

FOSTERING FOREIGN LANGUAGE LEARNING THROUGH TECHNOLOGY-ENHANCED INTERCULTURAL PROJECTS

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The main aim of learning English as an international language is to effectively communicate with people from other cultures. In Taiwan, learners have few opportunities to experience cross-cultural communication in English. To create an authentic EFL classroom, this one-year action research study carried out three collaborative intercultural projects using web-based tools (online forums, weblogs, Skype, and email) in a 7th grade EFL class. The projects were designed to improve students' language skills and intercultural communicative competence (ICC). To triangulate the findings, qualitative and quantitative methods were used to collect the data; specifically, questionnaires, interviews, and document analyses were used to investigate the learners' responses and learning processes. The results revealed that the participants had strong positive attitudes towards technology-enhanced intercultural language learning (TEILI), which enabled the learners to experience authentic language learning that fostered linguistic competence and ICC. The findings suggest that TEILI approximates real-life learning contexts by allowing students to use a language for the same purposes that they will use it outside school.

Keywords: Culture; Web-Based Instruction; Video

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INTRODUCTION

Globalization and the rapid spread of English have challenged traditional notions of Standard English and language education practices (Shomoossi & Ketabi, 2008). Modern English language learners use English to communicate with native speakers and, increasingly, with non-native speakers. The main aim of learning English as an international language is to effectively communicate with those from other cultures. English should therefore be taught as a means of cross-cultural communication (Erling, 2005; Jenkins, 2006; Kilickaya, 2009; McKay, 2003).

One of the fundamental difficulties Taiwanese students of English as a foreign language (EFL) encounter is the lack of opportunities to experience interactive cross-cultural communication in English (Liu, 2005; Su, 2008). In classroom settings, non-native English-speaking teachers, often teaching in Chinese, typically struggle to teach pragmatic competence. Lacking extensive knowledge of the English pragmatic system, these teachers often focus their teaching on textbooks to help students perform well on their exams. However, content analyses of the English textbooks used in junior high schools revealed that these textbooks provide inadequate cultural information about Anglo-American cultures (Chen, 2007). In other words, the inauthenticity of Taiwanese English language education cannot fulfill the demands for English language competency in a globalized world.

Studies indicate that technology plays an important role in creating authentic language learning environments (Thorne, 2005). O'Dowd provided evidence that "telecollaborative activities have the potential to support the development of students' *intercultural communicative competence* (ICC) in a way that traditional culture learning materials would not be able to achieve" (2007, p. 146). To address

language-learning problems in the Taiwanese context, this action research study carried out three technology-enhanced, collaborative intercultural projects. The aim of the projects was to demonstrate that technology-enhanced, cross-cultural tasks could provide a larger and more realistic context of communication for language learners, which is rarely possible to achieve with other instructional models. Below, the relationships among the role of culture, the use of technology, and language teaching will be discussed to elucidate the theoretical and practical frameworks of the instructional design.

LITERATURE REVIEW

The Role of Culture in Language Education

Language and culture are closely linked. Although linguistic accuracy is necessary for language users to communicate effectively, when language “is used in contexts of communication, it is bound up with culture in multiple and complex ways” (Kramsch, 1998, p. 3). Traditionally, English language education has involved learning how English is used in native English-speaking countries. However, “[t]he global spread of English into diverse multilingual contexts has brought with it the development of many varieties of English” (McKay & Bokhorst-Heng, 2008). To increase authenticity in the teaching of English as an international language (EIL), instructors need to “re-emphasize the context of use, to re-define the participants, and to reconsider the nature of EIL” (Shomoossi & Ketabi, 2008, p. 182). English education should consider the status of English in all of its varieties and functional ranges throughout the world, prepare students to communicate across cultures, and create linguistic awareness through exposure to different varieties of English.

In their standards for FL learning, the American Council on the Teaching of Foreign Languages (ACTFL, 1996) advocated for application of the “five Cs” of language learning: communication, culture, connection, comparison, and community. Communication is the heart of language learning. Understanding the cultural context of both the target language and the learners’ native language leads to greater awareness of the interdependent relationship between languages and cultures. Connection refers to interdisciplinary instruction, which provides learners with detailed information about the FL and its cultures from multiple disciplinary perspectives. Comparison refers to increasing awareness of linguistic elements and cultural concepts by comparing and contrasting the studied language and the native language. Finally, community suggests that learners can use the language in an international setting and actively participate in multilingual communities beyond the classroom. Clearly, the sociocultural component is a significant feature of FL education (FLE). Students are expected to gain insight into and awareness of cultural interactions in communication settings.

Recently, intercultural competence has been the central concern for instructors in EFL classrooms (Liaw, 2006). Intercultural communication is not just an encounter between cultures; it should “be viewed and analyzed as a complex process” (Stire, 2006, p. 5). A range of intercultural communicative education models have been proposed by researchers worldwide (Byram, 1997; Deardorff, 2006; Spitzberg, 2000; Spitzberg & Changnon, 2009; Stier, 2006). The most exhaustive and influential is that of Michael Byram, whose model incorporates holistic linguistic and intercultural competence and has clear, practical, and ethical objectives (Byram, 1997). According to Byram, the aims of intercultural language teaching are:

to give learners intercultural competence as well as linguistic competence; to prepare them for interaction with people of other cultures; to enable them to understand and accept people from other cultures as individuals with other distinctive perspectives, values and behaviors; and to help them to see that such interaction is an enriching experience (Byram, Gribkova, & Starkey, 2002, p. 10).

Byram’s model consists of five factors (see [Figure 1](#)). Critical cultural awareness is positioned centrally in relation to the other four: knowledge, intercultural attitudes, interpreting and relating skills, and discovery and interaction skills. Byram (2012, p. 9) insists that critical cultural awareness “embodies the educational

dimension of language teaching” and that “skills, attitudes and knowledge, both linguistic and cultural,” should be centered on the dimension of critical awareness (p. 6).

