution, offering a model for COIL course development that can be applied for various disciplines.

Callahan (2022) was a recent study which described a COIL project between American and Japanese university students who were in teacher education programs for social studies. With the aim of developing students' awareness of interconnectedness, cosmopolitanism, and global issues (p. 2), the COIL project was conducted mostly asynchronously over the course of five weeks by utilizing an online platform for video discussion. Through implementing tasks such as comparing social studies education of the two countries and developing activities for secondary students collaboratively, Callahan (2022) illustrated how the COIL project enabled the participants to gain international experience. Asojo et al. (2019) likewise recounted their COIL project between American and Nigerian design students. In the main task, the participants from America developed design proposals for interiors and lighting with Nigerian cultural elements, and the Nigerian participants provided feedback for the proposals. Based on the observation of the project and its outcome, Asojo et al. (2019) concluded that COIL provided opportunities for "improving understanding of cultural differences, developing cultural sensitivity, and ensuring cultural transmission and exchange" (p. 15). Additionally, Fernández Peraza and Furumura (2022) showed that project-based virtual exchange could be an approach to cultivate intercultural communicative competence among students in Costa Rica and Japan.

A majority of studies conducted in recent years have focused on participants' opinions on COIL projects and on their perceptions of learning effects of COIL. For instance, Belarga (2018), Vahed and Rodriguez (2021), and Munoz-Escalona et al. (2022) investigated the participants' perceptions of COIL and its effects after the respective international project was completed. Belarga (2018) conducted group interviews with Japanese university students who had experienced a COIL project with Malaysian students with the theme of cultural images created by mass media. Comments from the participants showed that the project enabled them to become aware of their own identity and culture and to cultivate leadership and mentorship skills by engaging in the project collaboratively. Belarga (2018) then claimed that differences in culture indeed function "as a potential factor contributing to more culturally rich learning experiences" (p. 24). Vahed and Rodriguez (2021) administered a COIL project for medical students in South Africa and the USA and asked them to answer a questionnaire and write a reflective report after the COIL experience. Their study found that the students were able to gain knowledge about different cultures and increase cultural sensitivity although differences in time-zone and academic levels negatively affected their COIL project. The difficulty of conducting COIL projects across different times zones is a challenge that is mentioned by other researchers as well (Swartz, Barbosa & Crawford, 2020; Barbosa, Santos & Prado-Meza, 2020). Munoz-Escalona et al. (2022) also pointed out that online collaboration with peers abroad helped their Spanish, Venezuelan, and Scottish engineering students understand what was necessary for global manufacturing.

Mestre-Segarra and Ruiz-Garrido (2022) conducted a study on a business-focused COIL project. They compared participants' expectations of COIL before the project with their perceptions of COIL after the project through survey and interview results. The study pointed out that students' pre-COIL expectations tended to be higher than post-COIL perceptions in all areas of language skills, content knowledge, intercultural competence, and cross-disciplinary skills. This indicated that the COIL experience was positive and beneficial for the graduate students but that it did not meet their initial expectations, leaving room for further improvement regarding how to integrate COIL in the business curriculum. Naicker et al. (2021) assessed their students' global competency before and after a short COIL project between South Africa and the Netherlands on the topic of nutritional habits. The quantitative results showed that the students noticed their adaptability

was not as high as they had expected. Scores regarding intercultural awareness slightly improved but did not change significantly. However, the qualitative results showed that the participants were able to gain "a more lived-in experience of another country" as well as academic self-efficacy (p. 507).

Previous studies have thus outlined general frameworks of COIL and have also attested to an overall effectiveness of COIL for promoting cultural exchange, raising intercultural sensitivity, and facilitating content learning in multiple disciplines. However, the research on COIL is still in the developmental stage. In addition, there has been little research on fully asynchronous COIL projects conducted between EFL speakers from Asia with an emphasis on the development of intercultural competence.

