

## Article

# Promoting the Sustainable Development of Rural EFL Learners' Email Literacy through a Facebook Project

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**Abstract:** Promoting the sustainable development of rural EFL students' English ability is a vital issue in the general curriculum guidelines of Taiwan's 12-Year Basic Education. This study aimed to investigate the effects of a Facebook project on developing rural EFL learners' email literacy in English. There were two participant groups: (1) six university English majors and (2) 12 ninth-graders from a rural junior high school. The instruments included a multiple-choice awareness task (MCT), a written discourse completion task (WDCT), a perception questionnaire, interviews, and teaching journals. The university students first received a training session on email literacy, and then they taught the ninth-graders invitation email-writing through Facebook interactions for eight weeks. The results showed that after the project, the ninth-graders made significant improvements when completing the MCT. As for the quality of their emails, the ninth-graders not only scored significantly higher in the post-test but also made qualitative progress in their invitation emails. Furthermore, both participant groups had positive perceptions of this project and indicated the strengths and weaknesses of their participation. This paper concludes with pedagogical implications for English education in Taiwan.

**Keywords:** Facebook; invitation; email; pragmatic awareness



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## 1. Introduction

In 2015, the United Nations General Assembly (UN-GA) initiated the Sustainable Development Goals (SDGs) with a collection of 17 interrelated global goals to achieve a better world for the future. One of the goals is to “ensure inclusive and equitable quality education and promote lifelong learning opportunities for all” [1]. With reference to the United Nations, the Taiwanese government also formulated 18 SDGs in line with Taiwan's current status and future trends for development. Among the SDGs published by the Taiwan National Council for Sustainable Development in 2019, Target 4.5 states a commitment to “ensure (that) disadvantaged groups obtain (an) education at all levels, as well as vocational training, including persons with physical or mental disabilities, indigenous people, and disadvantaged children” [2].

In Taiwan, some of these disadvantaged groups come from rural areas. The children in these regions tend to demonstrate unsatisfactory academic achievement (e.g., [3–7]). Rural children have frequently been reported to have inadequate educational stimuli, inappropriate learning environments, and insufficient well-trained and experienced teachers. To promote the rural students' learning, we initiated a Hands Together Project, in which university students helped to improve the learners' English email literacy through the use of Facebook. The reasons for conducting this project were threefold. First, English is the dominant lingua franca nowadays [8], so it is important for students to know how to use English appropriately to communicate with people from all over the world. Second, in the

globalized world, email is the most universally adopted means of communication [9,10]. In addition, email literacy has been specified as one of the core competencies in the general curriculum guidelines of Taiwan's 12-Year Basic Education [11]. Third, Facebook has often been applied to pedagogical settings in the era of information technology because it provides a platform where students can work together to exchange ideas, ask questions, offer suggestions, and demonstrate learning progress or results [12]. Furthermore, its incorporation into language learning conforms to the tenets of social constructivism theory, which regards social interactions as essential in learning activities because meaning-making and cognitive development mainly depend on a process in which learners acquire new or more sophisticated skills and knowledge via collaborative interactions with more erudite and experienced members of the community [12–15].

Previous studies on Facebook-mediated instruction have primarily targeted university students, but students of different academic levels and ages are expected to be affected by such instruction in different ways [16]. Moreover, the majority of the research has focused on the improvement of students' essay writing [12,17–20], leaving email writing under-researched [20,21]. Therefore, through this collaborative project, the current study aimed to bridge this gap and investigate the Facebook-mediated instruction of email literacy for junior high school students in Taiwanese rural areas. To be more specific, this study aimed to answer the following three research questions:

1. To what extent did these rural junior high school students raise their email awareness through this Facebook project?
2. To what extent did these rural junior high school students improve their email performance through this Facebook project?
3. How did the junior high school and university students, respectively, perceive this Facebook project?

## 2. Literature Review

With a vision to facilitate information exchange and teamwork among users on the Internet, and to create more value and possibilities, Web 2.0 applications and online tools focus on users' interactions, collaboration, and creativity [22–24]. These media have greatly influenced and changed not only language pedagogy but also the learning experience and interactions between teacher and learner [25]. Some of the most commonly utilized applications include Facebook, Twitter, Wikis, and blogs. Such social network services enable L2 learners to participate in authentic social interaction [26] and also promote group cohesion, peer interaction, and learner collaboration [27]. With the development of Industry 4.0, which emphasizes digital technology and intelligent integrated systems, language pedagogy is evolving from computer-assisted language learning (CALL) to mobile-assisted language learning (MALL), breaking down the barriers of time and space for language learning [19] and making language learning more "personalized, spontaneous, informal, ubiquitous" ([28] p. 309) and motivating [25]. In recent years, with the rise of self-directed learning and the outbreak of the COVID-19 pandemic, distance learning, and remote lectures have become more popular, and the development of such online applications has flourished.