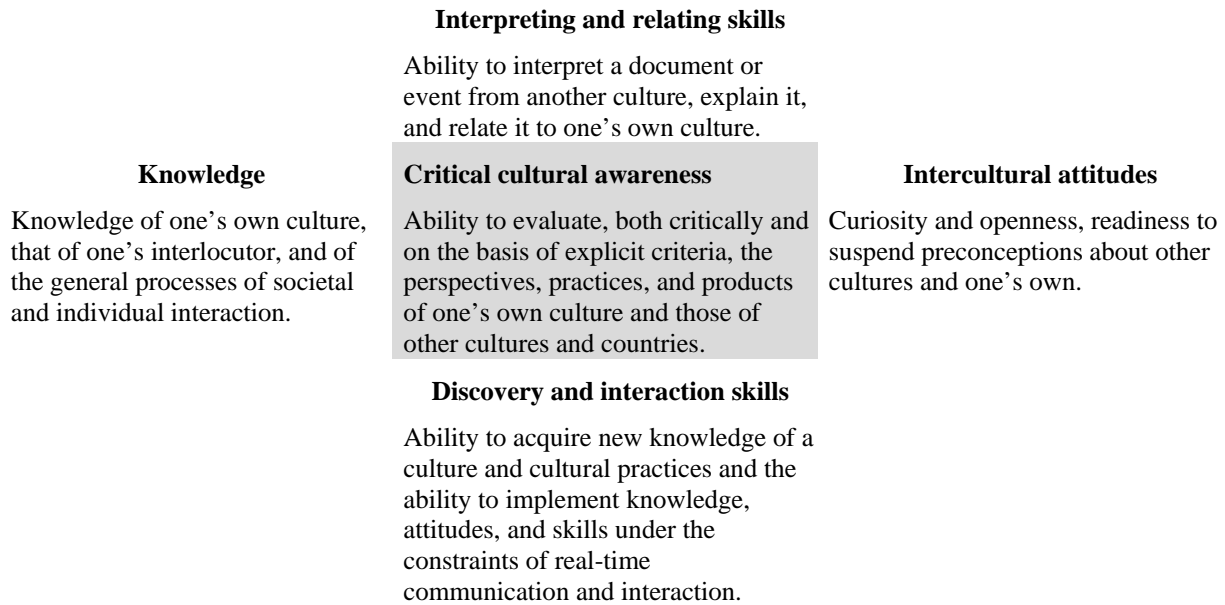


Figure 1. Byram’s model of intercultural communicative competence (Byram, 1997, 2012 & Byram et al., 2002)

Teaching Intercultural Communication in the Digital Age

As noted above, authentic language teaching with an intercultural dimension helps students acquire the linguistic and intercultural competence needed for communication. What matters most in this complex interactive process is what teachers do to reach these goals. Byram’s model only provides a link between intercultural communication and FL teaching; teachers must formulate the best teaching strategies for their own contexts (Byram, 1997 & Byram et al., 2002).

Traditionally, cultural learning in the classroom has been decontextualized and has borne minimal resemblance to actual communication scenarios. Through telecommunications, the limitations of the classroom can be overcome through the use of web-based tools to bring authentic texts and real intercultural communication experiences into the classroom (Byram, 1997 & Byram et al., 2002). Web 2.0 technologies (blogs, Skype, and social networking sites) facilitate online practices that allow a classroom to connect with the world (Peters, 2009). Additionally, online education communities, such as the ePals Global Community and the International Education and Resource Network (iEARN), provide collaborative projects that enable teachers and students to build authentic cross-cultural communication pathways.

Studies show that by integrating technology into their curriculum, teachers enable students to experience varied cultures and cultivate their language skills through meaningful learning situations relevant to real-life communicative events (Cunningham, Fagersten, & Holmsten, 2010; Cziko, 2004; Greenfield, 2003; Kilimci, 2010; Lee, 2007; Richards, 2010; Smith, 2000; Wu & Marek, 2010; Wu, Yen, & Marek, 2011). This allows learners to “develop meaningful relationships with one another and to use the language they are studying to do so” (Thorne, 2005).

Research Questions

Based on the evidence presented above, this study designed 3 web-based projects to promote cross-

cultural communication and expose students to various English language contexts. The umbrella term “technology-enhanced intercultural language instruction” (hereafter TEILI) is used in this study to describe a cross-cultural FL instruction model mediated by technology tools. The study aims to illustrate the possibilities and problems associated with TEILI, evaluate the influence of TEILI on FLE, and examine the instructional challenges of TEILI by soliciting teaching reflections. The research questions of this study are as follows:

1. How do learners respond to TEILI?
2. What benefits and challenges did the learners experience during TEILI?
3. What teaching-related challenges are associated with TEILI?

METHODOLOGY

Participants

The 15 participants were 7th grade students in a pull-out bilingual program. Students were removed from their regular classes ten class periods per week to receive specialized instruction in Chinese and English. These participants had to pass language tests in both Chinese and English before enrolling. Compared to their classmates, these students were advanced learners with stronger language skills. A beginning-of-semester survey revealed that all of the students agreed that English is an important tool for connecting with the world. Nine of them had studied English in cram schools for over 6 years, and 4 had previously used the Internet to learn English.

In the 2011 academic year, the first author taught a one-year English course in this pull-out program, meeting with the students regularly for 45 minutes per week. The research comprised the records and analyses of the classroom activities in which students were engaged throughout the course.