Theoretical Framework

Intercultural Competence and Culture

Intercultural communicative competence (ICC) describes the qualities that are required for successful communication between individuals across cultures. ICC emphasizes the importance of both linguistic and cultural factors (Byram, 1997). These factors are linguistic competence, sociolinguistic competence, discourse competence, and intercultural competence. It is the fourth factor, intercultural competence (IC), that is the area of main interest in this paper. IC, in turn, is comprised of five factors: attitudes, knowledge, skills of interpreting and relating, skills of discovery and interaction, and critical cultural awareness/political education (Byram, 2008, pp. 230-233). Attitudes refer to showing an interest in other cultures. This includes remaining open-minded to new ideas and interpretations of culture. People should be willing to change their views of their own culture as well as their views on the cultures of others. Knowledge refers to being aware of and possessing an understanding of cultural practices and products. This includes developing an understanding of the difficulties and misunderstandings that may occur between people from different cultural backgrounds. Skills for interpreting and relating refer to the capacity to understand a variety of documents and events in other cultures and the ability to show connections to those in one's own culture. Skills of discovery and interaction refer to the ability to learn new things about other cultures and to use that knowledge in combination with attitudes and other skills in communicating with those in other cultures. Finally, critical cultural awareness/political education refers to the ability to critically evaluate the cultural viewpoints and practices of one's own cultures and those of others.

One aspect of IC that is not directly addressed by Byram (1997; 2008) is the personal development of those engaging in intercultural communication. Personal development in an IC context refers to "...internalization of other cultural frames of reference through empathy, which can transform identity and equip people to mediate between cultures" (Houghton, 2012, p. 45). Traits such as adaptability and empathy are touched on to some extent in the factor attitudes, but these traits are viewed as required for the intercultural communication process to begin rather than as something to be developed from this process. Deardorff (2006) addresses this aspect of intercultural communication by including Desired Internal Outcome as a component of IC. This component refers to the personal development of traits such as adaptability, flexibility, and empathy as a result of engaging in the process of intercultural communication, and it emphasizes the importance of developing an ethnorelative view of other cultures.

Traditionally, students in EFL courses have been taught the cultural customs and norms of English-speaking countries. However, English is now functioning as a lingua franca between speakers from different countries and areas of the world (Crystal, 2003; Jenkins, 2007; Seidlhofer, 2011). Therefore, it is likely that people with whom students communicate in English may not be from the cultures that they have learned about in school. In other words, it would be impossible to teach students about all the cultures that they may encounter outside of the classroom. In addition, it should be kept in mind that national or ethnic identity is only one source of culture, and that people may have multiple cultural memberships (Holliday, 1999; Holliday, 2013; Holliday, 2016). Other possible sources of culture are religion, socio-economic background, and occupation, to give a few examples. Therefore, it is important that students develop the abilities to listen to and observe the behavior of those that they interact with, and to think critically about the observations that they make. They should be careful not to assume that all the differences that they observe can be attributed to national culture, as differences may come from a wide variety of cultural memberships. Additionally, if students are interacting with a limited number of people, it should be kept in mind that the differences observed may be due to individual personality traits rather than cultural memberships.

Culture is generated through interaction. Members of cultures negotiate commonly held beliefs and practices through their shared experiences with one another over time (Byram, 1997; Holliday, 1999). The development of IC is no different in that it requires participants to actively engage with those who belong to other cultures. Therefore, negotiation and mediation skills are important when communicating across cultures (Baker, 2012). One way to provide students with the opportunity to interact with those from other cultures is to conduct online exchanges.

