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Using Mobile Devices to Improve Speaking Fluency

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Abstract

With recent advances in digital technologies and the ubiquitous use of mobile devices in daily life, effective oral practice outside the classroom is now a viable option for EFL learners. In line with Pegrum's (2019) three mobilities framework, the present study reports on a group of EFL students who used their mobile devices (i.e., smartphones and tablets) to improve their speaking fluency beyond the classroom settings. More specifically, forty-four EFL students were asked to record a minimum of a two-minute speech each week outside the classroom over the course of 28 weeks. The analysis of the speech data and students' perceptions of and experiences with the weekly speaking journal assignment carried out using mobile devices indicated that the EFL students achieved significant gains in fluency, which was measured by counting the number of words uttered per minute. Furthermore, students also acknowledged other advantages of this mobile oral practice in enhancing their self-confidence and decreasing speaking anxiety. The findings offer valuable implications for language learners and teachers, highlighting the fruitful effects of weekly mobile oral practice on the development of speaking fluency.

Keywords: Oral fluency, mobile devices, MALL, EFL Learners

Introduction

The recent advances in mobile technologies have opened newer doors to language education. For instance, the focus of language education is changing from language-in-place to language-in-motion (Blackledge & Creese, 2018). More specifically, with the ubiquitous use of mobile devices in daily life, traditional language learning has slightly metamorphosed to incorporate anywhere-anytime learning, without being limited to a physical classroom or time, which is broadly known as mobile-assisted language learning (MALL) (Kukulska-Hulme, 2009, 2012; Kukulska-Hulme & Shield, 2008).

Although MALL includes the use of any mobile tools such as smartphones, tablets, digital music players, and electronic dictionaries (Burston, 2014), it is largely associated with smartphones and tablets. However, the 'mobile' aspect of MALL does not refer only to 'mobile devices' but also to 'mobile learners' and 'mobile learning experiences' (Pegrum, 2019). Based on Pegrum's three mobilities framework (Pegrum 2014, 2016, 2019), only the devices are mobile at the first level. Examples of this level can include learners using their smartphones or tablets to improve their vocabulary knowledge via some apps or online games while they are sitting in the classroom. As for the second level, both the devices and the learners are mobile. Examples can include students joining online classes while they are in a café or students engaging in app-based pronunciation exercises while they are waiting for the bus. The devices, the learners as well as the learning experiences are mobile at the third level. Examples can include learners, using their smartphones or tablets, recording their conversations in real life, and then reflecting on their own performance before uploading them into a course management system. Although exploiting the mobility at the third level might be ideal, the mobility at each level can be "appropriate for certain purposes in certain places at certain times" (Pegrum, 2019, p. 109).

The potential of MALL has not gone unnoticed by researchers and scholars who wish to extend the language learning process beyond the classroom (i.e., first and second levels of the mobilities framework), and to provide learners with extra opportunities to become more exposed to the target language (i.e., third level of the mobilities framework). MALL has been found to have several advantages such as increasing the interactions between learners-learners, learners-instructor, and learners-learning materials (Abdous et al., 2009; Güneş & Adnan, 2023), enabling more

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individualized learning and offering more language learning opportunities (Keengwe & Bhargava, 2014; Wrigglesworth & Harvor, 2018).

When it comes to the opportunities pertaining to primary language skills and sub-skills, MALL has been reported to have the power to boost learners' skills in reading and grammar (Lan et al., 2013; Wang & Smith, 2013), writing (Chen et al., 2017), listening (Gonulal, 2020; Alzieni 2020, Hwang et al., 2016), speaking (Grimshaw & Cardoso, 2018; Hwang et al., 2016; Rezaee et al., 2019; Yoon, 2015), pronunciation (Fouz-González, 2017, Metruk, 2024), knowledge of vocabulary (Cavus & Ibrahim, 2009; Klimova, 2018), and oral accuracy and fluency (Jiang et al., 2023; Phetsut & Waemusa, 2022).

