Applying MALL to an EFL Listening and Speaking Course: An Action Research Approach

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ABSTRACT
The study adopted an action research approach to investigate mobile-assisted language learning (MALL) teaching and learning processes in an English-as-a-foreign-language (EFL) listening and speaking course at a Chinese university. The study participants were 61 students majoring in business English. For this study, an English-learning application, Keke, was integrated with MALL exercises. Data were collected using questionnaires, reflective journals, interviews, and pre- and post-study proficiency tests. The results of two action research cycles revealed that students' attitudes toward MALL listening and speaking practices became more positive after certain changes were made to the intervention in Cycle 2; these changes included various types of mobile-assisted exercises, enhancements for teacher monitoring, and the incorporation of an online learning management application. Students made significant progress in English listening, but not in speaking. This study, therefore, has pedagogical implications for the use of MALL in facilitating EFL listening and speaking education.

KEYWORDS: MALL, EFL listening and speaking, Action research

INTRODUCTION

Training in English listening and speaking is essential for facilitating EFL learning because these two skills are interrelated and work together to foster effective oral communication (Liu & Chu, 2010; Sadiku, 2015). However, EFL learning contexts may lack opportunities for verbal and aural practice due to factors such as a lack of English contexts and good spoken English examples, as well as heavy reliance on traditional teaching methods (Hwang, Shih, Ma, Shadiev, & Chen, 2016). So far, listening and speaking skills still pose great challenges for EFL learners (Andújar-Vaca & Cruz-Martínez, 2017). To tackle these problems, mobile-assisted language learning (MALL) can be utilized in listening and speaking courses. In a review article, Kukulska-Hulme and Viberg (2018) suggest that MALL can provide many affordances, such as flexibility of use, personalization, active involvement, timely feedback, and self-evaluation. MALL can also positively affect motivation, learner attitudes, engagement, and mutual encouragement. Nevertheless, although a great number of investigations have delved into the application of MALL in English-listening and -speaking education (Burston, 2013), little is known about the crucial processes that underlie its pedagogical design (Kukulska-Hulme & Viberg, 2018). Therefore, with the intent of revealing the teaching and learning processes underlying MALL, the present study adopted an action research approach to investigate EFL learners' perceptions of mobile-assisted pedagogy in a listening and speaking course and the progress they made with regard to English-listening and -speaking skills.

LITERATRUE REVIEW

MALL

MALL refers to the formal or informal way of learning a second/foreign language by using mobile devices (McCarty, Stao, & Obari, 2017). In recent years, MALL has received extensive research in the field of foreign-language teaching and learning because it offers a number of advantages, such as ownership, mobility, and technology convergence (Kukulska-Hulme, 2009). First, with remarkable progress made in mobile technology, mobile devices, in many countries, have become prerequisite tools for language learners who have their own smartphones or other mobile devices. Mobile device owners thus could have easy access to various types of mobile resources and applications. Second, MALL has freed learners from the time and space constraints with regard to the learning process; now, based on their needs, they can learn almost anytime and anywhere. Third, mobile technology has changed the manner in which learning language is carried out in multimedia environment. Additionally, mobile devices have come to transform the way in which learners interact with peers, send and receive feedback, and engage in collaborative

learning (Hwang et al., 2016; Xu & Peng, 2017).

In recent years, the application of MALL in EFL learning contexts has yielded fruitful research findings and positive effects, including those related to vocabulary (Ko, 2019; Zhang, Song, & Burston, 2011), reading (Hendriwanto & Kurniati, 2019; Lin, 2014), writing (Andujar, 2016; Chen, Carger, & Smith, 2017), and listening and speaking (Ahn & Lee, 2016; de la Fuente, 2014; Xu, Dong, & Jiang, 2017). However, there are difficulties that EFL teachers and learners face with respect to the teaching and learning processes of MALL, because new mobile technology has offered alternative approaches to the language learning process itself (McCarty et al., 2017). It is therefore particularly important to investigate what changes or improvements can be made in terms of the way language learning takes place in MALL contexts.

MALL-based English-listening and -speaking teaching and learning processes

Listening and speaking are essential language skills that underlie EFL learning, and they form the core components of a learner's communicative ability (Cohen, 2012). However, in EFL learning contexts characterized by limited exposure to English, learners, who usually have few opportunities to listen to authentic English or speak English in daily life, are often offered decontextualized learning resources and tasks. Therefore, they mainly depend on traditional teaching methods, which in some cases their learning motivation may decrease (Hwang et al., 2016; McCarty et al., 2017).

To overcome such drawbacks, some researchers have recommended the use of MALL and its incorporation in the teaching of listening and speaking because its characteristics such as ownership of mobile devices and mobility, could cater to learners' particular needs (Kukulska-Hulme & Shield, 2008). Some studies have attempted to apply MALL to listening and speaking learning activities by using different types of mobile technology, including mobile phones (Gromik, 2012; Moghaddas & Bashirnezhad, 2016), social communication applications (Andújar-Vaca & Cruz-Martínez, 2017; Hsieh, Huang, & Wu, 2017) , and digital games (Hwang et al., 2016; Liu & Chu, 2010).

