Chapter 3  
Tokyo University of Agriculture and Technology Case Study: Smartphone App LINE for EFL Peer Learning

Abstract  The first of three case studies in this book addresses online interaction in EFL with smartphones via LINE, a communication tool that is free and familiar to Japanese students. This chapter introduces two kinds of group interactions aimed to accord with both sociocultural theory and the psychological contours of students in the instructor’s culture. First, learners wrote L2 messages and posted them on a closed group board in LINE. In the second experiment, a bot instantly and automatically translated L1 messages they posted into L2. After their one-month interactions, both groups showed improvement of their English language competence in both receptive and productive skills. The results of the questionnaire also proclaimed their active participation with positive feedback about the L2 online interaction.

Institutional Context

Founded in 1949, Tokyo University of Agriculture and Technology (TUAT) is a relatively small-scale national university located in the suburbs of Tokyo. TUAT has about 4200 undergraduates and a relatively large proportion of graduate students, about 1800, including about 400 foreign students. It has only two faculties: agriculture and technology. Although only around 800 freshmen enroll in TUAT each year, there are in total 13 departments: eight in technology and five in agriculture. The faculty of technology includes, for instance, life sciences, mechanical systems engineering, and computer and information science, whereas the faculty of agriculture includes environmental and natural resource science, biological production, and veterinary medicine. TUAT serves not only undergraduates but also offers postgraduate programs toward master’s and doctoral degrees.

Since the institution is regarded as a research-oriented university, many of the undergraduates go on to TUAT postgraduate schools to continue their research. Their main concern, therefore, is to conduct their research, because many of them have the desire to be scientists or engineers rather than office workers. The institution is trying to catch the wave of globalization and therefore wants the students
to be “global human resources” who can fluently communicate with non-Japanese in English as well as handle scientific work. This is despite the fact that there is no urgent need for them to use English in their daily lives. They must maintain a busy schedule doing many tasks such as experiments in their laboratories, practical training on farms or in animal hospitals, writing many reports, attending various lectures related to their major subject, and so forth, where the Japanese language suffices. As a result, learning English tends to be thought of as a secondary task.

As the university only has departments related to agriculture and technology, the students are not specializing in English or liberal arts. The setting for English learning is that students take some English courses during their first two years as one of the compulsory subjects to earn a bachelor’s degree in their own major.

However, some students keep learning English autonomously for their research activities or job hunting. There is considerable motivation among the student body to learn English, as they have rather clear goals to learn English for their future career as scientists or engineers. More than half of TUAT undergraduates go on to graduate schools in order to continue their research and to earn higher degrees. They therefore recognize the fact that they are going to encounter opportunities to use English, because at the very least they are forced to read journals, write reports and papers, and make presentations about their research in English. In that sense, they might understand the importance of achieving a higher level of English language competence to carry out research activities even when they are undergraduates. As a matter of fact, however, only a small number of English lectures provide a chance to study English, and their autonomous exposure to English might not be frequent, because learning English becomes secondary compared to their research in their laboratories, on farms or in animal hospitals.

### Technological Context

**Campus IT Infrastructure**

TUAT has a relatively robust IT infrastructure. A Wireless Network System is available in and around the lecture rooms. Also there are three rooms with desktop PCs. This means that the students can freely access the Internet anywhere on campus and also utilize various kinds of software such as Microsoft Office, the Moodle learning management system, and so on, once they log in with their ID number and password. However, this infrastructure might not affect their language learning environment very much. PC labs are not used for language classes, because the number of the PC rooms is few, and the capacity of each PC room is around 80, which is too big to conduct classes for language learning. Furthermore, many language teachers prohibit students from connecting to the Internet with their mobile devices during classes, even though most of the classrooms have a Wi-Fi router to connect to the campus network system, because the devices might be used
as a tool for cheating, such as by using translation software (e.g., Google translation) in a writing task. For such reasons, IT services and facilities installed at TUAT are not likely to be used for language classes.

**Hardware/Devices Available**

Considering the above constraints on utilizing the campus IT infrastructure for language learning, Sato decided not to utilize the devices installed at TUAT but rather those that students already owned, namely mobile devices such as feature phones, smartphones, and tablets. As discussed in Chap. 2, almost all the university students in Japan have their own mobile devices, so they have been using them in their everyday life: browsing Websites, receiving and sending messages, uploading photos or movies on their SNS sites, and so on. This means that no special facility and expertise is needed to use their mobile devices even for academic purposes. As Kukulska-Hulme (2009) points out, one of the advantages of learning with mobile devices is ownership, which means that every mobile owner could fairly access the resources anytime and anywhere they want. In the case of countries like Japan, it means that university students are similarly equipped to access educational resources anytime and anywhere.