MALL has also a lot to offer to develop oral fluency. Although fluency is, probably, the ultimate goal for many learners, speech fluency is a challenging process to improve, especially in EFL contexts where learners have limited opportunities to regularly use the target language in daily life. Indeed, even if EFL learners' proficiency in other aspects of language such as grammar, vocabulary, and reading is relatively high, they may often lack fluency when it comes to speaking English (Larson-Hall, 2016). An easy method to help EFL learners become fluent in English is to make sure they are actually speaking because this is a sine qua non of fluency (DeKeyser, 2007). Considering the relatively limited amount of exposure to English in an EFL environment (Ortega, 2013), and the inadequate time allocated to productive skills in EFL classes, practicing English outside the classroom appears to be an ideal solution. However, there is a paucity of research looking at the development of oral fluency through the lenses of mobility.

One of the rare works in this area is Grimshaw and Cardoso's (2018) experimental study investigating the impact of using a mobile game on the oral fluency development of 20 low-intermediate ESL learners. The learners in the treatment group played a mobile game called Spaceteam for about 15 minutes as a warm-up activity at the beginning of each class over the course of six weeks. When playing the game, the learners had to orally interact with other learners in the team to carry out the instructions and to complete the game. Although the learners slightly increased their fluency measured in syllables per minute, from pre-test to post-test, the difference was not statistically significant. Similarly, there was no statistically significant difference between the game and the non-game groups in terms of the number of syllables uttered per minute, and the speech rate- and pause-based judge ratings. However, Grimshaw and Cardoso speculated that mobile games have the potential to boost oral fluency if learners are exposed to the mobile gaming opportunities over a longer period of time.

In another study which did not specifically address the development of oral fluency, Yoon (2015) investigated the effectiveness of weekly voice journals recorded via smartphones in improving Korean EFL students' speaking skills. A total of sixty-two students recorded 10 short speeches on various themes over a 15-week period, and their speaking performances in the first and last recordings were analyzed. The results indicated significant increases in their speaking skills.

When reviewed in its entirety, the aforementioned studies indicate that mobile technologies, if used properly and regularly, have the potential to improve one of the hardest aspects of language for EFL learners, which is speech fluency. Given this situation, the current study aimed to investigate the development of EFL learners' speaking fluency outside the classroom in line with Pegrum's (2019) three mobilities framework (i.e., mobile devices, mobile learners, and mobile language learning experiences).

Method

Research Design

This is a longitudinal study adopting an action research design in which mixed method was used; i.e. both quantitative and qualitative data collection procedures were applied. As the research is concerned with tracking the progress of the same group of students by means of an out-of-class, self-managed language learning technique (voice recordings, i.e. speaking journals) over a very long period of time, the action research design was adopted for practical reasons.

Setting and Participants

This study was conducted in an English course at a state university in Turkey. Although the students had various resources (e.g., listening to podcasts or vodcasts) for receiving rich, comprehensible authentic input in English outside the classroom, the chances to practice English, particularly in communicative ways, were often limited to class time. More specifically, the relatively large class size (e.g., 30 students on average) and the inadequate time allocated per week to productive skills in class often made practicing English a challenging task in the present learning context.

The data in this study were drawn from 44 EFL students (28 females and 16 males) who were taking part in an English Language Teaching (ELT) program. The average age of the students was 19.09 (SD = 2.23). All the students were enrolled in an integrated English speaking and listening course and met twice a week for five hours total throughout two academic semesters (28 weeks). Unlock level 3 (Cambridge University Press) listening and speaking skills coursebook (CEFR: B1 Level) was utilized as the main course material,

and most speaking activities and tasks in this coursebook were completed in class or assigned as homework.

At the beginning of the academic year, the students were required to take an English proficiency test comprising all four skills and grammar, which also acted as a placement test for the compulsory English preparatory class. In the speaking part of this IELTS-like test, the students were asked to randomly choose two speaking prompts (e.g., *Describe a happy childhood event of yours. When did it happen? Who was involved? How did you feel at the time?*). They were to talk about each prompt for approximately two minutes. Students' speeches were then rated by four advanced English speakers with Ph.D. degrees by using an analytical rubric addressing fluency, pronunciation skills, accent, vocabulary use, and grammar. Overall, the students averaged 40.64 points (*SD* = 7.74) out of 100 on the proficiency test whereas their average speaking score was 32.43 (*SD* = 11.88). This indicated that most students were not as proficient in their speech when compared to their grammatical and writing abilities.