Instructional design

The one-year English course utilized TEILI to create a realistic language-learning environment. Three projects were conducted in the course: *Folk tales/storytelling: past and present* in the first semester (16 weeks) and, in the second semester, *Video conference: storytelling and cross-cultural discussion* and *E-pal project* (8 weeks each) (see Table 1). Since none of the participants had ever been exposed to TEILI, the first two projects consisted of group work to allow students to become more comfortable with this mode of instruction. The final project focused on one-on-one communication. At the beginning of the course, participants were asked to complete a questionnaire that evaluated their language learning experience. At the end of each project, a reflective questionnaire was administered to encourage students to reflect upon their learning. Finally, a questionnaire was given at the end of the course to analyze the participants’ perceptions and to obtain course evaluations. The students’ learning journals were systematically collected and examined, and the curriculum and teaching was adjusted according to students’ feedback. The project activities are detailed in the following sections.

Table 1. Theoretical and Procedural Framework of the Three Projects

Projects	Description	Learning focus	ICT tools
1 st semester	Beginning-of-semester survey about students’ language learning backgrounds		
1 st project	Small-group learning: 16 weeks		
Folk tales/ storytelling: Past and present	Participants shared traditional folk tales and creative stories in an online forum.	<u>Language skills</u> : Reading English stories; writing traditional folk tales and creative stories. <u>Intercultural communication</u> : Exchanging ideas and feedback on stories with Dubai	Weblog Online forum

		students.	
		Mid-term survey analyzing students' perceptions of the project	
2 nd semester	Small-group learning: 8 weeks		
2 nd project	Participants told traditional stories in a puppet show and then discussed customs and daily life via videoconferencing.	<u>Language skills:</u> Listening and speaking to non-native speakers via video conferencing; writing scripts for the puppet show. <u>Intercultural communication:</u> Live discussion with Pakistani students about folk tales and cultural similarities and differences.	Weblog Skype
Videokonference: Storytelling and cross-cultural discussion			
3 rd project	Individual learning: 8 weeks		
E-pal project	Participants exchanged weekly emails through ePals.	<u>Language skills:</u> Reading and writing emails. <u>Intercultural communication</u> Exchanging information about daily life with American key pals.	Weblog E-mail
		End-of-term survey analyzing students' perceptions of the whole course	

A class weblog (see Figure 2) was set up to facilitate teaching and learning in the course. The blog contained a collection of information and learning resources that gave step-by-step support to students as they completed their project tasks. Each group had its own individual blog within the class blog in which students wrote their project drafts and did peer-corrections. The researcher also answered students' questions and commented on students' work through the class weblog.



Figure 2. Screenshot of the class weblog

Folk tales/storytelling: past and present

Folk tales/storytelling: past and present is an iEARN project in which students from different parts of the

world share stories through their preferred digital forum. iEARN, founded in 1988, is the world's largest non-profit educational network, and each iEARN project has its own project forum that provides a safe and structured online discussion environment. Our project partner was a class from Dubai containing 10 students who had been learning English for more than 8 years. We began with a preliminary project plan that became more defined through experience with each school's schedule and the students' English language abilities. Figure 3 illustrates the 5-phase procedural framework of the project conducted in Taiwan. Before the project, 2 technology lessons were offered to familiarize the students with the iEARN forums and web-based tools that would be used in the project. During the interactive process, students visited the project forum to read stories from other countries and exchange ideas with project participants. Figure 4 shows the intensive interaction between the students and their foreign partners in the project forum.