However, before implementing mobile-based learning, teachers should consider whether all their students own some kind of mobile device (Kukulska-Hulme et al. 2015). This is because there are students who are unable or unwilling to carry a mobile device, due to the expense, for example, or to avoid the temptation to be distracted from important work. Therefore, only software applications that are available not only for mobile devices but also for personal computers should be implemented formally by educators. Students without mobile devices should be able to access sufficient resources and submit their work from personal computers at home or in PC rooms if they are assigned tasks with a certain application. To maintain fair accessibility of resources via computing devices, educators should not assume that every student has a mobile device, but rather develop alternative ways for students to accomplish the same learning goals.

**Implementation**

**Theoretical Framework**

As discussed in the previous chapter, there are two perspectives on learning: one is that learning refers to the process of knowledge acquisition, whereas the other is that learning is the process of coming to know (Sharples et al. 2007) or meaning-making (Pachler et al. 2010) in the course of interactions within a
community of practice, based on the premise that both teachers and learners play an active part in conducting language learning (Kukulska-Hulme et al. 2015). The latter theory supports a practice of peer social m-learning whereby mobile devices enhance not only knowledge acquisition but also interaction within a community of practice. Similar ownership of mobile devices brings about a fair accessibility of resources, and allows students to bring resources from their own life-world into the community of practice, which helps students to contextualize their learning in their own settings. Pachler et al. (2010) state that adding context to what is learned allows for deeper understanding and richer meaning-making. Thus, the process of interaction in English, which enables participants to communicate in terms of the resources from their own life-worlds, is hypothesized to facilitate learners’ L2 competence as well as the processes of coming to know and making meaning.

**EFL Learning Goals**

The goal of this study with mobile devices was to enhance students’ English language competence, especially their literacy, in the process of interacting with other students online. Through their interactions in the target language of English, it was hypothesized that their English language competence, especially reading and writing, would be enhanced, even though the practice is not like knowledge acquisition, which is the mainstream practice of English language teaching and learning in Japan. The advantage of L2 interaction practices this study implements is theoretically backed by Swain’s collaborative dialogues (2000) and Long’s Interaction Hypothesis (1996), both of which underline the importance of interactions to develop L2 proficiency. Meanwhile, conducting such practices with mobile devices, as discussed in Chap. 2, could bring out the learner autonomy Asian students are capable of because of the characteristic of mobile learning. Therefore, this study could hypothesize that peer mobile learning leads to learners’ active and continued participation in the L2 interaction.

**m-Learning Initiatives/Innovations**

The learning technologies utilized in this case study are merely the mobile devices each participant owns and the LINE application that they had already installed. Considering that LINE has been one of the most downloaded mobile applications among Japanese (LINE Corporate Announcement 2016), the college students, all of whom own their own mobile devices (Kindai University 2013), should be accustomed to the application enough to receive messages from others and post their messages with photos or stamps. The ubiquity of LINE is indispensable for using it formally in an institutional setting for m-learning. The LINE group chat function was selected as the main forum for student interactions.
As an application that can be utilized both in PCs and mobile devices, LINE was chosen for class interactions reported in this chapter. LINE is one of the most popular applications for online communication not only in Japan but also in the world. The top four countries which have active users are Japan, Taiwan, Thailand, and Indonesia (LINE Corporate Announcement 2016). According to a press release from LINE on April 2, 2014, more than 400 million people had registered as a user of this application (LINE News 2014). On October 10, 2014, LINE announced that more than 560 million people had registered, while there existed 170 million active users (Mainichi Daily News 2014) and 215 million by the end of 2015 (LINE Corporate Announcement 2016), despite the fact that the service had launched on June 23, 2011.

There might be several reasons why LINE has dramatically become popular. The first reason is that LINE is basically a free application. After downloading it from the Website, people can communicate with others, not only one-to-one but also among group members. Also they can communicate combining text with photos, emoticons, stamps or animations. Communicating by plural modes such as words and symbols of feelings has a kind of similarity to face-to-face communication, which is one of the prominent features that differentiate LINE from other communication tools.