Facebook is the most popular of all the social networking applications. According to Statista [29], it has approximately 2.91 billion users worldwide and the number is continuously growing. It is popular among young people; almost every one of them has an account and spends a great amount of time on it every day [30,31]. It is deemed to be second nature to the young generation and an indispensable component of their lives [32]. It allows young people to connect with other users around the globe; they can publish and share texts, images, videos, and other multimedia files on their walls, in groups, or through private messages. Such functions also make Facebook an emerging environment for L2 pedagogy because it facilitates learning activities such as discussion, personal reactions, reflections, questions, suggestions, and so on. It also provides opportunities for synchronous and

asynchronous interactions, learning from groups, information exchange, and collaborative writing [12].

The use of Facebook in language pedagogy conforms not only to technological practicality but also to the idea of social constructivism, which is supported by two leading theorists: Lev Vygotsky and Jean Piaget. Vygotsky [13] emphasized that human learning, including language learning, is a socially mediated process wherein novices acquire new or complex knowledge and skills from their more advanced partners. Likewise, Piaget and Inhelder [33] found that humans produce knowledge and make meanings through social interactions and life experiences. To put it more simply, social constructivism provides a solid foundation upon which learners actively participate in expert–novice collaborations, to obtain scaffolded assistance [34].

Previous research has shown that using Facebook in L2 pedagogy has potential benefits and is advantageous. Students tend to regard Facebook as a convenient and low-stress environment [35], and its use may reduce their anxiety about communicating in a foreign language [17]. When integrated into the curriculum, Facebook helps to foster students' long-term knowledge retention and strengthen their comprehension [36]. Furthermore, it offers opportunities for L2 engagement outside the classroom [16], as well as opportunities to carry out authentic communication [16,37]. It also encourages learners' involvement and active contribution [15,19], promotes cooperative learning [17], and enhances learning motivation [12,19].

The use of Facebook to increase students' writing ability has drawn the attention of many researchers in recent years. Rodliyah [12] investigated the possibilities of incorporating e-dialog journal-writing, shared in a closed Facebook group, to improve the writing ability of Indonesian EFL students. The study revealed that using Facebook not only enhanced their vocabulary, grammar, spelling, and fluency but also offered interesting practice, allowing the students to build rapport and learn from their peers. Altakhaineh and Al-Jallad [38] compared the effectiveness of Facebook and Twitter in teaching writing mechanics to Arabic-speaking EFL learners. They reported that both groups' errors in mechanics were reduced in the post-test and that there was no significant difference between the two approaches. However, the interviews with the participants showed that they favored Facebook more than Twitter because the former provided multiple functions and convenience of interaction. In a recent review, the authors of [20] concluded that the use of Facebook in EFL writing classes can exert a positive effect on the learners' writing performance. Moreover, it can promote learning motivation, induce peer collaboration, and reduce shyness. As for students' perceptions, most studies have found that the application of Facebook to language pedagogy has positive and beneficial effects [12,19,39]. For example, Dizon [39] worked with Japanese EFL learners and found that the Facebook group demonstrated more favorable opinions toward free-writing than did the paper-and-pencil group. The Facebook group had a stronger belief that the medium they used could both promote their writing skills and enhance their writing confidence because they were writing to an authentic audience. The students' overall positive attitudes had a direct impact on their behavior and performance in a given task, as argued in Ajzen and Fishbein's [40] theory of reasoned action.

Despite the strengths of Facebook, its weaknesses in pedagogy have also been brought to the attention of researchers. It cannot be denied that Facebook is both an effective instructional tool and a distraction in the classroom at the same time [12,41]. First, due to its social and recreational nature, it provides too much information [41], which may interfere with students' ability to focus on their writing [42]. Second, off-topic and non-academic discussions may occur frequently [43], and teachers may find it challenging to supervise students' usage of social media during classroom activities [44]. Third, there are concerns that students might become overly reliant on online autocorrection tools, which may not be beneficial for their learning [17]. As a result, it is important for teachers to incorporate Facebook in a pedagogically appropriate manner and provide clear instruction and helpful guidance during the learning process [39].

In today's society, as one genre of writing, email plays a crucial role in interpersonal and institutional communications [45–49]. This is especially true in business and academia due to its greater convenience and efficiency than traditional letters delivered by post, although it is less intrusive and more formal than instant messages on social media. As noted by Bou-Franch [50], email correspondence has gained momentum among teachers and students, even surpassing face-to-face communication [51]. Email literacy is thus essential for L2 learners. Chen et al. [52] highlighted the importance of incorporating email-writing into language pedagogy, arguing that “email is not a monolithic genre but is inherently fluid” (p. 28), reflecting interpersonal communication and negotiation abilities. Previous studies on email literacy have focused primarily on requests and apologies (e.g., [46,53–56]) and comparatively less on invitation, which is also a frequently occurring speech act in student–teacher interactions [57]. These studies showed that the emails produced by L2 learners are different from those produced by native speakers of the target language. For example, Rezaei [57] investigated invitation emails written by Iranian EFL learners and found that Iranians issued invitations after compliments and justifications, whereas native English speakers expressed invitations right at the beginning of the email, immediately after a self-introduction. To minimize L1 interference and prevent the frustration caused by cross-cultural communication, there is a need for explicit instruction to enhance students' email literacy. Research has shown that advanced students, despite their high language competence, may lack knowledge about email etiquette [58,59]. Therefore, it would be beneficial to implement email instruction at an early stage of English education [55,58].