For instance, Hsieh et al. (2017) utilized a Technology Acceptance Model questionnaire to examine EFL learners' acceptance of a social communication application, LINE, in an English oral-training course. They found that mobile-assisted flipped instruction positively affected students' oral skills and that students' attitudes toward this type of LINE usage determined their following intention to accept such applications. Liu and Chu (2010) reported on a study that incorporated ubiquitous games named *HELLO* in an English-listening and -speaking curriculum. Their results show that the incorporation of MALL-based learning activities in English learning could improve EFL learners' listening and speaking abilities and that the study's gaming-based group was more motivated to learn than the non-gaming-based group.

Taking into account the rapid advances in language-learning applications, some researchers have proposed that such applications should be utilized as effective tools in facilitating EFL learning (Ahn & Lee, 2016), and some attempts have been made to incorporate such applications in the teaching of listening and speaking skills. For instance, Read and Bárcena Madera (2016) used the mobile-assisted listening application ANT (Audio News Trainer) to improve Spanish EFL learners' listening comprehension in a distance-learning context. Their findings show that this tool was effective for facilitating learners' metacognitive development during the MALL process.

Ibáñez Moreno and Vermeulen (2015) tested the validity of the MALL application named VISP (VIdeos for Speaking). The application adhered to pedagogic and linguistic standards, and it aimed to promote learners' oral proficiency. The authors of the study found that, because of cultural and linguistic differences, Spanish students showed greater motivation in engaging with the application for learning purposes than did Belgian students, although the Belgian students ultimately performed better. Researchers have suggested that MALL applications should be localized, taking learners' cultural and linguistic factors into account.

Although there have been many endeavors to investigate the role of MALL in teaching EFL listening and speaking skills, few studies have attempted to investigate the teaching and learning processes underlying MALL. As a consequence, little is known about what processes and steps are crucial for mobile learning design (Kukulska-Hulme & Viberg, 2018), where many changes are needed due to the implementation of new mobile technology. In addition, while most of the previous studies have adopted experiments, quasi-experiments, or case studies as their research methods, few studies have taken an action research approach to delve into the teaching and learning processes per se. As recommended by Yasmeen (2008), action research should be implemented by educators as an important approach

to improve the teaching and learning outcomes. Such qualitative dimensions may provide a fuller picture of pedagogy in mobile-assisted language learning as elsewhere (McCarty et al., 2017).

Taking into account the literature and its research gaps, this study used an action research approach to (1) probe EFL university students' attitudes toward using MALL applications in a listening and speaking course and its effectiveness in enhancing students' listening and speaking abilities and (2) provide pedagogical implications for further improving teaching procedure and teaching efficiency in MALL contexts.

In this study, two research questions were addressed:
(1) What are EFL learners' perceptions of MALL-assisted listening and speaking learning processes?
(2) What improvements have EFL learners made with regard to listening and speaking abilities in the context of MALL?

METHODOLOGY

The present study, which drew on multiple data sources, including questionnaires, reflective journals, interviews, and proficiency tests, adopted an action research approach. According to Burns (2015, cited in Cornwell, 1999, p. 5), action research is a self-reflective and systematic approach to enquiry, with the aim of identifying problems encountered by the participants and conducting further investigation to bring about critical changes in practice. It typically consists of four dynamic phases that are repeated throughout the investigation: planning, action, observation, and reflection (Kemmis & McTaggart, 1988). The current study included two research cycles, and the findings of the first one influenced the second.

Participants

A total of 61 sophomore-year participants (9 male and 52 female) who majored in business English at a Chinese university were recruited. The participants had been learning English for an average of 12.5 years, and 85% had never been to an English-speaking country. According to the pre-study questionnaire, on average, in self-rating for English-listening and -speaking proficiency, they scored 2.46 and 2.41, respectively, on a scale of 5. Additionally, their pre-study listening and speaking proficiency test (i.e. a Cambridge IELTS mock test) scores were averaged at 5.5.

With regard to English-learning-application use experience, 87% were familiar with such applications and used them sometimes or quite often in their spare time, 88.5% used them for listening practice, and 31.1% used them for speaking practice. However, only 50.8% considered these applications useful in improving their English-language learning. With regard to their past learning experiences, 82% had never been required to complete listening and/or speaking assignments via English-learning applications, but 67.2% were willing or quite willing to complete listening and/or speaking assignments via applications.

The intervention

In traditional teaching methods, students' homework usually consists of handwritten dictation exercises and paper-and-pencil listening tests. This study's general intervention involved the application of English-learning applications in listening and speaking exercises outside class hours. After careful selection, the Keke English-learning application was chosen for the following reasons: (1) it is one of the most popular English-learning applications in China, with more than two million users; (2) it offers a variety of English-listening materials and well-designed speaking tasks, which cater to students' particular needs and proficiency levels; (3) based on the pre-study questionnaire, around half of the students reported that they had already used Keke and found it useful for improving their English abilities; (4) previous research has proved that Keke can enhance Chinese EFL learners' English language learning experience (e.g. Zhao, Zhu, & Tian, 2019).