In fact, LINE has become the most frequently used online communication tool in Japan. According to a report of ICT use in Japan (Ministry of Internal Affairs and Communication of Japan 2015), 77.9 % of the teenagers have already used LINE and 90.5 % of those in their twenties used LINE in the fiscal year 2014, while 25.9 % of the teenagers and 61.1 % of those in their twenties used Facebook, and 49.3 and 53.8 %, respectively, used Twitter.

Furthermore, the variety of devices and operating systems (OS) on which LINE is available is another advantage of this application. The chat data on LINE can be synchronized with PCs such as Windows, Mac and Linux, which enables LINE users to continue interacting with others even though the device is changed in the course of the interaction. In that sense, they can use LINE flexibly in whatever way they wish. Such advantages have attracted most of the mobile phone users in Japan to utilize LINE in their daily life.

There is another advantage of using LINE for academic purposes, compared with other social media such as Facebook or Twitter. Users can conduct a closed group chat without the interference of extraneous messages and other contacts. LINE has a function to make a group where only those invited by the group representative can join the interaction, and others cannot access the group. Stockwell and Hubbard (2013) introduced a case where learners hesitated to use their private SNS accounts for academic use; they preferred to draw a clear line between academic and private use of their SNS. With LINE, on the other hand, it would be easier to distinguish between private and academic use with one account due to the fact that other users could not see all of one’s friends or groups. The interaction of a group is private, so no other people can access the content, and therefore the participants of the group can feel comfortable interacting with each other.
It is also true, on the other hand, that m-learning in general, and particularly in a language like Japanese, faces considerable challenges. One of the obstacles is the difficulty of reading and writing, especially lengthy texts, on the small screens of mobile devices (Stockwell and Hubbard 2013). Furthermore, the difference in the ways to input English and Japanese makes m-learning more challenging in Japan. English is usually typed with a QWERTY keyboard not only in PCs but also in mobile phones. Yet in Japan there are not many mobile users who type with a QWERTY keyboard; instead, people tend to use a flick keyboard designed for the Japanese language whose alignment is completely different from that of the QWERTY keyboard. In fact, even the QWERTY keyboard is less suited to typing letters on mobile phones because of small buttons to push in typing letters, leading to many typing mistakes, so anyone might hesitate to write much English with their mobile phones.

However, LINE has a solution for this challenge, as the use of LINE is available not only for mobile phones but also for PCs. The log of an interaction with others is synchronized, so they can conduct the interaction via LINE with whatever device and whichever keyboard they utilize. This is a merit of using LINE in mobile learning. Note, however, that all the conversation logs are saved in the mobile version, whereas the log data are deleted after just two weeks in the PC version.

**Administrative Challenges/Student Training**

One of the advantages of the implementation of mobile learning in institutional settings is that the institutions do not have to install any computer facilities such as personal computers and Internet connections. That is because most students already have their own mobile devices such as feature phones or smart phones, and they are able to access any resources on the Internet without help from the institution. In the case of this experiment, LINE was already regarded as an essential application for mobile users among the cohort of university students.

As this practice was conducted independently of lectures, without utilizing any kind of IT infrastructure at TUAT, no administrative or other support was needed from the institution. As it was carried out with a small cohort, the language teacher could handle all the administrative, pedagogical, and technological issues involved in the practice.

**Procedure 1**

Seven university students participated in this experiment. They responded to an advertisement on campus for students willing to learn English utilizing their own mobile devices for no credit. Participants were two postgraduates and five undergraduates from the faculty of engineering, from different departments such as life sciences, chemical sciences, mechanical engineering, and information technology. This shows that they were not specializing in English studies, but their English language competence ranged between lower and upper intermediate level, enough
to understand English sentences other members posted and to write their own English sentences in LINE.

Prior to the experiment, all of the participants were assembled in the investigator’s office for orientation. First of all, Sato appointed a postgraduate student as a facilitator, who gave the other members a chance to introduce themselves. After the face-to-face self-introductions as an icebreaker, Sato explained what they were going to do: interact in English via their mobile devices for a month; taking turns posting topics and sharing their ideas and opinions on LINE.

TOEIC© tests and essay writing tasks were conducted before and after the one-month interaction, except that those who had taken the same test within a few months did not have to take the pre-test. The essay writing tasks were short essays within 30 min, without referring to any resources such as dictionaries. In addition, students were asked to answer a questionnaire about the interactions after the period was over.