### 3. Method

#### 3.1. Participants

The participants in the current study included two groups of EFL learners. The first group consisted of six English majors at a university of technology in central Taiwan. Their English proficiency was around the level of high–intermediate proficiency, i.e., the B2 level of CEFR. The second group comprised 12 EFL ninth-graders, including six males and six females, whose average age was around 15, from a rural junior high school in southern Taiwan. Their English proficiency was at a high–beginning level. In addition, most of them were from disadvantaged families whose social-economic status was relatively low, or from single-parent or grandparent-headed families. The passing rate of these ninth-graders on the English part of the Project for Implementation of Remedial Instruction-technology-based test (PRIORI-tbt) was quite low at around 50%. PRIORI-tbt is a screening test promoted by the K-12 Education Administration of the Ministry of Education for screening out elementary and junior high school students with lower academic achievement, in order to provide them with learning-assistance resources [60].

#### 3.2. Instruments

In this study, we used different instruments to answer our research questions. The first question asked the extent to which the ninth-graders' email awareness was raised through this Facebook project. To answer this research question, we designed an MCT (Cronbach's  $\alpha = 0.863$ ) with 32 questions to examine the ninth-graders' overall understanding of the components in an invitation email, including the subject line, opening, invitation strategies, and closing words. It has been widely recognized that there are four essential components in an email: a subject line, opening, main message, and a closing (e.g., [55,56,58,61]). In an invitation email, the main message employs different strategies for an invitation. The MCT was completed twice, as a pre-test and as a post-test.

The second research question asked the extent to which the ninth-graders improved their email performance through this Facebook project. To answer this question, we designed two versions of the WDCT as a pre-test and a post-test. In the pretest, the ninth-graders were asked to read about a situation and write an email to their teacher to invite him to a Christmas party; in the posttest, they needed to write an email to invite him to a thank-you dinner.

The third question asked the perceptions of the university students and ninth-graders about this Facebook project. To collect the ninth-graders' perceptions, they completed a perception questionnaire; semi-structured interviews were also conducted with all the participants after they completed the project. The perception questionnaire involved two parts: a five-point perception questionnaire, with items scored on a 5-point Likert-type scale (Cronbach's  $\alpha = 0.953$ ), and open-ended questions. The first section of the questionnaire included 15 items that were designed based on the four dimensions of Davis' [62,63] technology acceptance model (i.e., attitude toward use, perceived usefulness, perceived ease of use, and behavioral intention), which is widely adopted and adapted to examine users' acceptance of different information technology, including the use of Facebook (e.g., [64,65]). Items 1 to 4 probed the dimension of learners' attitudes to the Facebook project, while items 5 to 10 addressed the perceived usefulness of the Facebook project, items 11 to 13 explored the perceived ease of Facebook use, and items 14 to 15 established behavioral intention. To increase the instrument's validity, the 15 items were first evaluated by four experts in applied linguistics and language teaching, and their suggestions and comments were integrated into the finalized questionnaire. Detailed descriptions of the 15 items are given in Table 2 in Section 4.3. The second section included four open-ended questions designed to collect the ninth-graders' views on the strengths and weaknesses of this project and the learning difficulties that they faced during it. To probe the university students' perceptions, we used the phenomenological approach [66] to study the experiences from the perspectives of the individuals. For triangulation, the university students were asked to keep weekly teaching journals during their interactions with the ninth-graders and jot down their teaching processes, experiences and reflections. Furthermore, a focus-group interview [67] was implemented after the project was completed to understand what was learned in the project, what impressed the participants the most, what frustrated them the most, and how they felt about this project in general.

### 3.3. Procedures

This study lasted ten weeks in total. The first week was set aside for preparatory activity, in which the university students received training on email etiquette from the second (corresponding) author. Then, each university student was randomly assigned two ninth-graders. In the meantime, the ninth-graders completed the MCT and WDCT as pre-tests.

In the following eight weeks, the ninth-graders received the language treatment, in which the university students taught them invitation email-writing via Facebook, using the teaching materials developed by the first author, which were structured in a genre-based approach [56,58]. Table 1 shows the main topics for the eight weeks of the project. Each university student was paired with two ninth-graders. For each session, the ninth-graders were asked to preview the handouts to develop a general understanding of the learning materials before their online meeting. Next, they logged in to Facebook for online conferences with the university students on Facebook Messenger. The university students first explained the content of the weekly topic to the ninth-graders and then led a Q&A session to check their understanding of the topic. At the end of each session, the university students guided the ninth-graders in accomplishing the assignment for the week; then, the ninth-graders had to post their assignment on Facebook to ask for feedback from all participants (i.e., the six university students and the 12 ninth-graders), who had to offer comments and suggestions over the following two days. During the session, the ninth-graders were allowed to raise questions and ask for clarification at any time.

In the tenth week, the ninth-graders took the post-test MCT and WDCT, completed the perception questionnaire, and participated in individual interviews with the first author. The university students then handed in their journals and participated in a group interview with the second (corresponding) author.

