Iranian female students’ perceptions of the impact of mobile-assisted instruction on their English speaking skill

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Abstract: The study aimed at investigating the impacts of mobile-assisted instruction on improving Iranian female EFL learners’ speaking skill and exploring their perceptions of the experience. Random sampling was applied to select 90 female students at the Zand Higher Education Institute in Shiraz, Iran. Their ages ranged from 18 to 24. They were randomly assigned to one control and two experimental groups. The control group was subjected to traditional instruction and the experimental ones were subjected to mobile-assisted instruction on their course-related contents through Voice Thread and Twitter as their out-of-class activities for three months. The needed data were collected using speaking papers of the Preliminary English Test and an interview. A paired samples t-test and one-way ANOVA were used to compare the performances of the participants in the speaking pre- and post-tests. Findings revealed mobile-assisted instruction played a prominent role in improving learners’ speaking skill. The interview results showed the majority of the participants (71.25%) had positive attitudes toward mobile learning. This study provided experimental evidence that both Voice Thread and

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PUBLIC INTEREST STATEMENT

What goes on inside and outside of the classroom is very important to successful foreign language learning. In EFL contexts, since learners have hard access to native speakers of English and authentic materials, they, therefore, encounter many problems in practicing English speaking skill. An effective educational environment can create the atmosphere in which both language students and educators enjoy language learning procedure. Thus, the current study aimed to investigate the integration of technology through the use of mobile applications into EFL learning/teaching environment to provide more affordances for authentic and meaningful use of English than are available in traditional classrooms. Based on the results, the mobile-assisted environment provided the opportunity for the students to practice English speaking in a place where lessons were available in both speech and text, and they had access to a full variety of available high-quality websites helping them with their speaking skill very efficiently.
Twitter could be used as educational tools to help the students of English as a foreign language to improve their speaking skill.

Subject: Educational Research; Education Studies; Information Technology

Keywords: Mobile-assisted instruction; perception; speaking skill; twitter; voice thread

1. Introduction
Over the past two decades, mobile devices have moderately been introduced into educational contexts. As reviewed by Sung, Chang, and Liu (2016), the usage of handhelds in educational contexts was more effective compared to laptops because of the distinctive features of mobile devices, such as instant access to information, individualized interfaces, and immediate communication and feedback. According to Yuniarti (2014), the technology helped English foreign language (EFL) teachers and learners by making resources reusable and available instantly and cutting down feedback time.

Mobile devices also increase the impacts of individual pedagogies like inquiry learning and self-reliant learning (Yuniariti, 2014). Furthermore, these devices provide opportunities for learners to use language meaningfully and authentically without being limited to place and time (Hsu, Hwang, & Chang, 2013). These affordances have persuaded a number of EFL teachers and students to appraise mobile devices as effective tools and integrate mobile learning into their learning strategy. English institutes have also shown growing interest in the implementation of mobile learning in their curricula.

In spite of these affordances, some scholars have criticized the implication of mobile phones in educational environments. For example, Dashtestani (2016) stated most EFL students do not use their mobile phones for academic purposes, so their teachers do not allow them to use the devices in the class. Ally (2013) argued many people had negative attitudes toward the use of mobile phones in EFL learning contexts because they thought the technology caused a distraction.

1.1. Statement of the problem
Some teachers, the researcher among them, believe what goes on inside and outside of the classroom is very important to successful foreign language learning. As Richards (2014) argued, “while language teaching has always been seen as a preparation for out-of-class uses of language, much of the focus in language teaching in the past has typically been on classroom-based language learning” (p. 1). Yet, the available affordances consisting of a restricted range of literacy and discourse practices are hence limited in the classroom-based language learning. As a result, EFL learners encounter many problems in practicing English speaking skill.

In EFL contexts like Iran, language learners have hard access to native speakers of English and authentic materials, and many English institutes are not equipped with language laboratories either. Another challenge is the short amount of time given to EFL students to practice speaking in large class sizes (Suzanzan & Bagheri, 2017). Due to these challenges, there is a gap between students’ current speaking capabilities and the expected ones, which leads to both EFL teachers and students’ dissatisfaction with their language teaching/learning processes.