The participants were asked to keep interacting with other members in English via the group chats, where communication is possible only with the people registered as group members on LINE. Each of them were to join the community of practice by posting text messages, photos, stamps, and so on. The topic for the interaction was supposed to be decided by one of the members every few days. The topic could be related to their daily life to make the interaction smooth even while using English as a foreign language. Based on the topic posted by a member in the online community, interactions with other members should be necessary, such as sharing ideas and photos or movies, discussing and negotiating, all of which are similar to daily social activities (see Fig. 3.1). If members introduced their hometown, for example, others would be expected to share information about their own hometown, through texts, photos, and the like, introducing new information, asking questions to each other, and answering. After finishing the interaction about a certain topic, another person was supposed to post a different topic. This cycle was to be continued during the month-long period. Participants were asked to write at least three posts every weekday, but they were also allowed to post on weekends. When the cycle seemed stuck, the facilitator was to take the initiative in posting messages and encourage the others to post. This cycle was repeated.

**Assessment of Effectiveness**

**Experimental Results**

Here are the results of the month of interactions. As shown in Fig. 3.2, for the 24 days which at least one post could be found, the total number of the posts that were submitted on LINE was 533. This averages out to 23 total posts per day, 76 posts per person during the month, and 3.3 posts per person per day. The maximum number of posts in a day was 55 (Day 2), whereas the minimum number was 2
(Day 19). In the final few days, few posts were submitted, as students had to take final term examinations during that period.

In terms of the number of the English words they posted, a similar trend can be seen (see Fig. 3.3). The total number of words they posted during the period was...
10,975. This means that an average of 457 words were posted per day, 1568 words per person and 65 words per person per day. The maximum number of total words was 1392 on Day 2, whereas the minimum number was 27 on Day 19. For the first few days, they wrote many English words, but the total number declined, especially during the final week.

The number of posts according to the participants is shown in Fig. 3.4. The largest number of posts submitted by one participant was 108 (Member 1), while the smallest was 49 (Member 6). As for the total words they posted, shown in the following Fig. 3.5, the results were similar: Member 1, who posted most frequently reached 3539 words, while Member 7, who posted the least frequently, wrote 896 words, which was one-fourth of Member 1’s output.

Results of TOEIC© tests before and after the interactions are shown in Fig. 3.6. Among seven participants, five members improved their scores, but two members decreased. The average score of their pre-test was 525.2, whereas that of their post-test was 528.6, amounting to an average improvement of 3.6. As for the reading section in the following Fig. 3.7, 4 members improved their scores, 2 declined, and 2 were unchanged. The average score of their pre-test was 248.6,
whereas that of their post-test was 240. The improvement in their reading scores after the online interaction provides one indication that the interaction had a somewhat positive effect on the overall English language literacy of the group.

Further, at the individual level, the number of the words they posted and their reading section scores are compared. As seen in Fig. 3.8, some correlations can be discerned. Those who posted many words on LINE tended to improve their TOEIC scores. The reading score of Member 3, for example, who posted 2055 words (the second most words of the seven members), improved from 200 to 235. Conversely, those whose scores decreased were ones who had posted relatively
fewer words. Member 2, for example, who posted the second least amount (996 words), declined from 250 to 120. The coefficient of correlation between the number of posts and the scores of the post TOEIC reading section was 0.50, which might indicate a positive correlation to some degree. The positive correlation, whereby members who posted more words tended to scored better in reading than those who posted fewer words, could perhaps be explained by the extent to which they built up their vocabulary, reading comprehension, and overall literacy in the process of reading and writing sentences during the interactions.

Next, the essays the participants wrote before and after the interaction are analyzed in terms of their readability and average length of a sentence, hypothesizing that this interaction would give them more opportunities to read and write English sentences and, as a result, make their sentences longer and more complex. First of all, the readability of each essay was calculated according to ARI (the Automated Readability Index) scores, one of the main measurements for readability. As seen in Fig. 3.9, six essays showed increased readability scores (Members 1, 2, 3, 4, 5 and 7), while one essay remained constant (Members 6).

However, as for the average length of a sentence in their essays, six out of seven (Members 1, 2, 3, 5, 6, and 7) increased the number of the words per sentence. Moreover, in comparing the average words in a sentence and the difference of the TOEIC© scores before and after the interaction, those whose TOEIC scores
increased could write longer sentences. Figure 3.10 also shows that those who did not improve the TOEIC© scores (member 2 and 4), did not write longer sentences than they did before the interaction.