Methodology

Context and Contents of the COIL

Figure 1

Outline of the Asynchronous COIL
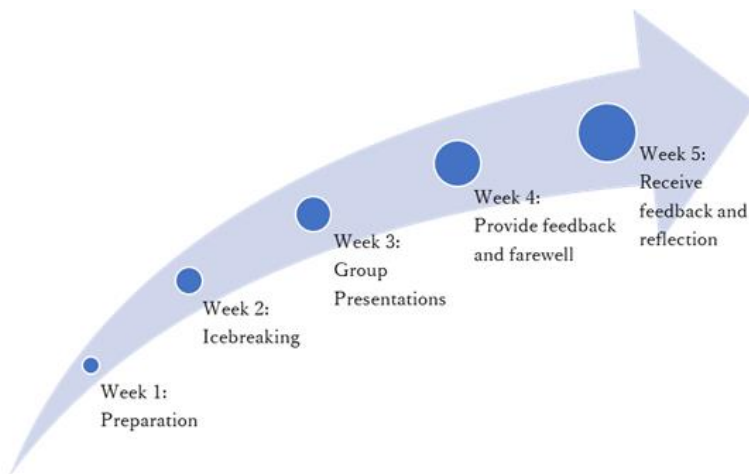
The COIL model adopted in this study was originally developed for the purpose of a sustainability-focused virtual study abroad program (Chu & Torii, 2021). The theme of the project was sustainable tourism, a topic relevant to participants as many of them will work in the tourism industry after graduation. Three instructors and their students at a private university in Japan and one instructor and her students at a national university in Taiwan conducted the COIL together. This study only presents data from the Japanese students' perspective. The COIL lasted five weeks. Student exchanges occurred during the second to fourth weeks through asynchronous videos on Flipgrid, a platform on the web. Figure 1 shows the outline of the COIL.

In the first week, instructors explained to the participants that they would be doing a COIL project for five consecutive weeks, and they were divided into groups to think about tourism in their hometown. Then, the pre-test to survey participants' IC was administered, which was followed by a short lecture on the concept of sustainable tourism. Before the end of the class, participants were provided with a PowerPoint template which they used to prepare for their group presentation two weeks later.

In the second week, participants were introduced to Flipgrid, which they used for recording and uploading videos. Then, participants planned how to make a group self-introduction video and uploaded the video by the end of the day. Participants were also given time to continue preparing for their group presentations to be given in the following week.

In the third week, participants first watched the group self-introduction videos from their partners in Taiwan along with responses to their videos from the previous week. Participants continued the conversation by recording and uploading a response, and then they delivered their group presentations on sustainable tourism in class. The presentations were recorded and uploaded to Flipgrid by the end of the day.

In the fourth week, participants first watched the responses from their partners to the group self-introduction thread, and then viewed their partner's sustainable tourism presentation videos. Participants raised questions and recorded a

feedback video for their partners. Participants also recorded a thank you and farewell video for their partners. Participants had a two-week winter holiday before the fifth week, therefore the virtual exchanges ended in the fourth week for the collaborating students in Taiwan.

In the final week, the participants watched feedback videos from their partners in Taiwan on their sustainable tourism presentations. After that, the post-test to survey participants' experience and IC was administered. Then, instructors used different approaches to guide the participants to reflect and share on their experience of participating in the COIL. Since reflections were conducted after administering the post-test, the different approaches of guiding participants to reflect on their COIL experience would not affect the outcome of the data gathered in this study.

Participants

46 Japanese sophomore students majoring in foreign languages at a private university in Japan participated in the study, and the COIL was conducted among three second-year seminar courses with approximately 15 students enrolled in each course. They were divided into three groups in each course with a total of nine groups, and they partnered with nine groups of undergraduate students in Taiwan. By the end of the COIL, only 32 effective samples were gathered due to instability caused by the transition of back-and-forth between online and face-to-face instruction.

Data Collection and Analysis

Both quantitative and qualitative data were gathered in this study. For the quantitative data, a pre-test and a post-test using a translated version of the Intercultural Competence Scale for University EFL Learners developed by Chao (2014) were administered in the first and final week of the COIL. The scale was translated into Japanese. First, a bilingual professor translated the scale into Japanese, and then the translated version was reviewed by another bilingual professor. Next, a panel of three educators in the field of intercultural communications examined the reviewed version for their understanding of items. Finally, before finalizing the scale for use in this study, a pre-test was administered to undergraduate students to gather feedback checked for abnormal responses.

Three participant instructors administered the Intercultural Competence Scale and the qualitative survey to their student participants in their respective third year seminar course. The reliability of data gathered in this study, with an effective sample size of 32 participants, ranged from good to excellent internal consistency among the five dimensions of the scale and the total score, as shown in Table 1 below.