Data Collection Tools

Apart from the coursebook-oriented speaking instruction, students were also introduced to the mobile fluency development project in the second week of the course. In this weekly project, the students were to record a minimum of a two-minute speech based on a given speaking prompt or set of prompts. They were asked to record their speech in an MP3 format using a voice recording application (e.g., Rev Voice Recorder, iTalk, Voice Memo, Smart Voice Recorder) on their mobile devices so that they could complete the fluency development assignments anywhere they wanted without being stuck to their dorms or libraries. Furthermore, the students were informed that they could have as many rehearsals as they wanted until they were satisfied with their performance before submitting the assignment. The students were told to briefly plan their speech before recording and were free to write down and use some keywords to help them speak while doing the mobile fluency development assignments. However, they were explicitly instructed that they should not read from any text while recording their speeches. They were also asked to upload their recorded speeches to BOYSIS, a course management system (CMS) provided by the university. This CMS made it easier for the instructor to monitor learners' recording process outside the classroom and also helped learners receive instructor feedback right away after each assignment was completed.

Once the instructor had received the recorded speeches, he listened to the recordings and provided brief feedback on each recording each week. The feedback was mostly encouraging and sometimes pointed out the areas where the students needed to pay more attention (e.g., *Well-spoken! You are making good progress, but you should try to speed up a bit and decrease the number of 'uhms'. Also, please check the correct pronunciations of the following words: breathe vs breath, threaten, health, and examining---be careful with the pronunciation of words ending in -ing*). The students were awarded 1.5, 1.0, or 0.5 points for each recording they submitted, depending on the quality (i.e., fluency, pronunciation, grammar and vocabulary use) of their speech.

After completing a training session in which they were shown what to do and how to do, the students completed ten mobile fluency development assignments (which were also called as speaking journals) per semester, totalling 20 assignments on a variety of topics including historical places, festivals, education systems, technology, language education, sports and business which they were likely to encounter in real life. The speaking prompt of an assignment was selected based on the classroom topics discussed in that particular week. The students were given either one or two thematically-related speaking prompts each week and were asked to talk about one of them.

Although the majority (88%) of the students only used a mobile device, with smartphones being the most preferred one (80%), some (12%) of the students also reported occasionally using their laptops to record or receive feedback on their fluency development assignments. Thanks to the availability of smartphones, students had the freedom to complete the speaking journals anywhere, anytime (e.g., on campus, at a café, in dorms). While recording their voices on their mobile devices, the students reported making 4 trials on average (*Min* = 1, *Max* = 10, *Median* = 3, *SD* = 2.41, *95% CI* [3.30, 4.79]) until they became satisfied with their speaking performances and submitted the assignments to the instructor. It is important to note here that they practiced in decreasing amounts as time went on because they got more used to the assignments and probably began to develop some fluency over the course of the assignments. Additionally, students reported spending approximately 30 minutes on each assignment (*Min* = 5, *Max* = 70, *Median* = 25, *SD* = 17.68, *95% CI* [24.28, 35.16]).

At the end of the course, a survey regarding the implementation of the mobile fluency development project was administered to the students in order to investigate their opinions of, and experiences with, the project and to reflect on their progress (see Appendix).

Data Analysis

In this study, data collection was comprehensive and involved multiple tools. Weekly voice recordings, referred to as speaking journals, were compiled by students throughout the 28-week duration of the course. These recordings served as

a valuable resource for tracking the progression of speaking fluency over time. Additionally, proficiency speaking exams were administered at the commencement and conclusion of the semester. These exams consisted of oral questions spanning various everyday topics, and students were scored out of 100, providing alternative measures of their fluency at the two time points. Furthermore, a survey was conducted to gauge the effectiveness of the mobile fluency development project, offering insights into the students' perceptions and experiences related to the intervention.

The number of words uttered per minute was used as a measure of the students' speaking fluency. This basic method was intentionally selected to make the measurement process straightforward and evenly easily accessible for not only teachers with limited experiences in fluency research but also for students to better understand their progress. That is, the simplicity of this measure extends its practicality beyond research purposes, positioning it as a valuable tool for enhancing fluency in diverse educational settings. In order to analyze this speech fluency, a total of six recordings for each student were selected. More specifically, three recordings (1st, 5th, and 10th) in the first semester, and three recordings (1st, 5th, and 10th) in the second semester were used. If a student did not complete, for example, the 5th speaking journal, the 4th or 6th recording by that student were chosen instead. A total of 258 voice recordings were compiled in this way.