Discussion of the Experimental Results

The figures above illustrate that those who posted more writing during the period of the experiment tended not only to get higher TOEIC© scores, but also to write more sophisticated and longer sentences in their essays after the interactions. Although no measure of statistical validity was conducted due to the small number of participants, these findings might indicate that active participation in interactions in the community of practice positively affected their TOEIC scores or literacy skills involved in writing better and longer sentences. That is, their L2 competence may have been enhanced through the interaction of the community of practice formed in cyberspace, despite the fact that no particular target language was assigned to them and there was no explicit focus on vocabulary or grammar. That could be a reason for the positive correlation found between the amount of L2 interactive activity through mobile devices and enhanced L2 competence as shown in some cases by improvements in TOEIC reading scores and in written essays.

It seems logical that the ongoing output in the target language would lead to the production of longer sentences, but the findings raise the further question why the quality of the sentences including vocabulary and grammar also was improved without explicit instruction. The answer this question might be inferred from the feedback of the participants, shown in the following section.

Follow-up Questionnaire Results

No statistical analysis was carried out for the mobile-based language learning, due to the small cohort. Therefore, no unequivocal conclusion can be derived from the findings. However, another type of data was gathered to analyze the effectiveness of this practice with mobile devices. Questionnaire research was conducted after all
the tasks to reflect on the practices students engaged in for 1 month. The data may be suggestive of ways to implement similar mobile-based L2 interaction tasks in other local settings.

The questionnaire first asked about the frequency of checking posts to the LINE group from other members. Two students answered “very often,” four answered “often,” and one answered “sometimes.”

Then, they were asked to describe the willingness with which they submitted posts. One student answered “willingly,” five answered “rather willingly,” and one answered “rather unwillingly.”

They were also asked to describe how they felt when answering questions asked by other members directly during the online interactions. Three answered “willingly,” 3 answered “rather willingly,” and 1 answered “rather unwillingly.”

As the result, that all participants enjoyed the task: Five answered “enjoyable,” while two answered “rather enjoyable.” They were also asked to write their reason, as follows:

- No fixed topic allowed us to talk freely and comfortably.
- Being exposed to various English expressions from others could make my English skills improve.
- It was a good practice to compare the English expressions I wrote with those the others wrote.
- I enjoyed interacting with the other members by discussing various topics that would be useful in our life.
- It was enjoyable because we could chat with the others in English, as we do with our first language.
- I have never participated in such an interaction. I felt it was innovative.

The final question was if they agreed that this online discussion would be useful in learning English. They all answered positively: Five agreed and two somewhat agreed. The reasons they thought so were as follows:

- It became a trigger to learn English for communication.
- I found I could make myself understood in English to some extent.
- I was sometimes irritated because I could not express what I intended during the interaction, but such experience motivated me to study English more.
- By looking up words in dictionaries before posting my comments to participate in the interaction, I could improve my vocabulary and grammar.
- I enjoyed the process to express what I wanted to say.
- Reading the posts from the other members was very useful.

Discussion of the Questionnaire Results

To sum up, despite the fact that Japanese L2 learners tend to be passive and not try to express their own ideas in classroom-based activities, this kind of interaction
where each member interacts through their mobile devices might change their attitude to be more active. The questionnaire results showed that they rather actively checked the others’ posts and willingly tried to respond to them. They also seemed to enjoy participating in this activity, so more positive attitudes are liable to lead to more successful L2 learning even after such an experiment.

Students were not explicitly taught English as usual, such as vocabulary and grammar, during the practice, but the comments showed that they tried to make their sentences grammatical and comprehensible in order to make themselves understood in English, by referring to dictionaries or by reading others’ posts. A comment to an open-ended question showed that, despite the fact that no linguistic knowledge or feedback was given by the teacher during the practice, they tried to make their sentences grammatical and comprehensible in order to make themselves understood in English by autonomously referring to dictionaries (“By looking up dictionaries before posting my comments to participate in the interaction, I could improve my vocabulary and grammar”) or by reading others’ posts (“Reading the posts from the other members was very useful”). This may suggest that the interactions focused the learners on coming to know, making meaning, or what Swain (2000) termed collaborative dialogue, which in turn led to enhancing the learners’ awareness of language structure, because the interaction motivated them to correctly express their intended meaning.

Compared with face-to-face interaction, which requires a spontaneous response, mobile-based interaction gives interlocutors some time to refer to dictionaries or reference books before answering others’ inquiries. As a result of this process of making meaning, their target language competence might be improved. What is more, the process was felt to be enjoyable, for example “to express what I wanted to say,” or to “make myself understood in English to some extent.” On the other hand, it was also motivating even to be spurred by “irritation” at the difficulty thereof “to study English more.” In this view, their eagerness to express themselves in English could enhance their L2 competence, not because of language knowledge provided by teachers or materials, but rather by the imperatives of interacting with others, indirectly enhancing their literacy.