Table 1

Reliability of the Japanese version of the IC Scale

Dimension	Items	Pre-test Cronbach a	Post-test Cronbach a
Knowledge of intercultural interaction	9	.92	.95
Affective orientation to intercultural interaction	6	.92	.92
Self-efficacy in intercultural situations	3	.88	.87
Behavioral performance in intercultural interaction	7	.91	.95
Display of intercultural consciousness	5	.90	.96
Total	30	.97	.98

As for the qualitative data, a survey was administered after all of the virtual exchanges were concluded. Questions in the survey were designed to investigate students' learning experience and whether students changed their perceptions towards their international peers, which would show evidence of open-mindedness to other cultures, an aspect of the Attitude factor of IC. Qualitative data was analyzed with thematic analysis (Braun & Clarke, 2012), where the principal investigator of this paper first analyzed emerging themes among student responses. Then, to bring different perspectives and confirm

whether the themes were appropriate, investigator triangulation (Carter et al., 2014) was conducted where all the authors of this paper examined the themes and student responses together. Responses were coded based on the participant number and question number, for example Q1-P1, which represents participant number one's response to question number one. Questions in the survey can be found in Table 2 below.

Table 2

Questions in Qualitative Survey

Aspects	Questions
Student learning experience	1. What do you think you have learned through this COIL?
	2. What did you enjoy the most in this COIL?
	3. What did you dislike about this COIL?
Change in perception	4. Before this COIL project, what was your impression of Taiwanese people?
	5. After this COIL project, has your impression of Taiwanese people changed? How?

Research Ethics

Informed consent was signed by all of the participants in this study. While students were given time to fill out the online surveys in this study while they were in class, their participation of this study was voluntary and did not affect their grades.

<div align="center">

Results

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Quantitative Results

Data gathered from the Japanese version of the IC scale were analyzed using EXCEL and SPSS 17.0. Through descriptive analysis, a general view of the data was provided, and through t-test analysis, pre- and post-test scores were compared to explore significant differences.

Results from descriptive analysis of student performance on pre- and post-test average scores are shown in Table 3 below. Scores in all five dimensions and the total score of the post-test were higher than the pre-test.

Table 3

Descriptive Analysis of Student Performance on the IC Scale

	M		*SD*	
Dimensions (n=32)	Pre	Post	Pre	Post
Knowledge of intercultural interaction	3.76	4.07	.84	.71
Affective orientation to intercultural interaction	4.22	4.36	.73	.59
Self-efficacy in intercultural situations	3.91	4.22	.88	.74
Behavioral performance in intercultural interaction	3.78	4.20	.77	.74
Display of intercultural consciousness	4.02	4.24	.70	.64
Total score	3.91	4.20	.69	.62

To respond to the research question of whether asynchronous video virtual exchange could contribute to the development of IC among students, a paired t-test was conducted on the total score in the IC scale. The post-test score (M

= 4.20) was significantly higher than the pre-test score (M = 3.91), and Cohen's effect size value (*d* = .44) suggested a small to medium effect size, as shown in Table 4 below.

Table 4

T-test Analysis on Pre- and Post-total Scores on the IC Scale

	Total Score			*t*	*d*	*p*
	n	*M*	*SD*			
Pre-test	32	3.91	.69	-3.142	.44	.004
Post-test	32	4.20	.62			

p<.05

To further explore the effects of participating in the COIL on the development of IC, paired t-tests were conducted to compare the five dimensions of the IC scale, and the results are shown in Table 5. Statistically significant differences were found in all of the dimensions except for the "affective orientation to intercultural interaction" dimension. The effect size was the largest in the "behavioral performance in intercultural interaction" dimension, where Cohen's effect size value (*d* = .56) suggests a medium effect size. Interpreting the effect size into a common language explanation (Magnusson, 2022), 71.2% of the post-test scores would be above the mean of the pre-test scores (Cohen's U3), and there would be a 65.4% chance for a person picked at random from the post-test scores to have a higher score than a person picked at random from the pre-test scores (probability of superiority).