**Table 1.** Weekly topics regarding email literacy during the treatment.

Week	Topic	Writing Focus
1	Introduction to emails	Focus: The four components Task: Recognizing the 4 components in two Chinese and English emails
2	Subject lines	Focus: Subject lines Task: Developing subject lines for three English invitation emails
3	Openings	Focus: Email openings Task: Writing email openings on eight occasions
4	Closings	Focus: Email closing Task: Writing closing remarks for emails on four occasions
5	Invitation strategies	Focus: Invitation strategies Task: Applying the strategies to inviting the teacher to a hotpot party.
6	Email writing (1)	Focus: Wrapping up (1) Task: Inviting the teacher to a dumpling-making activity in the Home Economics class.
7	Email writing (2)	Focus: Wrapping up (2) Task: Inviting the teacher to a celebratory dinner for the relay race.
8	Email writing (3)	Focus: Wrapping up (3) Task: Inviting the teacher to a music class presentation.

### 3.4. Data Analysis

A pair-sampled *t*-test was adopted to compare the ninth-graders' pre- and post-MCT scores. In addition, their email productions, written before and after the treatment, were rated by one non-native speaker and one native speaker of English, based on Lin and Wang's [55] holistic rating rubric for EFL email tasks. The inter-rater reliability was 0.849. The scores of their email productions were also compared by a pair-sampled *t*-test and content analysis was adopted to investigate the quality of the emails. As for the participants' perceptions of this project, descriptive statistics were used to analyze the ninth-graders' perception questionnaires, and content analysis was employed to analyze their transcribed interviews. This method was also adopted to examine the university students' journals and group interviews.

## 4. Results and Discussion

### 4.1. Junior High School Students' Email Awareness

The first research question addressed the effect of the Facebook project on the junior high school students' email awareness, assessed with the MCT. In terms of the MCT at pre-test and post-test, the learners scored higher in the post-test ( $M = 29.08$ ,  $SD = 1.93$ ) than in the pre-test ( $M = 22.08$ ,  $SD = 5.05$ ). To evaluate whether that gain was significant, a pair-sampled *t*-test was conducted to examine the difference. The result revealed that the ninth-graders made significant progress on the MCT after participating in the Facebook project [ $t(11) = 5.257$ ,  $p < 0.001$ , Cohen's  $d = 1.83$  (a large effect)]. This finding regarding the learners' development of email awareness echoed those of previous studies on the facilitative effect of developing L2 learners' email literacy (e.g., [55,56,58,68,69]).

### 4.2. Junior High School Students' Email Performance

To answer the second research question, i.e., to investigate the effect of this project on the ninth-graders' email performance, we compared the learners' scores on the MDCT between the pre-test and the post-test. The results indicated that the learners performed better in the post-test ( $M = 3.33$ ,  $SD = 0.43$ ) than in the pre-test ( $M = 1.65$ ,  $SD = 0.46$ ). A pair-sampled *t*-test revealed that the learners made significant progress on the MDCT after this project [ $t(11) = 7.595$ ,  $p < 0.001$ , Cohen's  $d = 3.77$  (a large effect)].

In addition to the facilitative effect of this project on the ninth-graders' email scores, our in-depth analysis showed that the learners made qualitative improvements in their email writing. For example, in the pre-test, Student 11, as shown in (1), could only offer a vague subject line, "Christmas party", an improper salutation, "teacher (T's surname)", and ungrammatical and inappropriate invitation strategies (i.e., "We want you invite us to our

*Christmas party*” and *“Please get me answer quickly”*) without closing remarks. After this project, as illustrated in (2), Student 11 offered a clear and concise subject line, *“Invitation to our Teacher Appreciation Banquet”*. In the opening, he used an appropriate salutation, *“Mr. (T’s surname)”*, introduced himself, *“This is (S’s first name) (S’s surname) from Class 302”*, and greeted the teacher, *“How are you today?”*. In the body of the email, he employed a variety of invitation strategies, such as describing the event, *“Our class will host a party to thank teachers”*, politely stating the main purpose of this invitation email, *“We would like to invite you to our party”*, offering the details of the event, *“It’s at 7:00 on July 7th at 7–11”*, expressing enthusiasm, *“That will be a lot of fun”*, and asking for confirmation, *“Please let me know if you can come”*. In the end, Student 11 closed his email by expressing his gratitude, *“Thank you”*, and providing a formal closing phrase, *“Best wishes”*, with his full name signature.

(1) (Student 11 in the pre-test; Score: 2)

Subject line: Christmas party

Content:

*Dear teacher (T’s surname), we have a Christmas party. We want you invite us to our Christmas party. Please get me answer quickly.*

(2) (Student 11 in the post-test; Score: 4)

Subject line: Invitation to our Teacher Appreciation Banquet

Content:

*Dear Mr. (T’s surname),*

*This is (S’s first name) (S’s surname) from Class 302. How are you today? Our class will host a party to thank teachers. We would like to invite you to our party. It’s at 7:00 on July 7th at 7–11. That will be a lot of fun. Please let me know if you can come. Thank you.*

*Best wishes,*

*(S’s first name) (S’s surname)*

Apart from the learners’ progress in email writing, our interview data indicated that the students could explicitly articulate the rationale of formal email writing, as shown by Student 11 in (3).