**Challenges and a Possible Solution**

According to the findings from the L2 interaction with LINE, it is found that more interactions with others via mobile devices might enhance English language competence despite the fact that no linguistic knowledge was given by the teacher. But still there are challenges to implement mobile-based interaction tasks.

As mentioned above, typing English might sometimes be troublesome for young Japanese L2 learners (Stockwell and Hubbard 2013). It might be true that they have gotten used to typing letters with mobile devices through using email and SMS, or communicating on some SNS sites. However, the way to type Japanese characters is different from that of English. English sentences tend to be typed on a QWERTY
keyboard, which is available on PCs and some mobile devices. Japanese young people, however, have used mobile devices more often than PCs, as the data in Chap. 2 illustrate, so they prefer to use flick input rather than the QWERTY keyboard. According to unrecorded conversations with some college students, they indicated that writing English sentences made them irritated due to using the QWERTY keyboard on such a small screen, and this made them type the sentences incorrectly, leading to their hesitation to join L2 interactions with their mobile devices.

Furthermore, writing as a productive skill could be regarded as one of the difficult skills for L2 learners to master, because it requires language processing with more mental effort than receptive skills such as reading (Swain 2000). As evidence of this, the comments from those involved in the interaction with LINE mentioned above showed that participants were worried whether they could write sentences without errors. This indicates that pressure to compose correct sentences tends to inhibit L2 learners from interacting with others, that is, without a supportive community of practice.

To tackle such technological and linguistic issues for mobile-based language learning, a solution should be developed to facilitate uninhibited interaction with others. One possible approach to this challenge is the Translation Bot, a function of LINE anyone can use for free.

The translation bot is a tool for communication available only in LINE. In communicating with others who use different languages, the bot mediates the text conversation by translating their chat into the target language. For example, Fig. 3.11 shows that the Japanese-English translation bot can translate messages written in Japanese into English right after each member posts it in a community. The translation bot in LINE is available not only between Japanese and English, but various kinds of translation bots are also available: Japanese–Korean, Japanese–Chinese, English–Spanish, English–French, English–Indonesian and so on. It is obvious, however, that these bots cannot always translate texts correctly, although the accuracy level improves as the bot keeps processing the language data, which makes subsequent translations more accurate. The English sentences the bot produced during this experiment seemed to be intelligible enough to get interlocutors’ message across such that uninhibited interactions with others could be maintained.

Given the challenges of writing activities with a mobile device, this translation bot could facilitate smoother L2 interaction, compared with the previous practice where the participants had to type English sentences on a QWERTY keyboard. The following section will explain the details of the practice in detail.

**Procedure 2**

Although the procedures were mostly the same as the previous practice, engaging in interactions with other members via the LINE app installed in their own mobile devices, the participants were different. Seven university students participated in this practice. They were under- and postgraduate students from the faculty of engineering, who were not specializing in English-related subjects.
As in the previous practice, the participants were asked to interact with others via LINE for one month (although their remarks were found on 21 days). The participants were asked to post their comments in the community, but they did not have to write English sentences. All they had to do was to write Japanese sentences as they do in their usual interaction with LINE, and read the English translations the bot automatically generated as seen in Fig. 3.11. The participants were also asked to undergo TOEIC® testing and essay writing before and after the one-month interaction. During the interaction, again Sato did not give the participants any explicit English language instruction.

**Experimental Results**

The total number of the texts the members posted on the LINE group site on 21 days was 416, as illustrated in Fig. 3.12, whereas there were 533 posts during the previous practice. This means that about 20 posts were submitted per day on average. The maximum number of posts per day was 55 (Day 6), whereas the
minimum number was 2 (Day 3 and 13). Although in the previous practice fewer posts were submitted during the last few days, this time the members kept posting texts.

Figure 3.13 shows that the number of English words translated by the bot correlates with the number of the posts per day in the above figure. The total number of English words the bot generated during the period was 5379 (whereas 10,975 English words were posted in the previous practice). This means that 256 English words were generated per day on average. The maximum number of words generated was 720 (on Day 4), whereas the minimum number was 12 (on Day 13).