Each week, study participants were asked to complete at least three sets of listening and speaking exercises from a practice column designed by Keke. They were given the opportunity to select the learning materials catering to their needs. While the listening exercises included word ordering and dictation practice, speaking exercises included shadowing and recording based on listening materials (see Figure 1). Upon task completion, the students automatically received their scores. Their performances were also recorded by Keke teachers' application used only by the instructors, allowing teachers to observe students' performances. The student exercises aimed to improve listening and speaking abilities through MALL methods. They thus supplemented the learning and teaching carried out through classroom teaching and textbook exercises.

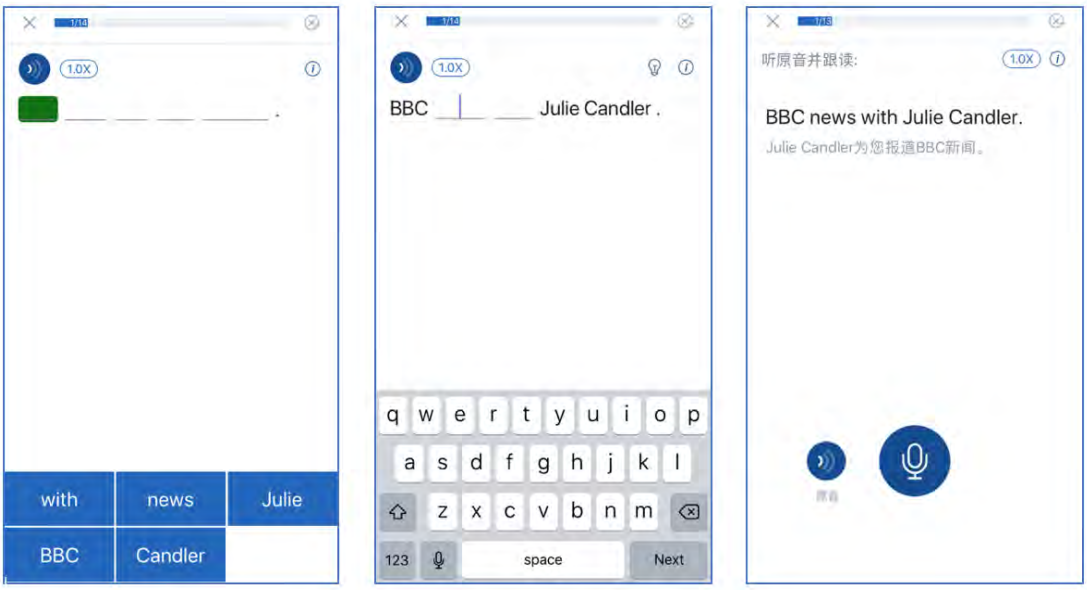

Figure 1. Word ordering, dictation, and speaking exercises on Keke

To facilitate class management, an online learning management application, MosoTeach, was used for posting notices, uploading learning materials, and conducting learning activities outside the classroom.

Instruments

This study adopted a mixed-method approach that included both quantitative and qualitative data. The following instruments were utilized to investigate how students responded to the MALL listening and speaking practice; the instruments also assessed the effectiveness of such practice for improving students' listening and speaking abilities.

(1) *Questionnaires*: Three questionnaires, designed with reference to Hwang et al. (2016) and modified for our research purposes, were distributed to students during Weeks 1, 6, and 16. These included five-point Likert scale types and open-ended questions, which primarily targeted students' attitudes toward MALL listening and speaking learning activities and their perceptions of the usefulness of MALL practices. English-language questionnaires were used; the questions were presented in plain English, which the students found easy to understand. For the open-ended questions, students were allowed to respond in either English or Chinese to ensure that they could express themselves clearly.

(2) *Reflective journals*: During Week 16, each student kept a reflective journal in which they introspected on their MALL experience throughout the semester. Some of the listed prompt questions were as follows: "What improvements have you made after completing the mobile-assisted exercises (for instance, in terms of English listening abilities, speaking abilities, and learning abilities)?" and "What suggestions would you make for improving the mobile-assisted exercises (for instance, regarding Keke, types of homework, and feedback provision)?" The participants wrote their reflective journals in Chinese, which were later translated into English by two research assistants for research purposes.

(3) *Semi-structured interviews*: Ten students were randomly selected during week 16 to participate in a series of semi-structured interviews. The prompt questions were mainly follow-up questions based on the previous questionnaire items: for instances, 'Why do you like or dislike completing your listening and speaking homework via Keke?', 'In what ways do you think that learning practice carried out via apps could enhance your English listening and speaking abilities?', and 'What is your attitude toward the use of MosoTeach in this course?'. The interviews were undertaken in Chinese and then transcribed and translated into English by two research assistants for research purposes.

(4) *Listening and speaking proficiency tests*: During Week 1 (the pre-study period) and Week 16 (the post-study period), listening and speaking proficiency tests were administered to the students in the language laboratory of the university. These tests were adapted from the Cambridge IELTS mock listening and speaking tests. All student-spoken outputs were recorded using lab computers and then scored by two experienced university English teachers. Their scoring was based on IELTS marking criteria, i.e., fluency and coherence, lexical resources, grammatical range and accuracy, and

pronunciation.