Table 5

T-test Analysis on the Five Dimensions of the IC Scale

	Knowledge of intercultural interaction			*t*	*d*	*p*
	n	*M*	*SD*			
Pre-test	32	3.76	.84	-2.375	.40	.024**
Post-test	32	4.07	.71			
	Affective orientation to intercultural interaction			*t*	*d*	*p*
	n	*M*	*SD*			
Pre-test	32	4.22	.73	-1.441	.21	.160
Post-test	32	4.36	.59			
	Self-efficacy in intercultural situations			*t*	*d*	*p*
	n	*M*	*SD*			
Pre-test	32	3.91	.88	-2.445	.38	.020**
Post-test	32	4.22	.74			
	Behavioral performance in intercultural interaction			*t*	*d*	*P*
	n	*M*	*SD*			
Pre-test	32	3.78	.77	-3.316	.56	.002*
Post-test	32	4.20	.74			
	Display of intercultural consciousness			*t*	*d*	*P*
	n	*M*	*SD*			
Pre-test	32	4.02	.70	-2.109	.33	.043**
Post-test	32	4.24	.64			

*p<.01, **p<.05

Qualitative Results

To respond to the second research question (What did students learn through the COIL project?) participants were asked to answer the following three open-ended questions: (1) What do you think you have learned through this COIL project? (2) What did you enjoy the most about this COIL project? (3) What did you dislike the most about this COIL project? The responses were analyzed for common themes and the results are as follows.

Regarding the first question, three themes emerged: communication, culture, and content. Participants experienced communicating with people from different cultural backgrounds with a foreign language (P14, P15, P28, P30) at the same time acquiring content knowledge (P2, P18). They found the COIL to be both challenging (P15, P28) and empowering (P14, P15).

Q1-P2: Taiwan's environmental problems, and Taiwan's famous food.

Q1-P14: The importance of being interested in other cultures and being able to express one's own opinions and questions in a foreign language.

Q1-P15: I learned the difficulty of communicating in English. I was able to think about how to convey information about an unfamiliar place to others in a concise and easy-to-understand manner.

Q1-P18: I learned detailed information about the region of Taiwan that I could not find on the Internet.

Q1-P28: The joys and difficulties of communicating.

Q1-P30: We were able to communicate and learn about each other's local culture through English.

For the second question, two themes emerged: interpersonal interaction and information exchange. Students enjoyed working with each other to prepare their presentations (P7, P23), deliver the presentations (P14), and view responses from their international partners (P2, P6, P14). They also enjoyed the content of their Japanese classmates' sections of the presentations as they could learn new things about parts of the country unfamiliar to them (P24).

Q2-P1: I enjoyed reading the comments from Taiwanese people the most. Because I was happy to see that Taiwanese people are interested in Japan.

Q2-P6: Being able to learn about the culture of the Taiwanese people. Because there were not many opportunities for cross-cultural exchange, and it was good to have such an opportunity.

Q2-P7: Group work. I was able to make connections with various people.

Q2-P14: I enjoyed connecting with the students in Taiwan because there was a lot of interaction: giving a presentation, receiving questions about it, and answering the questions.

Q2-P23: Taking videos. (Reason) Because I could make friends with people in the group.

Q2-P24: Because I was able to seriously address environmental issues in my own community. It was a very meaningful time for me and gave me a lot of strength.

As for the third question, the majority of responses indicated there was nothing to dislike about the COIL experience. The obstacles and barriers to communication or task completion, which may be two sides of the same coin, emerged as the dominant theme among the few responses that indicated there was something to dislike. The obstacles were either linguistic (P24), technological (P11, P13) or affective (P13).

Q3-P11: Filming, not good at it.

Q3-P13: Making a video and giving a presentation. I was embarrassed to make a presentation in front of the people in my group that I had not yet gotten to know that well.

Q3-P24: I felt a language barrier. Although I had studied English as a communication tool as a foreign language undergraduate, I was confronted with the reality that I still could not understand English when I heard live English at real speed. Conversely, I found room for skill improvement in all areas of listening and reading, which was a major challenge and a significant discovery.