The number of posts according to the participants is shown in Fig. 3.14. The maximum number of posts one participant submitted was 116 (Member 3), while the minimum number was 19 (Member 6). The average number of posts for this group was 59.4, that is, 2.8 posts per a day during the term.

As for the total English words the translation bot generated from the participants’ remarks, shown in Fig. 3.15, the results correlated with Fig. 3.14: Member 3, who posted the most frequently, had 1618 words, while Member 6, who posted the least frequently, had 203 words, which was one-eighth of Member 3’s output. The average number of words was 768.4.
Results of TOEIC® tests before and after the interactions are shown in Fig. 3.16. On the whole, the results of the post-test were not improved compared with the previous practice. Among seven participants, three members improved their scores, but four members declined. The average score of their pre-test was 579.3, whereas that of their post-test was 597.1, amounting to an average improvement of 17.9. As for the reading section in the following Fig. 3.17, 4 members improved their scores, but 3 members declined. The average score of their pre-test was 268.6, whereas that
of their post-test was 275.7, amounting to an average improvement of 7.1. Given these results, it can be said that the total scores after the online interaction were modestly higher than before the interaction, indicating that the interaction might have had a slightly positive effect on their English language literacy.

Next, the number of English words the bot generated and the reading section scores of each member are compared. As seen in Fig. 3.18, the results of this practice show less correlation than the previous practice. For instance, the reading score of Member 3, who was most actively engaged in the interaction, decreased from 400 to 330. Meanwhile, Member 2, who participated rather passively in this interaction, improved from 145 to 175. The lack of correlation, however, is not surprising in that the translations were not generated by each member but by the bot; participants posted texts written in Japanese, so it matters not how many words they wrote, but how much of the translations they read, and how correct and meaningful the English was.

As another measure, the essays each member wrote before and after the interaction were analyzed in terms of their readability and average length of a sentence, based on the same presumption as the previous practice that this interaction would give them more exposure to English, resulting in their making longer and more complex sentences. First of all, the readability of each essay was calculated according to ARI. As seen in Fig. 3.19, all essays show improvement in readability...
scores. This result indicates that L2 writing skill might be improved by reading English texts the bot automatically generated even though no writing task had been explicitly conducted during the interaction.

However, in terms of the average length of a sentence in their essays shown in Fig. 3.20, four out of seven (Members 1, 2, 3, and 5) increased the number of words per sentence, but three (4, 6 and 7) did not.

**Discussion of the Experimental Results**

The findings mentioned above illustrate that the interaction with the translation bot in LINE might raise the sophistication of sentences produced, although it may not have a positive impact on the scores of every participant. If so, it could be because the exposure to English expressions the bot generated enhanced their English language competence and, as a result, made it possible to produce more complex sentences despite the fact that no L2 writing task was assigned.

Considering the findings of the two practices, L2 competence could be enhanced not only through the interaction developed in cyberspace, but also through the constant passive exposure to the target language contextualized in their life-worlds. In the first practice, a positive effect was seen in the TOEIC® scores and average
length of a sentence, whereas in the second practice the effectiveness was evidenced in the readability scores. Therefore, the use of both approaches, depending on the learners’ needs, would constitute one future line of enquiry toward success in mobile-based language learning with the LINE application.

**Follow-up Questionnaire Results**

Questionnaire research was conducted after all the tasks were completed. All of the questionnaire items and procedures were the same as the first practice.

The first question was the frequency of their checking posts from the other members. Two of the members answered “very often,” the other five answered “often.”

The second question was the feeling when you submit your post. Three members answered “willingly,” and the other four answered “rather willingly.”

Then, as for the feeling when you answered questions from the other members, three of them answered “willingly,” and the other four answered “rather willingly.”

The next inquiry was about their impression of the online interaction they experienced. Five of them answered “enjoyable,” one answered “rather enjoyable,” and one said it was “rather tough.” They were also asked to write the reason they thought so. Here are their responses about this questionnaire item (their comments are translated into English by Sato). Their comments reflect the advantages and disadvantages of the practice:

- I could know something about the members like their hobbies or interests.
- The activity was easy to carry out thanks to LINE.
- Using the translation bot was interesting.
- The activity gave me opportunities to be exposed to English.
- The discussion with the others was more heated than I thought.
- The activity was completely new to me.
- The activity is not a tough one compared with learning English in a classroom.
- I could not read the others’ posts because I was busy.