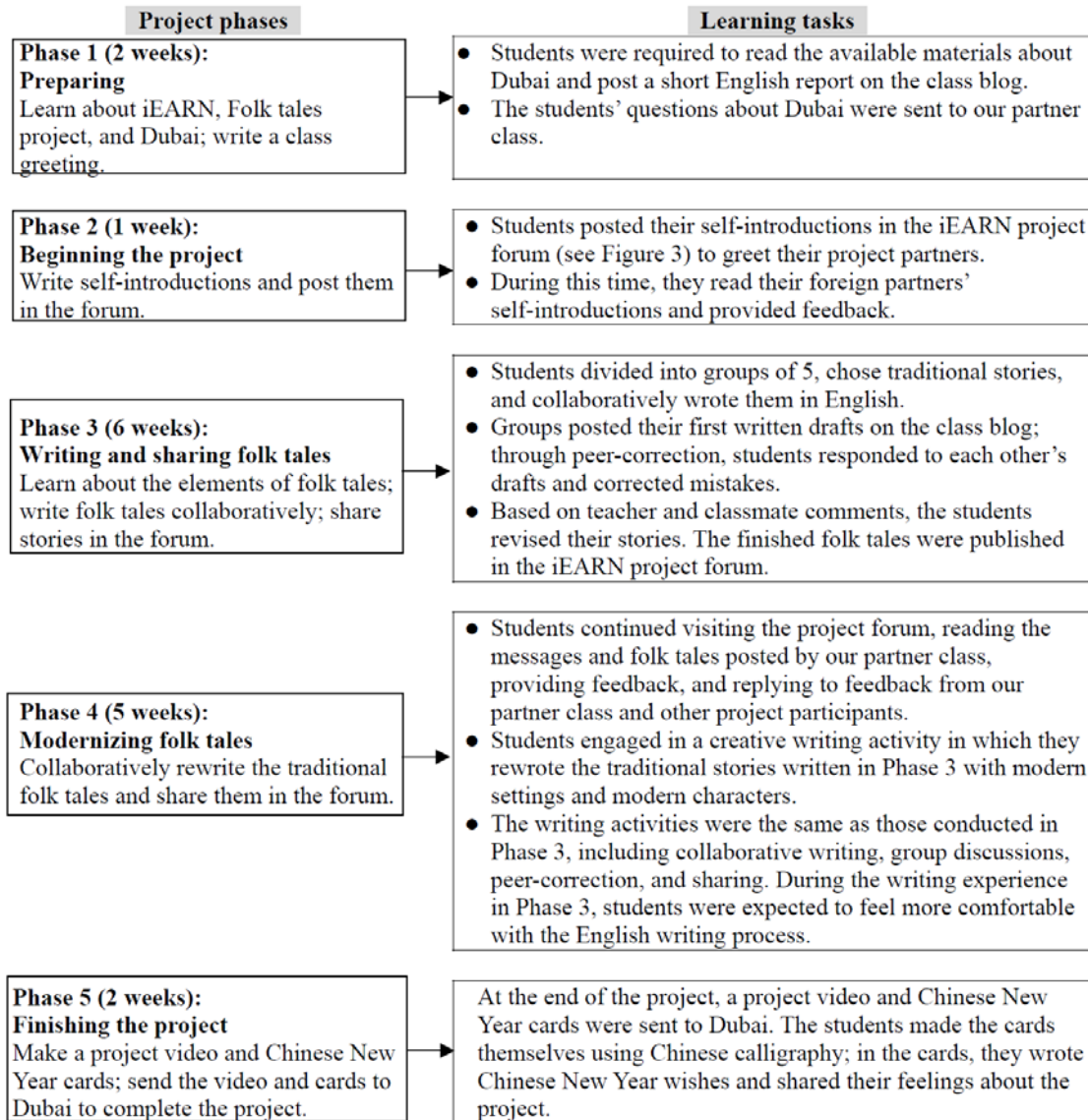


Figure 3. The procedural framework of the Folk tales/storytelling: past and present project

The screenshot shows the iEARN Collaboration Centre forums interface. At the top, there are navigation tabs for HOME, PROJECTS, PEOPLE, GALLERY, and FORUMS. Below this is a header for 'FORUMS: A PLACE TO MEET OTHER PEOPLE' and a 'Project Navigation' bar with options for Description, Forum, and Album. A dropdown menu shows categories: General, Projects, Regions & Languages, and Professional Development & Exchanges. The main content area is titled 'Interactive Forums > Index of iEARN Discussion Forums > Folk Tales/Storytelling: Past an Margaret's class from Taiwan'. A post by Margaret_Chen is highlighted, with a list of replies below it. A bracket on the right side of the list of replies points to the text 'List of posts showing participants' nationalities'.

Figure 4. Screenshot of the folk tales project online forum

Video conference: storytelling and cross-cultural discussion

In the second semester, we had two 45-minute videoconferences via Skype. This was an extension activity of the Folk tales project and involved sharing folk tales with two Pakistani partners. For this activity, the students turned their stories into a puppet show. They worked collaboratively to adapt their stories into scripts, practice reading the scripts aloud, make paper puppets, and draw the story background. Along with these tales, the students introduced their partners to traditional customs and food. Furthermore, to build intercultural awareness, the students were asked to read a book about a Taiwanese woman's experience in Pakistan, and a class discussion was held. Then, in the videoconference, the participants asked each other questions to learn about the similarities and differences between their cultures.

E-pal project: email exchange

After the first two collaborative projects, the E-pal project was used to build students' independent English language skills and to offer them opportunities to develop autonomous language learning skills. Our partner class was American. Each student had his or her own American key pal, with whom they exchanged weekly emails through ePals webmail. The students learned email formatting and netiquette before the exchanges began. To relieve students' anxieties and enhance their confidence in writing, this was a free language exchange. Students could write about anything that they were interested in and worked on their email-writing independently during class time. The instructor gave advice to help the students decide upon their writing topics and solve their language problems.

Data collection

The research utilized both qualitative and quantitative methods of data collection and analysis, including questionnaires, interviews, and document analysis. Five separate questionnaires were administered:

1. Beginning-of-course survey

The beginning-of-course questionnaire contained 6 questions relating to students' language learning background and self-evaluation on their language skills. The findings from the survey helped the researchers to understand the participants and create an appropriate instructional design.

2. Mid-term survey

The mid-term survey, conducted at the end of the first semester, allowed students to make comments and suggestions; it was helpful in evaluating the first-semester course and adjusting the curriculum in the following semester. The first part of the questionnaire comprised 14 5-point Likert scale measuring the students' attitudes towards the project and the instructional design. In the second part, the students were asked to express their thoughts about the course and their own learning process.

3. Two reflective surveys

At the end of projects two and three, reflective questionnaires were used to encourage students to reflect upon their English language learning. Each reflective questionnaire contained two parts. The first part solicited responses about learning attitudes, teaching activities, and learning results in a 5-point Likert-style format. The second part, which employed open-ended questions, required students to report their difficulties and learning gains in the project.

4. End-of-term survey

The final questionnaire, which had 5 open-ended questions, was created to provide an overview of participants' experiences in, perceptions of, and attitudes towards the whole course.

FINDINGS

Students' attitudes towards TEILI

The one-year course utilized 3 projects with different language activities to enhance English language learning and cross-cultural communication. Table 2 shows that the participants had strong positive reactions towards TEILI. The learners enjoyed studying English through these intercultural projects and especially enjoyed the *E-pal project* ($M = 4.80$). The students affirmed that the projects helped them to learn English in an authentic learning context. In the interviews conducted at the end of the *Folk tales project*, all of the learners but one said that they would like to have had more intercultural language learning activities. Table 2 reveals the same responses at the end of the videoconference ($M = 4.33$) and e-pal exchanges ($M = 4.40$).

We utilized a weblog-assisted teaching model and a collaborative learning method to overcome the students' lack of experience with intercultural projects. In the mid-term survey, over 93% of the students affirmed that the weblog-assisted teaching model was helpful for their projects. Table 2 shows that collaborative activities can reduce learning pressure in the *Folk tales* ($M = 4.60$) and *Video conference* ($M = 4.00$) projects. The instruction conducted during the projects was acceptable to the learners. The learning tasks were not beyond the learners' language abilities, and the *E-pal project* was considered the easiest ($M = 4.40$).