(3) (Student 11’s comment in the interview)

一封正式電子郵件需要有：信件標題、信件開場白、信件內容和信件結尾。標題不能過於太長。開場白需要有稱謂語和問候語，並需要明確的說明自己是誰。信件內容要先表示此信件的目的，並把細項說明清楚，如有檔案要上傳時，要在內容當中告知對方。最後要有禮貌的結尾語和署名全名。 “A formal email needs an email subject line, an opening, a body, and a closing. The subject line cannot be too long. The email opening must include a salutation, greetings, and a clear self-introduction. In the body, you have to indicate your purpose and the details of the event. If you have attached a file, you have to tell the recipient in the body. In the end, you have to provide a polite closing and a full name signature.”

The quantitative and qualitative analyses revealed that the junior high school learners showed great improvement in their invitation-email writing after participating in this Facebook project. The interview data also revealed the learners’ increased knowledge of email. This result parallels those in previous studies on the positive effects of explicit instruction regarding learners’ email productions (e.g., [55,56,58,59]) and supports the facilitative impact of Facebook on L2 writing (e.g., [12,20,64,70]).

#### 4.3. Participants’ Perceptions of This Project

The third research question aimed to explore how both the junior high school and university participant groups perceived this Facebook project. As for the junior high school students’ perceptions, the results from the items in the perception questionnaire, scored on a five-point Likert-type scale, are illustrated in Table 2. Overall, the ninth-graders had

positive perceptions of this project since the mean scores across the 15 items were higher than the median scores. Their positive attitude can be viewed in terms of four perspectives: attitude toward use, perceived usefulness, perceived ease of use, and behavioral intentions. In terms of the attitude toward use, the learners regarded this project as an interesting learning event (Item 1:  $M = 4.83$ ,  $SD = 0.58$ ) because it could lower their learning anxiety (Item 2:  $M = 4.25$ ,  $SD = 0.97$ ), increase their confidence in English writing (Item 3:  $M = 4.33$ ,  $SD = 0.78$ ), and enhance their sense of achievement (Item 4:  $M = 4.08$ ,  $SD = 0.90$ ). For example, Student 4, as illustrated in (4), indicated that this project was more interesting and reduced her stress. During this project, she actively previewed the content and enjoyed the learning process. After the project, she could write an English email by herself, which substantially enhanced her sense of achievement. This corroborates the previous literature showing the positive effect of Facebook on learners' affective factors (e.g., [15,19,35]).

**Table 2.** Junior high school participants' mean scores on the scaled items.

Item	Statement	$M$	$SD$
1	Learning English email via the Facebook project was interesting.	4.83	0.58
2	Learning English email via the Facebook project lowered my learning anxiety.	4.25	0.97
3	Learning English email via the Facebook project increased my confidence in English writing.	4.33	0.78
4	Learning English email via the Facebook project increased my sense of achievement.	4.08	0.90
5	This Facebook project was helpful for my English grammar.	4.50	0.67
6	This Facebook project was helpful for my English speaking.	4.42	0.79
7	This Facebook project was helpful for my English writing.	4.58	0.67
8	This Facebook project was helpful for my overall English ability.	4.58	0.67
9	This Facebook project was helpful for my future learning.	4.58	0.67
10	This Facebook project was helpful for my future job.	4.33	0.78
11	It's easy to use the Facebook platform.	4.50	0.67
12	It's easy to interact with other people through the Facebook platform.	4.33	0.78
13	It's easy to learn English email writing through the Facebook platform.	3.83	1.03
14	I will try to use English emails to send invitations.	4.42	0.90
15	I hope I can learn English through interaction with others via Facebook in the future.	4.25	0.87

#### (4) (Student 4's comment in the perception questionnaire)

與平時課堂上課比起來，跟大學生的互動比較有趣也比較不緊張。互動前，我都會先預習今天要上的內容，這樣對內容會比較清楚。總共上了8周，收穫滿多的終於可以自己寫一封英文Email了，好有成就感！當大學姐說我進步很多時，我真的好開心！“Compared with my regular English class, it is more interesting to interact with my university partner and I am less nervous. Before our interaction, I would preview the content. This helped me understand the content better. I learned a lot during these eight weeks. Finally, I can write an English email by myself. I have a great sense of achievement. When my university partner told me that I had made a lot of progress in writing, I was super happy!”

In terms of the perceived usefulness, the learners considered the project useful for their grammar (Item 5:  $M = 4.50$ ,  $SD = 0.67$ ) and for speaking (Item 6:  $M = 4.42$ ,  $SD = 0.79$ ), writing (Item 7:  $M = 4.58$ ,  $SD = 0.67$ ), overall English ability (Item 8:  $M = 4.58$ ,  $SD = 0.67$ ), future learning (Item 9:  $M = 4.58$ ,  $SD = 0.67$ ), and future job (Item 10:  $M = 4.33$ ,  $SD = 0.78$ ). As shown in (5), Student 7 indicated that this project was useful for his English speaking and writing skills. Specifically, after this project, this student wrote emails in English to contact his partner at a Japanese high school, to obtain the details of an international education project. He expressed the view that learning about English email conventions from this Facebook project was authentic because it was closely related to his daily life.