The first step of the analysis was then to convert the students' audio files into texts. The *IBM Watson Speech to Text* program was used for this tedious work. After the audio files had been uploaded to the program one by one, the text was created for each recording. Then, using these texts, the number of words articulated per minute was counted and tabulated for each student. In order to verify whether or not the speech-to-text program was reliably transcribing the audio files, 20 randomly-selected audio files were transcribed by the first researcher. Then, an intraclass correlation coefficient was calculated as the measure of inter-rater reliability. Although the speech-to-text program had issues in detecting and precisely transcribing some words that were ill-pronounced, the number of words produced was mostly identical. In fact, the intraclass correlation coefficient (r = .97, 95% CI [.94, .99]) indicated high similarity in terms of the number of words uttered. In addition, the students' speaking scores in the pre-course and the post-course proficiency tests were also compiled. Furthermore, the students' responses to the open-ended questions in the survey were gathered and manually typed into a Word document.

As the second step, the compiled data were both quantitatively and qualitatively analyzed. More specifically, the mobile fluency development project and the proficiency speaking data were analyzed using basic descriptive statistics, confidence intervals, paired samples t-tests, Pearson's r correlation, and visual graphs such as a parallel coordinates plot. As a data screening and analysis routine, the quantitative data were carefully monitored for normality, outliers, and missing data. For this purpose, the Q-Q plots and the Shapiro-Wilk test were used, and the results showed that the data were normally distributed. As for the missing value analysis, the results indicated that approximately 3% of the total data was missing, but this small proportion was not a reason for concern (Schafer & Graham, 2002). Therefore, no robust missing data management methods (e.g., multiple imputations) were performed. Instead, more conventional methods (i.e., list-wise and pair-wise deletion) were applied when necessary.

Finally, a content analysis (Glesne, 2010) was used on the qualitative data to see whether there were any patterns in the opinions and experiences of the students regarding the year-long mobile fluency development assignments. As a first step, the responses to the open-ended survey questions (see Appendix) were manually complied on a Word document, and a total of 1,972 words were obtained. Next, the compiled textual data were read multiple times before open coding. Then, the data were carefully analyzed to identify any patterns or themes in the student responses.

Results

The first research question dealt with the extent to which the implementation of the mobile fluency development project improved the students' speaking fluency. Table 1 presents the students' progress in terms of fluency scores measured in words articulated per minute (wpm).

At the beginning of the course, the average number of wpm was around 57 (*SD* = 17.24, *95% CI* [51.44, 61.93]). By the end of the first semester, the students managed to increase their fluency to 75 wpm (*SD* = 19.18, *95% CI* [69.52, 81.19]). At the end of the course, the students were able to speak almost with 90 wpm (*SD* = 19.61, *95% CI* [83.32, 95.70]).

Even though the mean increase in the number of wpm was approximately 33 words (approximately %60) from the beginning to the end of the course, the high standard deviations indicated large variations among the students. Indeed, as can be seen in Figure 1, the development of speaking fluency for many students was not linear. Instead, there were some fluctuations from speaking journal to speaking journal.

Although students exhibited fluency performances of varying speed throughout the mobile fluency development recordings, the majority of the students increased their fluency by the end of the year (see Figure 2). Indeed, a

Table 1: Descriptive statistics for the number of words articulated per minute in each recording

Speaking Journals	N	Min	Max	Median	M	SD	95% CIs
1st Semester							
1st recording (Week 3)	44	24	100	55	56.69	17.24	[51.44, 61.93]
2nd recording (Week 7)	44	27	112	70	69.21	17.14	[64.01, 74.42]
3rd recording (Week 12)	44	33	126	79	75.35	19.18	[69.52, 81.19]
2nd Semester							
4th recording (Week 17)	42	31	113	83	82.89	17.82	[77.33, 88.44]
5th recording (Week 22)	43	38	121	87	87.00	18.79	[81.21, 92.78]
6th recording (Week 26)	41	41	129	90	89.51	19.61	[83.32, 95.70]