Table 2. Learners' Attitudes Towards TEILI and its Instructional Design

Learner's attitudes	Folk tales		Video conference		E-pal project	
	M	(SD)	M	(SD)	M	(SD)
I like this new type of learning activity involving communication with foreign students.	4.26	(.79)	4.27	(.88)	4.80	(.41)
The project enables us to use English in realistic situations.	4.33	(.61)	4.40	(.82)	4.33	(.72)
I hope that in the future I can keep participating in this type of learning activity.			4.33	(1.04)	4.40	(.63)
I appreciated the teacher's instruction during the project; it	4.66	(.72)	4.60	(.63)	4.73	(.50)

was clear and helpful.

Learning through collaboration can reduce learning pressure.	4.60	(.63)	4.00	(1.00)
The learning activities in the projects were not difficult for me.	4.00	(1.19)	4.00	(.85) 4.40 (.63)

In the end-of-term survey, all of the participants preferred TEILI to traditional classroom-based instruction. The primary reason was because TEILI provided authentic, lively, practical, and interesting learning experiences. In describing the benefits of TEILI, many of the participants criticized the limits of traditional instruction in Taiwanese English classrooms, in which rote memorization of language knowledge is emphasized over language use; two students used the term “dead English” to describe learning in traditional classroom-based instruction (S2, S5) and preferred the “living” English of TEILI.

With traditional classroom teaching, I don't know how to use the English that I have learned in real life. With TEILI, I can communicate with foreigners. I have more opportunities to use the English that I have learned. (S6)

With traditional instruction, it takes us a lot of time to memorize vocabulary and grammar rules, but my mind goes completely blank when I need to speak English. With TEILI, I can communicate directly with English speakers. It is a more real experience and is more helpful. (S7)

I prefer TEILI because it makes English class more interesting, vivid, and lively. With traditional teaching, we only read textbooks. With TEILI, we can use English in a natural environment, just as we use Chinese. (S13)

The above comments indicate that traditional instruction could not satisfy students' learning needs. The students were aware of the aim of learning English via TEILI and were eager to learn in a realistic communicative context.

Students' evaluations of TEILI

To improve the instructional design, students were asked to provide feedback about the curriculum and its implementation in the end-of-term survey. All of the students expressed positive attitudes towards the researcher's instruction. They commented that the instructional practices were helpful and sufficient, with no need for improvement (S1, S2, S5).

Interestingly, the students and the instructor differed in their views of the teacher's role in TEILE. While the instructor viewed herself as a facilitator, some students felt that the course instructor was strict because the students were asked to complete each task on time. Students who could not meet the deadlines had individual meetings to discuss their problems. Some students had positive attitudes towards the requirements. One student commented, “Teacher, keep your strict education, and then students will learn they should work hard on their project tasks” (S13).

Given that students bring differing perspectives to language learning, learners with passive orientations require careful guidance and intervention from pedagogical applications to this approach. Strict supervision can ensure that projects go smoothly and can help students gain awareness that learning English through TEILI demands new learning strategies and self-directed learning. Strict project management also assures successful interactive experiences, which is beneficial for building students' communicative confidence in cross-cultural projects.

Table 3 presents the students' evaluation of the projects; the project that 66.7% of the students liked best was the *E-pal project*. This was also the project that 80% of the students chose as the one with the easiest

writing tasks, consistent with the earlier analysis of the students' attitudes toward TEILI, shown in Table 2. Unlike the other two projects, *E-pal* was a free writing exchange and also a one-on-one communication project. This gave students a sense of novelty and motivated them to communicate. The students commented that they were looking forward to having a pen pal (S1), enjoyed writing about anything they liked to their foreign friends, and gained more knowledge about foreign life (S6, S10).

Table 3. *Learners' Attitudes Towards the Projects*

The project...	Folk tales project		Video conference		E-pal project	
...I liked most	1	6.7%	4	26.7%	10	66.7%
...I liked least	12	80%	2	13.3%	1	6.7%
...with the hardest writing tasks	7	46.7%	6	40%	2	3.3%
...with the easiest writing tasks	3	20%			12	80%

Most of the students shared information about their everyday lives in their emails. For students, writing about their personal experiences was easier than writing traditional stories. The students said that the *E-pal* project allowed them to write about daily life as if they were chatting and without pressure, and it was therefore easy to write a lot in a short time (S3, S8, S10).

There is one positive comment especially worthy of notice. A student mentioned the benefit of asynchronous communication:

- We don't have to write back to the key pals right away. I have enough time to think carefully before writing. (S11)

S11 is a quiet, shy boy and group discussions and synchronous activities, such as video conferencing, put him under pressure. In asynchronous activities, he was able to take time to think and work at his own pace. His example reminds us that students have unique personalities and learning styles. Teachers need to consider the advantages and disadvantages of technology-enhanced learning activities and provide multiple tasks to support learners' diverse learning needs.

In contrast, the project most students did not enjoy was the *Folk tales project* ($n = 12, 80\%$), which was also chosen as the project with the most difficult writing tasks ($n = 7, 46.7\%$). The students enjoyed the collaborative writing in the *Folk tales project* and *Video conference*; however, creative writing proved to be a challenge for students with little English writing experience. The students made the following comments:

- Group writing relaxes my writing pressure, so I don't think it is hard to write stories. However, it is a challenge to modernize traditional stories or adapt stories to scripts. (S4)
- When writing a story, we have to pay attention to a lot of elements, such as vocabulary, grammar, and even dialogues between characters. We need imagination and creativity. It is not easy. (S8)

In addition, students also mentioned that they expected to have multi-aspect exchanges instead of focusing exclusively on exchanges of traditional stories. S8 mentioned that there was less direct communication with foreign partners in the *Folk tales project* than in the other two projects. The students expected to have more interactions that would help them "*understand different cultures and foreign life more deeply*" (S3).