#### (5) (Student 7's comment in the interview)

透過臉書互動可以和大學生練習英文口說和學實用的英文寫作。而且所學到的email內容印象非常深刻，因為學完後，我和日本長野高校聯繫活動時剛好可以將email派上用場，這樣的學習能夠融入生活中應用，而非單純為了考



試。 “Through the Facebook interaction, I could practice my English speaking with my university partner and learn useful English writing. And I am very impressed with the email content because, after this project, I wrote emails in English to contact my partner at Nagano High School in Japan regarding another activity. What I learned about English email writing was integrated into my daily life. It was not just for a test!”

Concerning the perceived ease of use, the ninth-graders indicated that it was easy to use the Facebook platform (Item 11:  $M = 4.50$ ,  $SD = 0.67$ ), through which they could interact with other people easily (Item 12:  $M = 4.33$ ,  $SD = 0.78$ ) to learn English email writing (Item 13:  $M = 3.83$ ,  $SD = 1.03$ ). For instance, Student 9 in (6) expressed the view that Facebook was a social media platform often used by Taiwanese junior high school students. Therefore, it was not a problem for them to use it to interact with others. Through Facebook, learning about English emails became much more convenient because they could interact with their university partners without space and time limitations [35].

(6) (Student 9’s comment in the interview)

臉書是我們平常就會使用的社群媒體，操作很簡單。透過Facebook學習電子郵件非常方便，可以自己調整上課時間，且不受時間地點限制。Email內容任何不理解都可以隨時間，大姐姐也都很願意回復我的問題。 “Facebook is a social media platform we often use. It’s easy to use. Learning email through Facebook is very convenient. I can adjust the time of our interaction, which is not restricted by time and space. When I have questions about email content, I can ask my university partner anytime, and she is willing to answer my questions.”

In terms of behavioral intention, the learners demonstrated their willingness to use English emails to send invitations to future events (Item 14:  $M = 4.42$ ,  $SD = 0.90$ ) and showed their desire to learn English through Facebook interactions in the future (Item 15:  $M = 4.25$ ,  $SD = 0.87$ ). As shown in (7), Student 2 expressed his gratitude to his university partner, his willingness to write English emails to convey messages in the future, and a desire to participate in this kind of project.

(7) (Student 2’s comment in the perception questionnaire)

很謝謝大學生願意花費時間教我電子郵件寫作，如果以後有需要運用到英文傳訊息的時候，我會嘗試使用看看英文的電子郵件方式。很開心能參加這次的臉書活動，希望下次還能夠再次參加類似這樣子的活動。 “I am very grateful to my university partner, who spent a lot of time teaching me email writing. When I need to use English to convey messages in the future, I will try to use English emails. I am very happy that I could join this Facebook activity. I hope that I can have another chance to participate in this kind of learning activity in the future.”

One major reason for the ninth-graders’ positive attitudes was that this project offered them personalized teaching (e.g., [12]). As shown in Student 12’s comment in (8), the one-on-one instruction made him concentrate and gave him chances to ask questions at any time. Through this personalized teaching, the student could brainstorm with his university partner in the interactions, which further helped him to maximize his potential and facilitated his learning.

(8) (Student 12’s comment in the perception questionnaire)

一對一的教學我會比較專注，可以學到較細節的東西，有問題可以馬上問，討論過程中所激發出的想法，能把我的潛能發揮極致，幫助我的學習。 “I am more focused in the one-on-one instruction. I can learn more details and can ask questions at any time. During the interaction, the brainstorming can maximize my potential and help my learning.”

Despite the above merits, 50% of the junior high school learners encountered technical problems due to the instability of the Internet connection in the rural area, as noted by Student 2 in (9). Furthermore, some students reported difficulties with comprehension in the unit on invitation strategies, as shown in (10), and suggested that the unit be simplified.

(9) (Student 2’s comment in the perception questionnaire)

因為家裡比較偏僻，導致視訊問題繁多，有時就要安排其他天視訊。 “Because my house is in a remote area, there are many network problems. Sometimes I have to reschedule our meetings.”

(10) (Student 8’s comment in the interview)

教學內容邀請策略可以再簡單一點，因為那邊有點複雜，我跟大學伴是把他切成兩次。 “The content on invitation strategies could have been simplified because it is a bit complicated. My university partner and I divided the unit into two units.”

Regarding the university students’ perceptions, analyses of their journals and interviews revealed that they had mixed feelings regarding the project. On the one hand, all of them indicated positive attitudes toward this project, from which they developed their own email literacy and teaching skills. Mandy, as shown in (11), indicated that she gained explicit knowledge of the email components, while Candice, as shown in (12), mentioned her learning of the different patterns for the components from the materials and teaching preparation. Hence, this project helped raise the university students’ awareness of email writing.