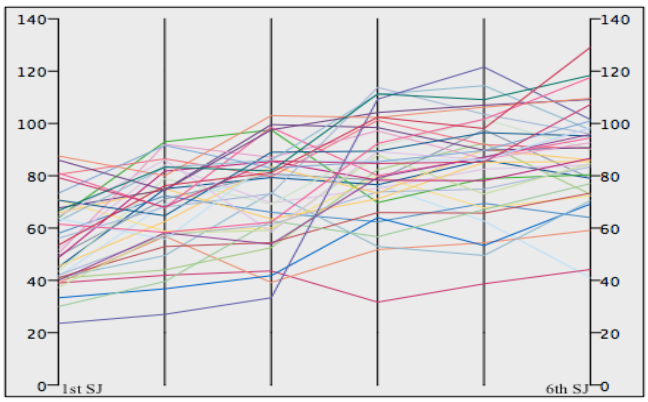

Fig. 1: A parallel coordinates plot showing individual fluency performance for each speaking journal.

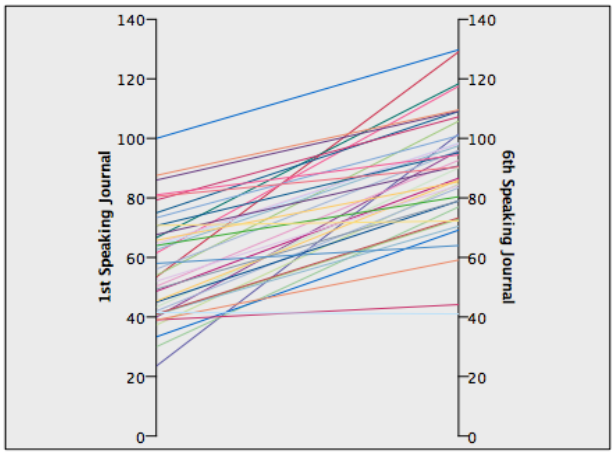

Fig. 2: A parallel coordinates plot showing individual fluency performance in the first and the final speaking journals

Table 2. DescriptJive statistics for the speaking scores of the students in the pre-course and the Cpost-course proficiency tests

Proficiency (Speaking) Scores	N	Min	Max	Median	M	SD	95% CIs
Pre-course	37	25	80	25	32.43	11.88	[28.47, 36.39]
Post-course	44	65	95	75	76.13	7.14	[73.96, 78.30]

paired-samples t-test was conducted to see whether or not the increase in fluency was statistically significant. The results showed that there was a significant difference in students' fluency performances between the first recording and the final recording, $t(40) = -12.07$, $p < .001$, *Cohen's d* = 1.76.

To answer the second research question with respect to the students' perceptions of the effectiveness of the mobile fluency development project as a fluency boosting tool as well as their experiences with completing this year-long project using their mobile devices, the students' responses to the survey were analyzed under two main categories (i.e., the positive and the negative aspects of the mobile fluency development project). Overall, most students (65%) reported that they noticeably increased their speaking fluency thanks to the weekly speaking assignments. The following examples from 1 to 5 illustrate this point:

Example 1. At first, I couldn't even speak at all, but now I can speak easily and fluently. I can create a sentence in English easily. It helped me improve my speaking skills.

Example 2. This activity improved my speaking skills. I don't pause too long anymore when I speak. Also, I now pause less than in the past.

Example 3. I think mobile fluency development project improved my speaking skills because when I did it for the first time I used to have a lot of "uhms" and day by day I learned to speak quickly.

Example 4. In my room in the dorm, nobody can speak English. So, expressing myself in English weekly was very effective in developing my speaking skills.

Example 5. In the first time, I was thinking in Turkish in my head but later on I felt more comfortable and I could even make accent. Now, I can speak fluently when I record myself.

Apart from the impact on overall speaking fluency, several students (18%) also mentioned that their self-esteem and self-confidence increased as a result of the weekly oral production. In addition, some students (23%) commented that the mobile fluency development assignments helped to decrease the level of embarrassment and anxiety they felt when speaking in English. Examples 6-9 reveal these points:

Example 6. It has been quite effective for me because it makes me feel more comfortable and self-confident when speaking.

Example 7. It helped me gain self-esteem. As time passed, I realized that I developed myself a lot day by day.

Example 8. I think it affected me positively. I believe I speak in a more relax way than before.

Example 9. I was very shy to speak at first. But now, I can voice my opinions easily and express my feelings very well. I can choose my words or sentences quickly.

When it comes to the challenges and drawbacks of the weekly oral production carried out using mobile devices, several students (36%) reported that they had difficulty primarily in pronouncing words properly while recording a speech, and in using or remembering the correct words and phrases to express their opinions effectively.