Students' learning benefits from TEILI

The students reported in their reflections and interviews that they received many learning benefits from

TEILI, including increased understanding their own and other cultures, increased English vocabulary, improved language skills, experience using technology learning tools, experience with intercultural communication, and improved collaboration skills. Table 4 shows that cultural understanding was the main learning benefit reported for all three projects. The reflective surveys for the *Video conference* and *E-pal project* also showed the students' positive attitudes towards cultural learning; both the *Video conference* ($M = 4.20$, $SD = .86$) and *E-pal project* ($M = 4.20$, $SD = 1.01$) improved students' cultural understanding, but the *E-pal project*, with its close individual interaction, provided the participants the most opportunities to explain their own culture ($M_{video} = 3.93$, $SD = .70$; $M_{e-pal} = 4.20$, $SD = .86$).

Table 4. Students' Learning Benefits from TEILI

Folk tales/storytelling	
Improving language ability (vocabulary and writing skills)	I forgot a lot of English vocabulary that I had memorized before, but now I know these words again because I have to use them in my writing. I learned more vocabulary. (S4) I learned how to respond to messages and interact with foreign students on the forum. At first, I had to think about the feedback content for a long time. Now, I can reply faster. (S6) During the project, I felt that I was making progress in writing. Now, I can write a longer forum message than before, without just using a lot of emoticons. (S7)
Improving technology ability	I learned a new way, iEARN, to communicate with foreign students through the Internet. I know more about the world. (S8) During the writing process, ...I also learned how to use online dictionaries in learning English. (S3) I learned more technology tools, and now I can type faster in English. (S9)
Developing collaboration skills	I learned how to work collaboratively with others. (S11, S12)
Understanding different cultures	I learned more about our own folk tales and also learned about other countries' folk tales. (S3)
Video conference	
Understanding different cultures	We shared our stories, food, and festivals; they also shared their culture...I learned a lot and understood that others' lives are not the same. (S2) ...I touched a very different culture. I saw that the clothes they wore were so different from ours. Every country has its own unique culture. (S5) ...I knew about Pakistani students' school life. Their school life is similar to ours. They wear school uniforms, and they also have PE classes. (S8)
E-pal project	
Understanding different cultures	Their school schedules are very different from ours. Their school starts later, but they go home earlier than us. (S8) American students like sports very much. They play many outdoor sports. They also have field trips (over 3 or 4 days). They have to do reports after the trips. (S7) They don't have to wear uniforms, and they don't always have the same subjects. For example, some choose to study Spanish, and some study French. We all have the same subjects and only study English. They are freer and have more choices. (S10)
The Whole Program	
Improving language ability	My largest gain is that I have learned a lot of vocabulary. To write articles and emails correctly, I looked up words and made sure their usages, so I learned a lot of new words. (S2)

	Through the communicative process, I understand my learning problems. The projects improve our English ability and let us learn new vocabulary. (S9)
Improving technology ability	I have better technology skills than before. I didn't know we can use these tools to learn English before. The Internet has a lot of learning resources and I learn knowledge beyond textbooks, (S11)
Understanding different cultures	I understand different countries and cultures deeply. I also understand the differences between us and foreign students. (S6)

The students agreed that TEILI created opportunities for learning about cultures, including their own and their interlocutors'. Based on Byram's model, we found that, through TEILI, the students developed their ICC skills in four dimensions (see Table 5): knowledge of their own and their interlocutors' cultures, open attitudes towards intercultural exchanges, skills for interacting with interlocutors, and a critical cultural awareness necessary to evaluating cultures.

Due to the interlocutors' diverse cultural backgrounds, the students' reflections indicated that their knowledge about cultures was largely acquired through the process of interaction, which is one of the main advantages of the TEILI model. The students introduced their own culture and learned about life in Dubai, Pakistan, and the USA through their communications. They developed cultural awareness of both their home culture and the cultures of their interlocutors.

Students reported that most of their critical cultural awareness was developed in the *E-pal project*. Unlike the group interactions, the students experienced an intensive compare/contrast process in the individual interactions of the *E-pal project*. They learned facts about American school life, gave responses to their interlocutors, and shared their own experiences of attending school in Taiwan. In every email exchange, the students familiarized themselves with the use of comparison and contrast to view cultures critically.

Table 5. Students' Development of Intercultural Communication

Dimensions	Students' descriptions	
Knowledge:	...of one's own culture and the interlocutors' culture	<ul style="list-style-type: none"> For me, these learning experiences broaden my vision! I learn foreign cultures, customs, and traditions. (S6) I not only learn other cultures but know more about my own culture. (S7)
Intercultural attitudes:	Curiosity and openness to learn about one's own culture and the interlocutors' culture	<ul style="list-style-type: none"> I hope to have more opportunities to communicate with foreign students; then, I can practice intercultural communicative skills and know about the world. (S7) I hope we can keep working with other countries on new projects. (S5)
Discovery and interaction skills:	The ability to acquire new knowledge of a culture through synchronous interaction	<ul style="list-style-type: none"> I learn different cultures by using English and Internet tools in real communication. (S6) I learn how to exchange ideas with foreign students. (S10)
Critical cultural awareness:	The ability to evaluate a culture	<ul style="list-style-type: none"> They don't have to wear school uniforms, and they have a monthly dance. Their school life seems more colorful, with fewer restrictions than ours. (S10) They also have exams like us, but only at the

beginning and the end of the semester...It seems that we pay more attention to studying. They have more time to play sports, but we don't. American students seem freer, with less pressure. (S13)

Students' self-perceived challenges with TEILI

Though students showed positive attitudes towards the new teaching model, several of them still had difficulty interacting. Table 6 reveals that low vocabulary knowledge was the major barrier for students in their projects. Due to their limited vocabulary, the students did not know which words to use to express their ideas well. Such challenges may be unavoidable in the Taiwanese EFL context. These problems also reflect the value of the course: building language ability through realistic communication. Students are able to enlarge their vocabularies as they experience cross-cultural communication challenges.