(5) *Assignment performance*: All student-completed assignments were collected on the Keke application. This allowed researchers to observe their participation and completion quality.

DADA ANALYSIS AND RESULTS

Table 1 summarizes two action research cycles. It also delineates specific steps with regard to the Plan-Act-Observe-Reflect cycle (adapted from Kemmis & McTaggart, 1988).

Table 1. Summarizing two action research cycles

	Phases	Instruments
Cycle 1 (Weeks 1–6)	Plan	✧ Findings of Questionnaire 1 ✧ Pre-study tests: Listening and speaking
	Act	✧ Listening: Word ordering and dictation on Keke ✧ Speaking: Shadowing and recording on Keke
	Observe and Reflect	✧ Questionnaire 2 (Week 6) ✧ Assignment performance
Cycle 2 (Weeks 7–15)	Revised Plan	✧ Findings of Questionnaire 2
	Act	✧ Listening • Word ordering and dictation on Keke, or • video-based exercises: multiple choice and dictation on Keke, or • handwritten dictation submitted to MosoTeach ✧ Speaking • Shadowing and recording on Keke, or • video-based recording on Keke, or • task-based speaking practice on MosoTeach.
	Observe and Reflect	✧ Questionnaire 3 (Week 16) ✧ Reflective journals (Week 16) ✧ Interviews (Week 16) ✧ Assignment performance ✧ Post-study tests: Listening and speaking

Cycle 1: Weeks 1–6

Plan and Act

In Week 1, the researchers distributed the first questionnaire to students to explore their background information, familiarity with MALL, and learning needs. The Questionnaire 1 results show that most of the students were willing to use English-learning applications to practice listening and speaking. Therefore, the students were required to complete a set homework assignment every week, as stated in the intervention section (namely, at least three sets of listening and speaking exercises on Keke). Students' homework data were then automatically submitted to the Keke teachers' application. Using this, teachers acted as observers and recorded students' performances.

Observe and Reflect

To allow the researchers to observe and reflect on students' performances, Questionnaire 2 was distributed to students during Week 6. The aim of this questionnaire was to collect the participants' responses to interventions in Cycle 1.

(1) Listening

The results of Questionnaire 2 show that 82% of the students were willing or quite willing to complete their listening homework on Keke, while only 68.8% considered it (quite) useful in improving their listening abilities. Responses to

the open-ended questions on students' suggestions regarding the use of Keke were as follows.

Some students mentioned that it was somewhat ineffective in helping them complete their listening exercises for the following reasons: (1) there were a wide variety of exercises in the Keke practice column recommended by the teacher, and they did not know how to choose the most appropriate listening materials to suit their listening proficiency; (2) they regarded typing as being less effective than taking handwritten notes, especially with regard to dictation exercises; (3) they felt that certain exercises took too much time to complete; and (4) many of the listening materials were not up to date. Additionally, many students expressed their preference for more varied types of listening exercise.

(2) Speaking
The results also show that 73.8% of the students were willing or quite willing to complete speaking homework on Keke. However, only 63.9% found it (quite) useful in improving their speaking ability. Some students complained about the technical problems they faced during the speaking exercise, including difficulties in uploading their recordings and inaccurate scoring. Since the exercise mostly involved repeating and shadowing activities, as opposed to creating new contents using their own language, they did not perceive much improvement in speaking.

Cycle 2: Weeks 7–15
Plan and act
In line with observations and reflections from Cycle 1, some modifications were made to the teaching procedure. Several students had complained about the operation of Keke and the limited types of homework assignment it offered; therefore, the researchers decided to offer more options to the students, especially with regard to how they could practice listening and speaking via language-learning applications. In relation to listening practice, in addition to the Keke-based word-ordering and dictation exercises, the option of completing video-based listening exercises via Keke—that is, multiple-choice and dictation exercises—was offered to students, who also had the option of completing handwritten dictation exercises and then submitting them to MosoTeach. Figure 2 illustrates new types of Keke and MosoTeach-based listening exercises offered to students.