To seek further evidence on whether the COIL facilitated the development of IC, students were asked to respond to the following two open-ended questions: (1) Before joining the COIL project, what was your impression of Taiwanese people? (2) After joining the COIL project, did your impression of Taiwanese people change? Most of the responses were positive for the first question, including words like bright, friendly and kind. Impressions included a pro-Japanese attitude (P1, P30) and a perceived close cultural proximity with Japan and the Japanese people (P23). One participant realized there is variation within Chinese culture (P22).

Q4-P1: Taiwanese people had an image of being pro-Japanese.
Q4-P23: I thought there was not much cultural difference from Japan.
Q4-P30: I have the impression that many people like Japan and are kind.
Q4-P22: I thought they were just like Chinese people.

After the COIL project, more than half of the respondents reported positive changes in their perception of Taiwanese (P10, P14, P19). One respondent held a negative impression prior to the COIL and changed to a positive one (P10, P19), whereas another respondent recognized that there is regional variation in Chinese culture (P22).

Q5-P10: They were brighter than I expected and had a sense of humor.
Q5-P14: The friendliness conveyed in the video made me feel close to them.
Q5-P19: I thought they were strong-willed people, but they were kind.
Q5-P22: They were kind. China and Taiwan are similar, but there were many aspects that were not similar.
Q5-P28: I could see in the video that they were living their school life just like us, and I felt that they were just in a different country.
Q5-P30: I got the impression that they are friendly and kind people with a good culture unique to Taiwan.

Discussion

The current COIL project followed general frameworks of COIL suggested by previous studies such as Minei et al. (2021) and Zhang and Pearlman (2018) and adapted them to the context of Japanese and Taiwanese EFL university students. By providing a clear instruction and goal at each stage of the project, the participants were able to engage in COIL tasks conducted in their foreign language. The asynchronous nature of the project helped them to prepare their responses thoroughly before recording and uploading videos. All three instructors in this COIL project observed that most, if not all, of the participating students repeatedly watched their international partners' videos and discussed their contents during group work. By doing so, the participants were able to better comprehend what their partners were expressing. Also, they rehearsed before recording their video responses. This allowed them to better express themselves by reducing mistakes such as mispronunciation or grammatical errors. Thus, the asynchronous nature of the projected seemed to be a benefit of asynchronous COIL for foreign language learners.

As Rubin and Guth (2015) emphasized, one of the essential goals of COIL is to raise intercultural awareness, and this study has shown that asynchronous COIL facilitates university students' intercultural competence, especially regarding their behavioral performance when engaging in intercultural interaction. Participants in the current study had a high affective orientation toward intercultural communication before their COIL experience, but their behavioral performance score was lower. After the COIL experience, they maintained the same level of affective orientation, but their behavioral performance score significantly improved. This suggests that for students who are highly interested in intercultural communication, experiencing COIL may increase their confidence in future intercultural settings.

Although the majority of previous studies including Asojo et al. (2019), Belarga (2018), and Vahed and Rodriguez (2021) supported the positive role of COIL in developing intercultural sensitivity, Naicker et al. (2021) implied that engaging in a short synchronous COIL project might not necessarily lead to a significant improvement in intercultural awareness. However, this study has shown that even a five-week asynchronous COIL experience can lead to a significant development of intercultural competence. This could be due to how the COIL in this paper was more structured in the sense that all of the students used the same ICT tools and the instructors provided technological support. Students did not express frustration with ICT tools, whereas in Naicker et al. (2021), many technological challenges were mentioned. This suggests

that perhaps keeping ICT tools as simple as possible, it might allow students to be more focused on the intercultural communication aspect of the COIL experience.

From quantitative findings, statistically significant differences were found among four out of five dimensions in the IC scale, where the participants expressed improvements on all of the four dimensions.