To solve their vocabulary deficiencies, students usually used online tools to look up words or directly asked the instructor for help. However, some relied on online translation tools to translate entire messages. This was convenient, but improper. These translation tools may work well for words or simple sentences, but they always almost translate complex descriptions incorrectly. Using improper tools may create other learning problems and cause confusion and misunderstanding. The result indicates that it is necessary to teach students how to use technology tools correctly and in ways that will benefit their language learning.

Accents were another challenge. Because American English was taught in their school, the Taiwanese students were only familiar with American English pronunciation. With few opportunities to listen to other accents, it was not easy for students to immediately become involved in real language situations during the videoconferences. For these students, an unfamiliar accent sounded like a different language. However, this provided an opportunity for students to realize the variety of authenticity within the English-speaking community. One of the students commented,

- I understand our accent is not always correct. There are different accents in the world. We should try to understand and accept others' accents. (S10)

From the following student's feedback, we can infer that if students are exposed to this authentic oral interaction for a longer period of time, they may accept the accent more and understand it better:

- At first, I totally couldn't understand what they said, but as we spoke to the second school, it became better. The accent was not so strange to me. I could understand more. (S1)

Table 6. *Students' Learning Challenges with TEILI*

Folk tales/storytelling	
Lack of language skills (vocabulary)	<ul style="list-style-type: none"> • When I read Dubai information on the English website, there were a lot of words I didn't know. I tried to use online dictionaries or the Google translator, but some English words were still difficult to understand. (S4) • My writing was a big problem. I need more vocabulary and to learn to write good sentences. (S6) • I had difficulty finding the right words to clearly express the meaning I wanted. (S12)
Problems of within-group cooperation	<ul style="list-style-type: none"> • Sometimes I thought the story we wrote was very strange. Though the group worked together, members usually had different ideas. We didn't know which one was better, so it usually took us a long time to discuss the story plot. (S6)
Video conference	

Lack of language skills (accent, vocabulary, grammar)	<ul style="list-style-type: none"> • Because of the accents, I had to listen to their words very carefully. However, I still couldn't understand all their words. Sometimes they spoke fast; then it was even more difficult to understand what they meant. (S8) • Because of the accents, I couldn't hear clearly. I often misheard what they said or misunderstood the meaning. It seemed we spoke different languages. (S9) • I feel that writing the script is the most difficult part. I have problems in vocabulary, grammar, etc. I usually think in Chinese, and then have trouble in writing it in English. (S10) • As I wrote the script, my problem was that I didn't have enough vocabulary to express the meaning. I depended on the Internet dictionary to look up the words. (S7)
Language anxiety	<ul style="list-style-type: none"> • Though I had prepared in advance, I was very nervous and forgot what to say. (S11) • I was nervous during the VC. When I was nervous, I started to stutter and didn't know what to say. (S14)
E-pal project	
Lack of language skills (vocabulary, grammar)	<ul style="list-style-type: none"> • There were no serious problems; only some problems with vocabulary or grammar. (S5) • There were no big problems or difficulties. My problem is with vocabulary. I should learn more English words. (S10)

The students' feedback reveals the disadvantages of Taiwan's English language learning environment. Typically, English is taught in decontextualized forms; students learn the correct forms of the language and are able to use English in a structured situation. However, the authentic context is unstructured, ill defined, and interactive. If students cannot transfer their knowledge into functional use, they will not be able to use the language actively outside the class.

Teaching reflections on TEILI

Though research, including this action study, has verified the positive effects of TEILI, the implementation of TEILI in classrooms is a challenge for teachers. Unlike traditional, static, classroom-based instruction, TEILI is a dynamic process based on interactions among participants. The differences in educational systems and participants' backgrounds create many uncertain features in the interactive process. The teacher, as a project manager, must connect all of the elements of the TEILI program and consider not only instructional tasks but also project arrangements. The teacher must also resolve unexpected problems in the interactive process. It is important for teachers of partner classes to work closely to create suitable and realistic project plans in advance. Then, during the project process, they must remain in close communication with each other to ensure that the whole TEILI program advances smoothly and successfully.

Since instructors must exchange ideas frequently, TEILI builds authentic intercultural communication not only for learners but also for instructors in the EFL community. Teaching is learning; collaborating with other foreign educators will enable instructors to use the language that they teach, establish pragmatic competence, and gain professional development from real experience. This course instructor benefited greatly from interacting with the partner teachers, and especially from their instructional designs for the project activities. The Dubai teacher shared his method for inspiring his students to discuss different types of folk tales before writing; the American teacher worked with his colleagues to integrate issues of globalization into the email exchanges. They demonstrated creativity in the teaching designs and prompted the course instructor to think about teaching and learning from a different perspective.

Though it takes much time and effort to develop a TEILI course, the students' positive feedback during this study was encouraging. The students always rushed into the classroom, eager to learn and communicate with their foreign partners. I did not have to struggle with classroom discipline or urge the

students to work hard because their foreign partners were the best stimuli for motivating language learning. As they heard the Pakistani students' fluency in English, they were shocked, and the students commented that the "*Pakistani students were so active, and their English was so good. It seemed English is easy for them. They could say what they want to say. I should work hard on my English*" (S9). "*Though I couldn't understand all their English, their English ability shocked me. If I have another opportunity, I will avoid the problems and improve my English*" (S13). The comments reveal that students can reflect on their own language learning through TEILI and find the motivation to become active learners. The instructor's challenge is to provide the context, direct the process of learning, and foster students' abilities to understand the changing world around them.

DISCUSSION

The participants' responses to TEILI and its instructional design validated the pedagogical benefit of extending the learning context outside the classroom to provide authentic and meaningful language learning. The result agrees with the current research on technology-enhanced learning (Warschauer, 1997; Kern, Ware, & Warschauer, 2008). The findings are discussed in terms of what we can learn about language learning and instructional design from TEILI.