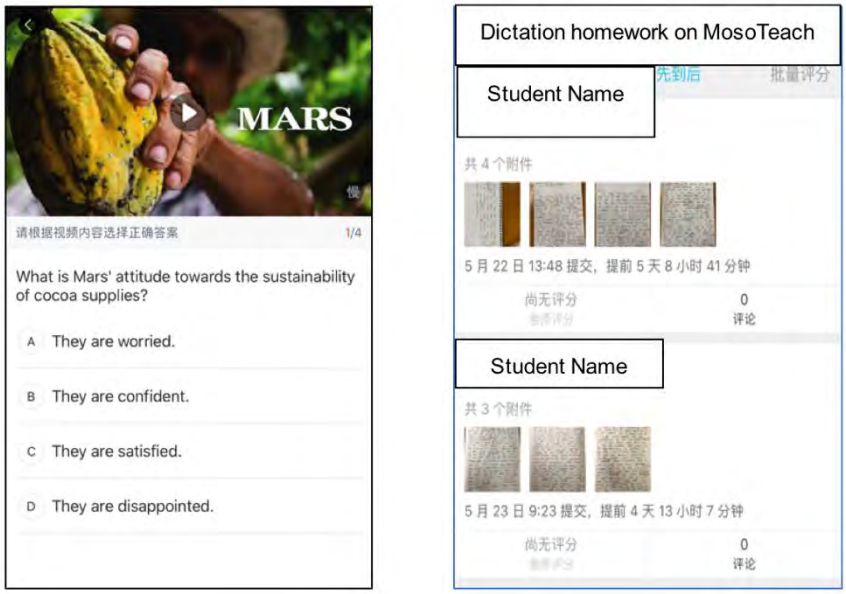

Figure 2. New types of listening exercises added to Keke and MosoTeach

With regard to speaking practice, in addition to shadowing and recording exercises, students were provided with the option to dub videos by speaking English via Keke. They were also provided with the option of recording speeches on given topics and uploading their recordings to MosoTeach. They were then asked to provide peer assessments for two students' recordings. Figure 3 illustrates these speaking exercises

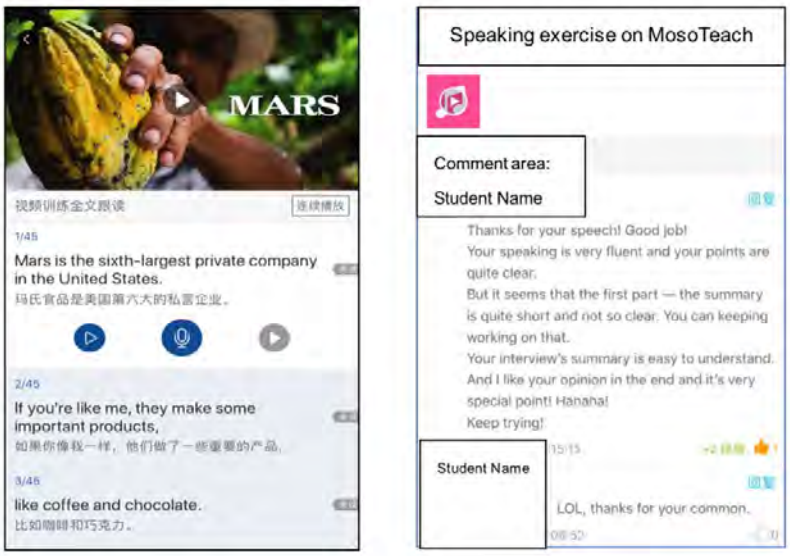

Figure 3. New types of speaking exercises added to Keke and MosoTeach

MosoTeach provided students with the option of submitting Word files, pictures, recordings, and videos. MosoTeach also provided scores and feedback for peer assignments. Therefore, it was feasible to carry out task-based speaking homework via the MosoTeach platform. Task-based speaking practices were utilized because task-based language teaching (TBLT) offers students sufficient opportunities to complete meaningful tasks by using the target language; furthermore, research has shown that TBLT is an effective pedagogical method for second-language learning (Douglas & Kim, 2015; Liu & Chu, 2010).

In Cycle 2, 27 students chose to record speeches every other week while following the teacher's instructions. The speech topics were (1) methods companies can use to retain staff members, (2) reflections on the film *Inside Out,* (3) whether it is advisable to hire nannies to control children's screen exposure, and (4) comments on the prospect of artificially intelligent television-news anchors.

Observe and Reflect

Compared with Cycle 1, students in Cycle 2 were more willing to participate in the listening and speaking activities outside classroom hours, and they evaluated these activities as being more useful in improving their listening and speaking abilities during Cycle 2. Tables 2 and 3 show these changes in the students' attitudes toward MALL-based assignments.

Table 2. Questionnaire results during Week 16

Scale of willingness	5	4	3	2	1	Mean	SD
to complete listening homework	45.9%	39.3%	9.8%	4.9%	0%	4.26	0.830
to complete speaking homework	37.7%	42.6%	16.4%	3.3%	0%	4.14	0.823
Scale of usefulness							
for improving listening ability	39.3%	32.8%	27.9%	3%	0%	4.11	0.813
for improving speaking ability	27.9%	44.3%	23%	4.9%	0%	3.95	0.842

(1) Listening

The results of these questionnaires show that 85.2% of the students were willing or quite willing to complete the listening homework (82% in week 6), and 72.1% considered it to be useful in improving their listening abilities (68.8% in week 6).

The percentages of week 16 questionnaire results were slightly higher than those of Week 6. Table 3 shows that students were more willing to complete the listening homework, and their perceptions regarding the usefulness of MALL exercises also improved.