(11) (Mandy’s comments in the interview)

*At first, we may have known how to write an English email, but we did not know email components, like subject lines, openings, content, and closings. After this project, we learned a lot of these points.*

(12) (Candice’s comments in the interview)

*Yeah! In addition to the email components, we also learned different expressions. We may have known only one fixed pattern before, but the video clips in the students’ materials offered us many different patterns to use. During this project, because we also had to prepare to teach, we grew to better understand those sentence patterns.*

In addition, the university students learned many teaching skills from this project. As shown in (13), Mandy learned how to help her ninth-grader to recycle what he had learned in the previous unit and offered comprehension-checking questions to facilitate his learning. Peggy, in (14), used morphological analysis to develop her ninth-grader’s vocabulary learning strategies.

(13) (Mandy’s journal)

*I learned that I can’t keep talking in the interaction. When I talk about some part, I have to relate it to the previous unit and ask some questions. This can make a deeper impression.*

(14) (Peggy’s journal)

*I learned how to teach vocabulary. Many times, I asked my ninth-grader questions. He always said, “I don’t know.” Then I changed my way. For example, “unicycle.” I helped him divide this into “uni-” and “cycle”. Then I explained. “uni-” means one and “cycle” means round or bicycle. I told him to imagine a bicycle with only one wheel. I found that teaching word parts in this way can help him memorize words.*

Their efforts finally paid off when they saw the ninth-graders’ improvement. Mandy, as shown in (15), felt a sense of achievement when her ninth-graders could write a complete email, and Candice, as shown in (16), was touched by her student’s progress and autonomous learning for this project.

(15) (Mandy’s comments in the interview)

*Last week, my two ninth-graders could write complete emails on their own, though one of them still needed my help. But from my mild hints, he figured out what to write next. This really gave me a sense of achievement.*

(16) (Candice’s comments in the interview)

*One of my ninth-graders impressed me a lot. At first, she could only read the sentences slowly. She didn’t have good organization. But in the last few weeks, when I was*

*explaining the content of the supplementary video clip, she took on my role and told me the important points in the next section. I was quite surprised and asked her how she knew that. She told me that she had previewed the lesson and taken notes. She showed me her notes. I was so touched. This really impressed me!*

However, the university students encountered some frustrations during this project. Three of them (50%) indicated that the ninth-graders' unexpected learning outcomes often disappointed them, as shown in Candice's comment in (17), while three (50%) pointed out that the ninth-graders' indifferent responses or reticence profoundly frustrated them, as in Louie's comment in (18). These reactions could have resulted from the ninth-graders' limited English ability [37]; they likely needed more time to practice in order to accomplish the assigned tasks or to come up with appropriate responses during the interactions.

(17) (Candice's comments in the interview)

*Similar to Mandy's case. During my teaching, my ninth-graders seemed to have no problems with the writing. But, after they posted their writing on Facebook, I found that it was totally different from our discussion. You might think, "Didn't we talk about this in the interaction before? How come you wrote it this way?" I was so frustrated.*

(18) (Louie's comments in the interview)

*My biggest difficulty was my student's indifferent responses. I tried my best to ask questions to guide him to say something. But he often replied with one or two words. Another student often kept silent. She wouldn't tell me if she understood or not. She just kept silent. I didn't know how to deal with this. This frustrated me greatly.*

To deal with the teaching problems, they suggested a section on collaborative lesson planning before their teaching, as in (19) and (20), as such planning could familiarize them with the teaching materials and help them come up with strategies to solve their problems.

(19) (Lindsey's comments in the interview)

*I think we could have discussed the teaching materials together because most of us didn't have any teaching experience. For example, in the content on comparing and contrasting two emails, I didn't have clear ideas. When I noticed that, it was just before I had to teach. That was too late.*

(20) (Mandy's comments in the interview)

*I agree! We could have discussed the content before teaching it. In this way, we could have standard answers for the questions, and we could also discuss the problems we encountered in our teaching, like the silence problem Louie mentioned. We could discuss this and think about the solutions.*

## 5. Discussion

This study aimed to explore the effects of a Facebook project on junior high school students' email literacy and also to investigate the participants' perceptions. The results revealed the positive effects of the project on the ninth-graders' email awareness and performance, and their perceptions of this Facebook project were mostly positive. The facilitative effects of using Facebook can be ascribed to the frequent contact between instructors and learners, as well as between the learners themselves (cf. [15]).

According to sociocultural theory [13], learning takes place through social interaction. The core of this theory is the zone of proximal development (ZPD), defined as "the distance between the actual development level as determined by independent problem solving, and the level of potential development as determined through problem-solving under adult guidance or in collaboration with more capable peers" ([71], p. 86). In this project, the university students played the role of a more capable person and provided scaffolded assistance to the ninth-graders. Such "expert-novice scaffolding" helped the ninth-graders to reach a higher level of language competence and increased their email literacy.

In addition, the interaction between peers in this project offered chances for discussion and negotiation, which could further enhance their abilities in writing invitation emails.