The data from the qualitative questionnaires collected at the end of the COIL program also show that participants were able to employ the factors of IC during the COIL project (Byram, 1997; Byram, 2008). The participants' high affective orientation towards intercultural communication was reflected in some of the participants' responses. There were a few responses that showed a willingness to change views of culture, which is evidence that some of the participants were demonstrating the trait of adaptability. This showed an open-minded attitude towards communicating with the exchange partners in Taiwan. Some of the participants also stated that they increased their knowledge of their partners' culture and one respondent even mentioned that they could learn about their own culture through the exchange. Some participants also showed that they were using skills for interpreting and relating. For example, one participant commented that the school lives of Taiwanese students appeared to be similar to the lives of Japanese students. This shows that the participant was looking for ways to connect their culture to the culture of others. Some participants mentioned that they appreciated the opportunity to use skills for discovery and interaction. Some participants expressed interest in giving presentations to their partners and in the interaction that resulted from their own presentations and the presentations of their partners.

Regarding the final factor of IC according to Byram, participants showed some evidence of attempting critical cultural awareness/political education by making value statements about the relationship between Chinese culture in Taiwan and that in mainland China and in the cultural affinity of Taiwan to Japan. However, the criteria for their evaluations of culture were not made explicit, and no concrete evidence is given to support their claims, so this is an area that could receive more focus in future projects. The cultural value statements, however, show that participants demonstrated the personal development of traits necessary for intercultural communication, which is a part of the Desired Internal Outcome factor of IC as proposed by Deardorff (2006). Of particular interest are the responses to the questions on participants' impressions of Taiwanese people before and after the project. Pre-project impressions tended to focus on the relationship of Taiwan to Japan or on the similarity of the culture in Taiwan to other cultures. In other words, participants were showing that they were thinking of culture on a larger, impersonal scale. Post-project impressions show a change in that students showed that they were focused on culture at an individual or small group level by making statements based on observations of their exchange partners. This could be said to show a higher level of empathy for their exchange partners.

The largest merit of COIL for participants is to gain opportunities for intercultural interaction and learning without going abroad (Munoz-Escalona et al., 2022), and the current COIL project illustrated how this goal was achieved effectively especially when international travel was restricted under the pandemic. While students did not mention perceiving the COIL as an opportunity to learn without going abroad, from the abundant positive responses in the qualitative data, students did express that they enjoyed the intercultural interactions for a variety of reasons. Intercultural interaction and learning were obviously achieved, but there might be an implication that students perceive studying abroad and engaging in COIL would result in a different learning experience.

Implications and Conclusion

The main objective of the study was to explore the effect of asynchronous video virtual exchange as a COIL project for university students. Through engaging in the five-week COIL project, the IC scores of the Japanese participants showed a significant increase in the dimensions of knowledge of intercultural interaction, behavioral performance in intercultural interaction, self-efficacy in intercultural situations, and display of intercultural consciousness. Their IC scores regarding behavioral performance in intercultural interaction showed a clear improvement in particular, indicating that COIL has a positive impact on how university students act in future intercultural encounters. Participants also demonstrated improvements in different aspects of IC based on their responses from the qualitative survey, and more than half of them reported a positive change in perception towards their international partners. They were able to learn about different cities and cultures, experience intercultural communication, and engage in information exchange as well as interpersonal interaction while studying at their home university in Japan. Considering the feasibility of interacting across cultures asynchronously and low-cost compared to studying abroad, the five-week asynchronous videos virtual exchange model

could provide content knowledge and cultivate IC among undergraduate students with the support of empirical evidence presented in this study.

One limitation of the study is that the results were based on a self-reported IC scale and that the translation of the scale was not validated statistically. In addition, not all the students were able to take the survey after the project because of the unstable situation regarding the pandemic at the time of the study. As a future direction, a synchronous COIL can be conducted in a similar context to explore whether and how asynchronous COIL and synchronous COIL differ in promoting change in participants' IC. Also, a future study could look at whether students of a higher language proficiency level would benefit more from COIL programs than students of a lower language proficiency level. In addition, studies integrating more qualitative aspects such as teacher observations would be beneficial for developing COIL projects that are suitable for specific contexts.

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