Table 3. Comparing questionnaire results, Week 6 and Week 16: Listening

Questionnaire	Willingness to complete listening homework		Usefulness of the listening homework	
	Mean	SD	Mean	SD
Week 6	4.14	0.819	3.83	0.834
Week 16	4.26	0.830	4.11	0.823

Analysis of students' reflective journals and interviews showed that several students mentioned their improvements with regard to listening skills and abilities. Some example quotations (translated from Chinese) are as follows:

- *This semester, my English listening ability improved because I finished the listening assignments carefully under the teacher's supervision each week.* (Student 20; reflective journals; English listening ability)
- *My ability to grasp keywords from the English listening materials has improved after practicing the Keke listening training exercises for one semester.* (Student 49; reflective journals; English listening skills)
- *I was able to select various English listening materials from the Keke application, and this increased my interest in listening practice. In the beginning, I had to make many attempts to complete the word order and dictation exercises, but now I can finish these tasks within a much shorter time period.* (Student 27; interview; learning interest and listening ability)

Additionally, students' IELTS mock listening test scores increased from 5.5 (SD=0.976) to 6.5 (SD=0.988). The results of the paired *t*-test show that there were significant differences between the pre-study and post-study test results (t=9.942, *p<.001). This shows that students' listening abilities improved greatly after one semester of continual MALL practice.

(2) Speaking

The Week 16 questionnaire results show that 72.1% of the students were willing or quite willing to complete speaking homework (73.8% in Week 6) and that 72.2% thought that it was useful for improving their speaking abilities (63.9% in Week 6). Table 4 shows that the students were relatively more willing to complete speaking homework in Cycle 2 in comparison to the results in Cycle 1, and that their perceptions regarding the usefulness of mobile-assisted speaking exercises increased as well.

Table 4. Comparing questionnaire results, Week 6 and Week 16: Speaking

Questionnaire	Willingness to complete speaking homework		Usefulness of the speaking homework	
	Mean	SD	Mean	SD
Week 6	3.94	0.966	3.71	0.990
Week 16	4.14	0.813	3.95	0.842

Analysis of the reflective journals and interviews showed that more than half of the students mentioned improvements in their speaking abilities, especially with regard to aspects such as fluency, organization, content quality, and logic. Furthermore, their confidence was enhanced. Some example quotations (translated from Chinese) are as follows.

- *At the beginning of the semester, I found it very difficult to say something about the topics, but after carrying out oral practice through homework for one semester, I felt less nervous and was able to express myself better.* (Student 8; reflective journals; English speaking ability)
- *I enjoyed oral practice inside and outside the class because it taught me to make English speeches in an efficient way and also improved my thinking ability.* (Student 20; reflective journals; speaking and thinking abilities)
- *This semester, I made the most improvements in terms of my speaking ability and also my speaking confidence. I tried my best to record every speech without consulting any notes. My speech fluency was enhanced, but the richness of my speech content should be further improved.* (Student 4; interview; confidence and fluency)

Some students reported perceived improvement in speaking, however, their average scores on speaking tests only slighted increased from 5.54 (SD=0.574) to 5.67 (SD=0.589), and there was no significant difference between the pre-study and post-study test scores (t=1.552, p=0.126).

Along with mentioning improvements in their English listening and speaking abilities, 15 students mentioned in their reflective journals that they had benefited from self-regulated learning. During the MALL-based learning practice process, students had to select listening materials based on their language proficiency, learning needs, and interests, and they had to manage their own learning pace. In this way, their ability to self-regulate their learning was enhanced. The following quotations have been extracted from students' reflective journals and interviews, and translated into English from Chinese.

- *The most important thing was that I fostered the habit of listening and speaking in my spare time. In the beginning, I had to be pushed to complete the exercises, but now I have become used to doing them by myself even without the teacher's supervision. Keke has become a part of my life. I'll continue to carry out these exercises during my vacations.* (Student 6; interview)
- *I have realized the importance of self-regulated learning. Whether it is Keke English or handwritten dictation, we could only complete the tasks effectively with persistence and self-reliance. Sometimes I was a little lazy, but I convinced myself to overcome it by using long-term goals.* (Student 9; reflective journals)
- *I have developed better learning habits after practicing listening and speaking on Keke for a semester. I not only finished the assignments assigned by the teacher but also listened to various types of material based on my own needs. My listening ability has indeed improved.* (Student 51; reflective journals)

DISCUSSIONS AND CONCLUSION

By analyzing two action research cycles, this study explored the methods needed to improve MALL listening and speaking teaching practices. The results show that, once a few modifications were made to the original intervention (i.e., three sets of listening and speaking exercises on Keke), students developed a more positive attitude toward MALL assignments, and their perception of the usefulness of the tasks increased. Students also expressed greater satisfaction with the course (average score: 4.47 out of 5) at the end of the semester, compared with their perception of the course at the beginning (average score: 3.68).

In addition, the pre- and post-study proficiency tests revealed that students' listening ability improved significantly, whereas their speaking ability did not show significant improvement. The two major reasons for students' slow development in speaking skills may be: (1) only half of them participated in speech-recording exercises, with the rest of them completing 'Listen and Repeat' exercises; and (2) due to the heavy workloads, students were asked to complete speech recordings every two weeks, and thus, the amount of oral practice was not sufficient to significantly improve their speaking ability. For EFL learners, speaking is one of the most challenging skills (Ahn & Lee, 2016), and therefore, MALL tasks may require longer periods of time for any positive changes to occur.