Example 10. Sometimes I forgot what I would say. So I had to stop the recording and do it again.

Example 11. In some cases, I could remember the meaning of the word but couldn't say it in the speech.

Example 12. When I was doing the mobile fluency development assignments, I was very nervous, and I sometimes couldn't pronounce some words neatly. When I checked my recording, I could notice it. So, I had to record my voice again and again.

Example 13. My biggest issue was pronunciation. I usually looked up the pronunciation of the words from the dictionary.

Aside from the hardship associated with the nature of the weekly voice recordings, a few students (13%) also raised issues regarding the technical aspects of mobile devices such as low battery problems while recording, or Internet connection problems while uploading the audio files to the CMS. Despite these challenges, a great majority (86%) of the students reported having enjoyed this extensive fluency project sustained using mobile devices and that they would like to continue to further their speaking skills by making use of mobile devices in the future.

Discussion

In this study, the primary purpose was to investigate the effectiveness of the use of voice recordings in the development of speaking fluency among a group of college-level EFL students. In so doing, the study made use of three mobility aspects of mobile learning (Pegrum, 2019) in that the use devices (i.e., smartphones a0nd tablets) were mobile, the students were also mobile that they would not get stuck in a particular place (e.g., dorm room or library) and instead they could practice the target language anywhere they wanted. Additionally, the language learning experiences were also mobile in that the EFL students shared their perceptions of and experiences with the out-of-class speaking practice and reflected on their experiences.

Regarding the first research question, the results showed that the EFL students made significant progress in their speaking fluency over the two-semester period. More specifically, the students, on average, managed to increase their fluency from 57 wpm in the first speaking journal to 90 wpm in the final recording. In other words, there was an increase of 33 wpm, which indicates an almost 60% improvement in fluency. These findings are largely consistent with those of Larson-Hall (2016), in which the fluency awareness activities (e.g., speaking line activity, voice recording) resulted in an approximately 60% increase in the fluency of Japanese learners of English over the course of one year. Similarly, in a Korean EFL context, Yoon (2015) reported an almost 28% increase in overall speaking development in terms of fluency, accuracy, suprasegmental and segmental features by the end of a semester-long voice journal treatment. In looking more closely at the fluency development of the Korean EFL students, Yoon found a 30% improvement from the first to the last voice recordings.

It is important to note here that the significant improvement in speaking fluency in the current study might be due to the in-class speaking instruction they received during the 28-week program. In other words, it might be common sense to assume that students will improve their speaking fluency over a year-long course. However, although the students involved in the current study exhibited substantial improvement in their fluency, they did not make the similar progress in the accuracy of their speech, in that there were various grammatical and syntactical issues even in their final voice recordings. In fact, as Larson-Hall (2016)

argued, students will not exhibit significant gains in speech fluency by merely being exposed to the target language, it is also necessary for them to receive specific practice with regard to fluency. As a matter of fact, the large effect size (d = 1.76; Cohen 1988) for the difference between the initial and final fluency performances suggests that the mobile fluency development project played a major role in the development of speaking fluency.

In discussing students' perspectives, they perceived the weekly smartphone-implemented speaking journals positively, and mostly reported observing a gradual yet significant personal development in their speaking fluency. For example, several students noticed the remarkable decrease in the number of pauses and hesitations (e.g. 'uhms') they exhibited while speaking. Moreover, compared to their previous attitude towards speaking in English outside the classroom, students largely reported developing a feeling of comfort as they continued to produce oral output in any convenient place (e.g., at a café or bank on campus, in the dorm room etc.), which definitely promoted their self-confidence and self-esteem. Of course, this mobile fluency development project was not without its challenges. Since this project was one of the course requirements, the students might have initially felt that they were being forced to leave their comfort-zone by being required to practice orally outside the classroom.

Furthermore, it might be surprising to note here that they had had no such prior experiences with recording their speech in the target language, and they reported that they occasionally forgot what to say while recording, and thus had to record again and again. One participant admitted recording his speech more than 10 times until he was satisfied with his performance. The recording and deleting power of mobile devices here enabled immediate self-feedback. The proper pronunciations of the words and phrases to use in the speech were other challenging aspects of speaking journals. These findings largely corroborate the findings of Grimshaw and Cardoso (2018), who found that playing a collaborative game on mobile phones was effective in decreasing communication anxiety by creating a comfortable environment which was more conducive to the production of oral output, and to practicing pronunciation. This, in turn, helped to increase the willingness to communicate, even if the communication was on a small screen.