Their comments show that they enjoyed joining the online interaction and it felt less stressful during the interaction with the others than solely English composition might have been without the bot. With the bot they could be exposed to various types of English sentences, all of which were comprehensible together with the Japanese texts. This could mean that the combined input each member got served was strengthened in terms of comprehensible input in the target language (Krashen 1982, 1985), which L2 learners should receive for the improvement of their language competence. Such comprehensible input through the online interaction could account for the improvement of the L2 learners’ language competence, as supported by the Interaction Hypothesis (Long 1996).

However, the answers to the final question as to whether this online discussion could become a useful way of L2 learning were not very positive compared with the
first practice where all members answered positively. One of them answered “agree” and three “rather agree,” while two chose “rather disagree” and one “disagree.” The following feedback suggests the reasons they thought so.

- This task offered me a chance to have exposure to English.
- The translation bot lowered my inferiority complex about English.
- I sometimes did not read the English sentences, so the activity was not like learning English.
- I could not write any English sentences but merely read the others’ posts.
- The translations the bot showed us were not correct.
- The activity would be useful for reading and writing skills, but not for listening and speaking because all I did was to read posts.

Those comments suggest future challenges for mobile-based language learning with a translation bot. Although they might enjoy interacting with others, they might feel frustrated at the restriction that they could not write any English sentences and they could only read the English translations. This kind of incidental language learning might make the participants less satisfied because the interaction was not like learning specific language targets, even if their L2 competence was improved in some ways.

This type of practice using a translation bot during online interaction might have a positive impact on some learners as when the “translation bot lowered my inferiority complex about English.” As L2 writing tasks might be challenging, they might hesitate to write L2 sentences, concerned whether the sentences were grammatically correct or not. They could encounter uncomfortable situations like responses of incomprehension or be asked to rephrase their sentences, as often happens in daily conversation. The translation bot, on the other hand, might scaffold their L2 interaction and lower their anxiety in L2 interaction. In this respect, this practice should be conducted for lower level learners or those who have just started learning a new language.

**Recommendations for Other Institutions**

MALL might have the potential to resolve issues many learners and teachers have encountered, such as lack of exposure to the target language and inactive learner attitudes. Nearly ubiquitous ownership of mobile devices facilitates easier access to language resources, and an autonomous attitude can be encouraged. The key to success in MALL is not only the ownership of the devices but also the familiarity with mobile functions L2 learners are able to operate for language learning. This familiarity should lower their affective filter in accessing language resources and participating in online discussions with peers, resulting in more L2 input and output than would have occurred solely in the L2 classroom. In the practices here, LINE was chosen as a tool to interact in academic contexts, because it is one of the
applications most widely known in Japan for online communication through mobile
devices, and its users have familiarized themselves with the basic functions in the
process of their daily interactions.

This chapter has introduced two types of practices with LINE. One practice was
to interact with the other members by writing English in an online site only for the
members developed in LINE. The other was to interact via the translation bot as a
function of LINE, which automatically and almost simultaneously translates. The
participants only had to write Japanese sentences and read the English translations
generated. The results of the TOEIC© tests and the essay writing tasks point to a
positive impact of both interactions to an extent. They also illustrate that the more
active participants improve their performance more. In addition, the feedback from
the participants shows their overall positive attitude toward the practices, while
some challenges for a more effective implementation of similar practices were also
indicated.

This kind of mobile implementation is easily reproducible and scalable, needing
no additional devices, facilities, or administrative assistance. All that is needed is
the mobile devices carried by participants and the LINE app (or a similar one
commonly used in the reader’s region), which is available for various types of
mobile devices and PCs free of charge. Taking these findings into account, such
conversational tasks with a certain topic via LINE, or other communicative tasks
could be implemented as a supplement to classroom-based activities with minimal
financial and technical obstacles. Furthermore, LINE does not violate the privacy of
users, but the conversation can be conducted under the instructor’s supervision by
developing private discussion groups of invited students within LINE. In a sup-
portive peer environment, students can be least inhibited from self-expression.

Most of the same principles and considerations would apply to future language
learning projects elsewhere utilizing other mobile communication platforms. This
study demonstrates that creating expectations of interaction itself motivates the
participants, because it offers students the chance to use the target language where
there are ordinarily few opportunities to do so in their daily life. In that respect, this
practice can be recommended to other educators because it is easily conducted and
also useful, in that more exposure to the target language, and more autonomous
learning, is facilitated. Whether informally or as part of a class, it is a way of setting
up a community of practice with a clear purpose and the means to communicate at a
distance anytime and anywhere.

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