The study's findings indicate that the integration of English-learning applications could enhance EFL learners' learning experience. Their improvement is primarily manifested in positive attitudes and increased willingness to participate in MALL activities. These findings are in line with those of Ahn and Lee (2016), in which positive effects were detected in learner attitudes, motivation, and engagement within MALL contexts after the implementation of an English-learning application.

In addition, the use of language-learning applications may play a facilitative role in improving EFL learners' listening and speaking abilities. Although the students in the study did not make any significant progress in speaking ability, their attitudes toward the usefulness of MALL tasks became more positive to a certain extent. Ibáñez Moreno and Vermeulen (2015) noted that the use of such applications positively affected EFL teaching because they offer flexibility, which enables learners to personalize their learning process.

However, simply using such applications is not sufficient for effectively cementing learning. Additional aspects, such as teachers' supervision and guidance, diversified learning activities for catering to learners' needs, and the incorporation of online learning management tools are necessary. Although several students reported their improvement in terms of self-regulated learning, obvious individual differences were observed between different types of learners. For students who lack a sense of self-regulation and self-discipline, instructor supervision is particularly important to monitor and control their tendency to become unmotivated. Teachers' guidance—in terms of listening-material selection and speaking-task monitoring—was also necessary for students who needed learning scaffolding. Stockwell (2014) cautioned that learners may not know how to use mobile technologies effectively to further their

learning aims; therefore, such learners require guidance from instructors (Kukulska-Hulme & Viberg, 2018).

Many of the study participants also preferred the freedom to choose listening and speaking tasks via Keke because certain tasks did not satisfy their learning needs. For instance, during Cycle 1, several students complained about the inefficiency of the dictation exercises on Keke, and some of them encountered technical problems during their voice-recording activities. These experiences may have led the students to develop negative attitudes toward the MALL assignments. After the researchers reflected on the practices of Cycle 1, changes were made to the types of learning activity. These changes, which were well received by the students, included video-based listening exercises, handwritten dictation exercises, task-based speaking exercises, and peer assessments on MosoTeach.

Kukulska-Hulme and Viberg (2018) maintained that, because of the differences between learners' characteristics and skills, as well as the specific contexts involved in MALL, a variety of instructional approaches should be used. Previous research studies (e.g., Ilic, 2015; Ogunduyile, 2013) have used diverse technologies and media to facilitate collaboration, thus providing learners with more choices. Ahn and Lee (2016) also encouraged more diversity in the use of mobile technologies in order to make learning activities more interactive. Therefore, it is necessary to provide students with a variety of assignment selections and diversified tasks. In the present study, the MALL speaking exercises were greatly diversified by incorporating the online MosoTeach learning management tool in the course.

This study filled some research gaps by utilizing an action research approach to explore English-listening and -speaking teaching and learning processes out of the classroom. It accomplished this with the assistance of mobile-based learning applications. Two cycles of this type of teaching practice had some positive effects. Nonetheless, this study has some limitations. First, the participants were limited in number and homogeneous in background, so the results may not be generalizable to other populations. Second, the study intervention lasted for only one semester; this is a relatively short period for training students in speaking skills. Third, only half of the students participated in the task-based speaking exercises, and there was still a lack of interaction and collaborative learning throughout the teaching process.

Future research should recruit participants with more diverse backgrounds who have different levels of language proficiency. Furthermore, such research should conduct longitudinal studies over a longer period. As suggested by Andújar-Vaca and Cruz-Martínez (2017), researchers should also provide an environment where learners are able to freely negotiate meaning, reflect on and assess their own performance by means of authentic interaction and feedback, so as to afford more opportunities for second language proficiency development.

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REFERENCES

Ahn, T. Y., & Lee, S. (2016). User experience of a mobile speaking application with automatic speech recognition for EFL learning. *British Journal of Educational Technology*, *47*(4), 778–786.

Andújar-Vaca, A., & Cruz-Martínez, M.-S. (2017). Mobile instant messaging: Whatsapp and its potential to develop oral skills. *Comunicar*, *25*(50), 43–52.

Andujar, A. (2016). Benefits of mobile instant messaging to develop ESL writing. *System*, *62*, 63–76.

Burns, A. (2015). Action research. In J. D. Brown & C. Coombe (Eds.), *The Cambridge Guide to Research in Language Teaching and Learning* (pp. 99–104). Cambridge: Cambridge University Press.

Burston, J. (2013). Mobile-assisted language learning: A selected annotated bibliography of implementation studies 1994-2012. *Language Learning & Technology*, *17*(3), 157–225.

Chen Hsieh, J. S., Huang, Y.-M., & Wu, W.-C. V. (2017). Technological acceptance of LINE in flipped EFL oral training. *Computers in Human Behavior*, *70*, 178–190.

Chen, Y., Carger, C. L., & Smith, T. J. (2017). Mobile-assisted narrative writing practice for young English language learners from a funds of knowledge acopproach. *Language Learning & Technology*, *21*(1), 28.