Donato [72] extended Vygotsky's theory and argued that interactions between peers can result in similar effects to those in expert-novice scaffolding. The notion of "novice-novice" or "collective scaffolding" may produce "collaborative dialogue" [73], which provides an important foundation, upon which, learners could jointly build knowledge and solve problems. Previous studies have demonstrated the effects of peer collaboration in language learning. For example, Taguchi and Kim [74] worked with three groups of Korean learners of English: control, collaborative and individual groups. The collaborative and individual groups received the same explicit instruction on making requests, while the control group did not. All the groups were tested with a pre-test, an immediate post-test, and a delayed post-test. The results showed that explicit instruction benefited the learning of making requests for both treatment groups. More importantly, the collaborative group produced more target-like requests than the individual group in terms of dialog construction tasks. Chen and Lin [75] examined the effects of peer collaboration in the learning of conversational implicatures. They randomly assigned 33 EFL learners to either individual or collaborative groups. The findings showed that the collaborative group gained higher scores in a multiple-choice discourse completion task than did the individual group. From these two empirical studies, we can see that peer collaboration is beneficial to language learning, no matter what the learning targets are. In this project, the ninth-graders in each group could engage with each other's contributions to pool resources during the online class with the university students, or they could work together in previewing handouts or completing homework assignments after class.

On the other hand, the results of the ninth-graders' improvement in email-writing after the project echoed the previous studies on teaching email-writing through a genre-based approach (e.g., [55,56,58,59]). For example, Lin and Wang [55] investigated the impact of teaching apology emails using a genre-based approach and found that the instruction had facilitative effects on EFL junior high school learners' email comprehension, production, and cognition. The benefits of this approach could be due to the fact that a genre-based approach is genre-specific: it focuses on the essential forms, strategies, formulaic expressions, and structures for the target genre [55,58,59,76–79], promoting the learners' development of email-writing and genre awareness. Thus, a genre-based approach would be an ideal technique for teaching the writing of emails.

In terms of the junior high school and university students' perceptions of this Facebook project, it seems that despite some learning difficulties, all the ninth-graders had positive attitudes. Their positive attitudes were demonstrated in four aspects, namely, attitude toward use, perceived usefulness, perceived ease of use, and behavioral intentions, supporting the previous literature on students' positive perceptions of Facebook (e.g., [12,19,39]). The learners' positive attitudes likely resulted from the fact that they could receive personalized instruction, which increased their interest and learning achievement (e.g., [20,80]). On the other hand, the university students showed mixed feelings in their journals and the group interview. They exhibited positive attitudes regarding this project, during which they reinforced their own awareness of email-writing and sharpened their teaching skills. They also felt a sense of achievement when they viewed the evidence of their ninth-graders' progress and autonomous learning from the project. However, during this project, they encountered frustration when the learners' assignments did not meet their expectations. Furthermore, they were disappointed at the learners' silence or indifferent responses during interactions, but this could have partially been due to their shyness and low proficiency, preventing them from expressing their thoughts freely [37].

## 6. Conclusions

There are three research questions in this study. The first question asked whether the ninth-graders raised their email awareness through this Facebook project. The results showed that the learners performed significantly better on the post-test than on the pre-test, suggesting that these learners' email awareness was raised through this project. The second question asked the extent to which the ninth-graders improved their email productions

through this project. The results indicated that the learners achieved significantly higher post-test scores, as reflected in their increased use of a concrete subject line, a proper salutation, and grammatical and appropriate invitation strategies in their email-writing after the instruction. The last question explored the perceptions of the ninth-graders and university students. The ninth-graders tended to have positive attitudes toward this project. However, although the university students had positive opinions about this project, they indicated some teaching frustrations regarding the ninth-graders' limited English abilities and unexpected learning outcomes.

This study has demonstrated the positive effect of the Facebook project on the development of rural EFL learners' email literacy. We used Facebook as a platform for teaching how to write emails because this is the most well-known platform for the young generation. However, the implementation of this Facebook project can be adapted to alternative platforms for foreign-language learning. For example, the combination of Google Meet with Padlet (<https://padlet.com>, accessed on 1 April 2022) would be a feasible method. Google Meet, like Facebook Messenger, provides avenues for users to have online conferences. On the other hand, Padlet, which has received attention from language educators recently (e.g., [65,81]), is a virtual bulletin board that allows users to post a variety of content, such as texts, files, pictures, and videos [81,82]. It has been shown to enhance classroom engagement (e.g., [83]) and to promote self-directed learning (e.g., [65]). Users can share their Padlet through a link or a generated QR code to invite peers and instructors to comment on their assignment; the comments can be further screened out on Padlet when they are inappropriate. On the other hand, since Padlet is an education-oriented platform, it can minimize the occurrence of commercial advertisements or too much distracting information, a weakness seen in Facebook [41,42], and all the posted materials and comments can be printed or exported to PDF files for the user's personal records. In this way, Padlet, working with Google Meet, could be an alternative platform to implement distance education for rural EFL learners.

This study was limited in the following two aspects. First, the sample size of the participants was small, so our results cannot be overgeneralized. Future researchers are encouraged to recruit more university students and high-school students to learn different email functions via Facebook interaction. The second limitation was that this study did not include a delayed post-test, due to the constraints of the academic calendar. Whether the positive effect of this project can be maintained for a longer period of time remains unclear. Future studies could incorporate authentic email correspondence between the university students and the high-school students after the main project via Facebook, to enhance their sustainable development, and administer a delayed post-test to evaluate the retention of learning.

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