Language learning

The analysis of the learning process showed that a lack of FL skill was the students' main barrier during the intercultural projects (see Table 6). In the process of intercultural interaction, the participants were aware of their language difficulties. The students described the obstacles presented by vocabulary, grammar, writing and accents. Leow (2000; 2001) found that awareness plays a critical role in second language learning. Gilakjani (2011) also concluded from previous studies that conscious awareness of language is necessary for second language acquisition. As Gilakjani (2011) comments, "Both consciousness and language are inextricably connected like two sides of a coin". TEILI, which recreates authentic situations, provides opportunities for social interactions that evoke learners' conscious awareness of the target language system. This helps learners to use language correctly and appropriately in later tasks. The findings confirmed that the students perceived their language skills to be improved through the project tasks (see Table 4). From the instructor's perspective, the students' language challenges brought about their learning benefits.

The first two projects of this action study focused on the same topic: folk tales. Multimodal projects integrating multiple semiotic modes, such as written words and imagery, were expected to enable students to transform the mode of communication and expression from text into speech, reducing the students' anxieties when speaking in English. However, the teaching result did not entirely meet the expectation. The students' experiences revealed that the multimodal design lacked transformation between tasks and had no active effect on lowering anxiety (see Table 6: Language anxiety). According to Krashen's (1982) affective filter hypothesis, second language learners with high motivation, self-confidence, positive attitudes, and low levels of anxiety are better equipped for successful language learning. For the students with high anxiety, the affective filter became a barrier to language performance. To reduce the negative affective factor during videoconferencing, it is necessary to revise the learning tasks to allow students to become more familiar with synchronous communication.

In his research on multimodality, Nelson (2006) examined the synesthetic functions of transformation and transduction through the process of multimodal communication. Other research has shown that language skills can be transformed from text, as in online chatting, to second language speech (Blake, 2005; Payne & Ross, 2002; Sanders, 2006). The resemblance between an online task and a real-time conversation is a vital factor for successful transformation across semiotic modes. A re-examination of the learning tasks in the first two projects may reveal that the similarity across tasks may be not high enough to facilitate learning transformation, especially given the differences between asynchronous and synchronous tasks. Based on the positive effects found in multimodality research, conducting an online real-time chat

(textual exchange) before videoconferencing (audio and video exchange) may increase students' self-confidence in synchronous conversations.

Instructional design and ICC

Thorne (2005) once described Internet-mediated intercultural FLE as a complex Venn diagram that overlapped with other areas of research and with numerous models. In addition, each model has varied instructional designs. Educators must consider which model or instructional method will be best suited for their context. The research suggests that students' levels of cognitive development could be one of the most important considerations when creating an effective TEILI instructional design.

Richards (2010) launched a study on technology-enhanced intercultural collaboration between elementary school students in the U.S. and Jordan. The 16-week project focused on guided story writing, and ePals and Skype were the communicative tools. The researcher, who was also the project facilitator, worked closely with two instructors to design the project plan and assign tasks. This tended to be a teacher-managed instructional design. Our action research chose the same tools (ePals and Skype) and similar themes (sharing stories and information about daily life), but we utilized a teacher-and-student-managed instructional model in a junior high school context. The instructor was a facilitator; the students engaged in discussion and had great freedom in deciding how to interact with their foreign partners. Based on theories of cognitive development, the tasks were designed to require different cognitive skills and proceeded in an orderly developmental sequence, gradually "transforming from sensory-motor actions to representations and then to abstractions" (Fischer, 1980). At different ages, students think in different ways. Generally, middle school students are becoming increasingly capable of handling more sophisticated and abstract learning tasks. We therefore required our students to engage in complicated tasks autonomous learning and critical thinking tasks that would challenge them.

Telecollaboration conducted at the university level tends to adopt a more student-managed instructional model. For instance, Liaw (2006) created a web-based system with self-help resources in the form of online reference tools to foster reading discussions between Taiwanese university students and their American partners. The participants were seen as independent, self-directed learners.

Above all, telecollaboration cases insist on the effectiveness of "international class-to-class partnership within institutionalized settings" (Thorne, 2005, p. 4). With proper designs that consider students' levels of cognitive development, TEILI can be put into practice across a variety of education levels.

In addition to language learning, another core aim of TEILI is to develop intercultural communication awareness. All three of the above cases revealed that intercultural collaboration may enhance cultural understanding and cultural awareness. Due to differences in the project designs and the ages of participants, the aspects of the students' intercultural development were not the same. However, in all three cases, students perceived that they could gain knowledge about their own and other cultures. Liaw (2006) showed that students developed the ability to change their perspective of and knowledge about the intercultural communication process, which was not discovered in Richards (2010) nor in our research. It is possible that projects with more discussion tasks could encourage participants to interact with each other more deeply and facilitate high-level ICC. It is also possible that university students have higher order cognitive abilities and better development of ICC.

CONCLUSION

The action research revealed that the TEILI course provided authentic opportunities for students to develop their language skills and ICC. The students acknowledged that they improved their knowledge of the varieties of English language use and culture, improved their vocabulary, writing, and technological abilities, and learned collaboration. TEILI participation revealed the students' inadequate expressive skills and the limits of traditional language instruction. Online educational communities provide diverse collaboration projects for classes around the world. The study found that, with proper planning and

project management, learners could experience varied intercultural projects without difficulty. TEILI promoted language-learning motivation and helped learners develop active attitudes towards language learning and intercultural communication.

TEILI allows students use language in school that is relevant to the way they will use language outside school. This action study implemented only one type of TEILI curriculum. Future studies should investigate the results of integrating other types of projects into such a course. They should consider whether it is better to work on a project over a long period of time or to try various short-term projects, what type of TEILI curriculum design will benefit students most, and how students' learning autonomies and cultural awareness can be systematically developed through TEILI. As this action research has shown, authentic language learning environments can be created through technology use. Further research on curriculum design and the impact of TEILI on language teaching and learning will allow the model to be evaluated from different perspectives.

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