Cohen, A. D. (2012). Comprehensible pragmatics: Where input and output come together. In M. Pawlak (Ed.), *New perspectives on individual differences in language learning and teaching* (pp. 249–261). Berlin, Heidelberg: Springer.

Cornwell, S. (1999). Interview with Anne Burns and Graham Crookes. *The Language Teacher*, *23*(12), 5–10.
de la Fuente, M. J. (2014). Learners' attention to input during focus on form listening tasks: the role of mobile technology in the second language classroom. *Computer Assisted Language Learning*, *27*(3), 261–276.
Douglas, S. R., & Kim, M. (2015). Task-based language teaching and English for academic purposes: An investigation into instructor perceptions and practice in the Canadian context. *TESL Canada Journal*, *31*, 1–22.
Gromik, N. A. (2012). Cell phone video recording feature as a language learning tool: A case study. *Computers & Education*, *58*(1), 223–230.
Hendriwanto, H., & Kurniati, U. (2019). Building reading fluency with mobile assisted extensive reading. *International Journal of Interactive Mobile Technologies*, *13*(6), 84–92.
Hwang, W.-Y., Shih, T. K., Ma, Z.-H., Shadiev, R., & Chen, S.-Y. (2016). Evaluating listening and speaking skills in a mobile game-based learning environment with situational contexts. *Computer Assisted Language Learning*, *29*(4), 639–657.
Ibáñez Moreno, A., & Vermeulen, A. (2015). Profiling a MALL app for English oral practice: a case study. *International Journal of Computer and Technology*, *21*(10), 1339–1361.
Ilic, P. (2015). The effects of mobile collaborative activities in a second language course. *International Journal of Mobile and Blended Learning*, *7*, 16–37.
Kemmis, R., & McTaggart, R. (1988). *The Action Research Planner (3rd Edition)*. Geelong: Deakin University Press.
Ko, M.-H. (2019). Students' reactions to using smartphones and social media for vocabulary feedback. *Computer Assisted Language Learning*, *32*(8), 920–944.
Kukulska-Hulme, A. (2009). Will mobile learning change language learning? *ReCALL*, *21*(2), 157–165.
Kukulska-Hulme, A., & Shield, L. (2008). An overview of mobile assisted language learning: From content delivery to supported collaboration and interaction. *ReCALL*, *20*(3), 271–289.
Kukulska-Hulme, A., & Viberg, O. (2018). Mobile collaborative language learning: State of the art. *British Journal of Educational Technology*, *49*(2), 207–218.
Lin, C.-C. (2014). Learning English reading in a mobile-assisted extensive reading program. *Computers & Education*, *78*, 48–59.
Liu, T.-Y., & Chu, Y.-L. (2010). Using ubiquitous games in an English listening and speaking course: Impact on learning outcomes and motivation. *Computers & Education*, *55*(2), 630–643.
McCarty, S., Stao, T., & Obari, H. (2017). *Implementing Mobile Language Learning Technologies in Japan.* Singapore: Springer.
Moghaddas, B., & Bashirnezhad, H. (2016). The pedagogical applications of mobile-assisted language learning (MALL) in improving the Iranian EFL learners' oral performance. *International Journal of Applied Linguistics and Translation*, *2*(1), 8–14.
Ogunduyile, O. (2013). Towards the integration of mobile phones in the teaching of English language in secondary schools in Akure, Nigeria. *Theory and Practice in Language Studies*, *3*(7), 1149–1153.
Read, T., & Bárcena Madera, E. (2016). Metacognition as scaffolding for the development of listening comprehension in a social MALL App. *RIED: Revista Iberoamericana de Educación a Distancia*, *19*(1), 103–120.
Sadiku, L. (2015). The importance of four skills reading, speaking, writing, listening in a lesson hour. *European Journal of Language and Literature*, *1*, 29–31.
Stockwell, G. (2014). Mobile-assisted language learning. In M. Thomas, H. Reinders, & M. Warschauer (Eds.), *Contemporary Computer Assisted-Language Learning* (pp. 201–217). London: Bloomsbury Publishing Plc.
Xu, Q., Dong, X., & Jiang, L. (2017). EFL learners' perceptions of mobile-assisted feedback on oral production. *TESOL Quarterly*, *51*(2), 408–417.
Xu, Q., & Peng, H. (2017). Investigating mobile-assisted oral feedback in teaching Chinese as a second language. *Computer Assisted Language Learning*, *30*(3–4), 173–182.
Yasmeen, G. (2008). Action research: An approach for the teachers in higher education. *The Turkish Online Journal of Educational Technology*, *7*(4), 46–53.
Zhang, H., Song, W., & Burston, J. (2011). Reexamining the effectiveness of vocabulary learning via mobile phones. *The Turkish Online Journal of Educational Technology*, *10*, 203–214.
Zhao, C., Zhu, Y., & Tian, X. (2019). Impact of "Keke English" on Chinese English majors' language learrning. *Journal of Hunan University of Science and Engineering*, *40*(2), 103–105.