Limitations and Suggestions

Unfortunately, there are a number of limitations with regard to this study, and thus the findings should be interpreted with caution. The first limitation pertains to the lack of a control group in the present study to show whether or not the increase in fluency score was due to the mobile fluency development project or just the in-class speaking activities. Therefore, future studies might consider using a combination of fluency measures and also include a control group to yield more reliable results. The second limitation is related to the fluency measure used in the current study. Studies that investigate fluency often use more than one measure such as pause length and frequency, mean length of runs, phonation/time ration, and others (Kormos & Dénes, 2004; Wood, 2001) in order to measure fluency as reliably and thoroughly as possible. However, a single and basic fluency measure (i.e., words uttered per minute) was preferred in this study for several reasons. First, such a measure was needed for better understanding and interpretation on the part of the students, because the preliminary results of the study were shared with them so that they could be aware of their own fluency development and be more motivated to continue improving their overall speaking ability. Also, taking this study as an example, other teachers and educators who are not very familiar with fluency research might want to make use of this mobile fluency development project to boost their students' fluency using mobile technologies.

Conclusion

Notwithstanding the above-mentioned limitations, this study offers valuable insights into the efficacy of the implementation of mobile devices in language learning. Given the important role of practice in language learning (DeKeyser, 2007), and the limited target language exposure and production in EFL settings (Ortega, 2013), the three mobilities framework (Pegrum, 2019) can be utilized as a valuable resource. In fact, the first level of the framework, mobile devices, in particular smartphones, has been reported to create meaningful language learning opportunities such as helping language learners gain language exposure and scaffolding their language skills (Rezaee et al., 2019; Klimova, 2018; Wrigglesworth & Harvor, 2018).

This study, adding to this growing body of research, suggests that mobile learning can provide English language learners with ample opportunities to produce oral output to encourage oral fluency development in the context of EFL. Furthermore, although this study exemplifies the use of mobile devices in producing private speech or self-talk, which is also considered as a potent way of ensuring language development (McCafferty, 1994), mobile devices offer other opportunities which are in parallel with the second and third levels of the mobility framework (i.e., mobile learners and mobile language learning experiences). For instance, more

communicative and collaborative language learning activities can be undertaken asynchronously using mobile applications such as *VoiceThread* (Kim, 2014) or synchronously using video-conferencing tools (e.g., *ZOOM*, *Skype;* Lenkaitis, 2020) and mobile games (Grimshaw & Cardoso, 2018).

As a comprehensive foray into the development of oral fluency in EFL settings, the current study sheds a bright light on the use of mobile learning as a method of boosting fluency. An appropriate and long-term use of voice recordings can improve oral fluency, to a great extent, simply because it creates opportunities for oral output, which is much needed in EFL settings. Nonetheless, receiving voice recordings from the students each week and providing feedback on each oral output might place a heavy burden on the shoulders of teachers. Therefore, teachers who wish to employ this mobile fluency development project in their classrooms may want to provide intermittent feedback on students' oral production to alleviate the weekly workload. Thanks to the advances in digital technology, the Internet and the introduction of new mobile applications, the distinction between ESL and EFL settings has actually become blurred. Now, practicing oral skills by talking to oneself, as in this study, or talking to peers or native English speakers, rests at the fingertips of language learners.

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Appendix

A Survey on the mobile fluency development project

1. Age: _____

2. Gender: _____

3. What kinds of devices did you use when doing the mobile fluency development assignments (e.g., 70% smartphone + 20% laptop +10% tablet)?

    a. Smartphone _____

    b. Laptop_____

    c. Tablet_____

    d. Other_____

4. On average, how many trials did you take when doing the mobile fluency development assignments (e.g., 2 trials)?

5. On average, how much time did you spend when doing the mobile fluency development assignments (e.g., 30 minutes)?

6. How effective do you think this project has been for developing your speaking skills?

7. What kinds of issues have you had when doing the mobile fluency development assignments?

8. Would you like to continue to use this project in the future? ☐ Yes ☐ No ☐ Not sure__