To overcome these challenges and minimize language learning barriers, Kompan, Edirisingha, Canaleta, Alsina, and Monguet (2019) insisted that teachers and learners seek novel ways to use technological tools to improve language learning environments and ultimately enhance both the quality of teachers’ instruction and active role of students in language learning processes. How to integrate technology into language teaching/learning is still an unresolved problem (Kolomieets & Guryeyeva, 2018). The next problem, regarding a large number of these tech tools which can be applied to provide more affordances for authentic and meaningful use
of English, if used effectively, is which of these tools can assist learners to overcome the difficulties of learning a foreign language. Since if these problems are not scrutinized thoroughly, teachers may wrongly recommend solutions which are not matched students’ learning problems, the new utilization of these tools requires further investigation (Ravenscroft, Warburton, Hatzipangos, & Conole, 2012).

So far, these issues have been little scrutinized within the mobile-assisted instruction context, particularly in Iran. Thus, this research was designed to introduce mobile-assisted language learning through the use of two mobile applications (Voice Thread and Twitter) as a transitional step for practicing English speaking in Iran—moving away from classroom-based language learning/teaching and toward mobile-assisted language learning/teaching.

In addition, since learners’ perceptions of their learning experience affect their performances, the investigation of their perceptions is worthwhile. Hence, this paper was also designed to explore the participants’ perceptions of mobile-assisted language learning experience.

1.2. Significance of the study
The results of the present study may encourage EFL teachers to try using mobile applications, which are not originally considered as educational tools (Millard, 2010), as some additional resources inside and outside of the classroom. According to Dugartsyrenova and Sardegna (2017), mobile applications can assist language learners to improve their speaking skill, develop the process of reflection, and enhance their creativity and self-evaluation by providing them with extra time and resources to plan their learning procedures independently.

In Iran, many schools do not have language laboratories; therefore, the integration of mobile learning into EFL teaching/learning could also provide additional resources for the school systems to help EFL learners to practice this vital English skill (i.e., speaking skill) by interacting with people, especially with native English speakers. Moreover, the investigation of students’ perceptions provides better insights for EFL teachers and curriculum developers regarding the ways to promote students’ oral proficiency.

2. Literature review
2.1. Mobile-assisted language learning (MALL)
According to Young (2012), questions posed by students supply teachers’ immediate feedback and shape how the class session materials are offered in a face-to-face instruction. Some students find face-to-face classes specifically intriguing because they can talk to their teacher and get instant responses to their questions or concerns. The major disadvantage of face-to-face teaching is that it is bound to a specific time and space (Young, 2012). This limitation might result in students’ losing the opportunity of interacting with both teachers and peers once they leave the class. This issue cannot be simply ignored at the age of communications technology when mobile devices are added each day to enhance collaborative learning (Jaldemark, Hrastinski, Olofsson, & Oberg, 2018).

Pachler, Ranieri, Manca, and Cook (2012) explored educational perspectives on the use of mobile devices and concluded that these devices can help both teachers and students to overcome the limitations of face-to-face learning by increasing access to learning materials.

Sun et al. (2017) integrated a mobile social networking site into EFL classes in China to investigate the effects of MALL on learners’ speaking skill. They found that speaking skill was improved in both experimental and control groups from pre-test to post-test; however, the gains by the experimental group using mobile devices were significantly larger than those of the control group because MALL eliminated geographic boundaries and provided collaborative learning environments in which students had access to a wide variety of learning resources. Additionally, MALL
assisted students to improve their speaking by increasing flexibility and giving freedom feelings to
them.

Rosell-Aguilar (2018) conducted a large-scale survey to investigate the attitudes of 4095 learners
toward MALL. The participants’ responses to an online questionnaire with 30 items indicated that they
found mobile devices as reliable tools which assisted them to enhance their language knowledge.

2.2. EFL students’ struggles in MALL

Although existing research demonstrates the advantages of MALL, Zhang, Song, and Bruston
(2011) concluded that using mobile phones caused distractions and forgetting. They investigated
the effects of MALL on students’ vocabulary learning. 78 Chinese students from two classes were
selected as the participants of the study and assigned to two control and experimental groups. The
control group was subjected to MALL and the experimental group was subjected to paper-based
instruction. The MALL group worked on lists of vocabulary through mobile phone SMS service while
the control group studied the same lists via paper materials. Results demonstrated that there was
no significant difference between two groups.

Similarly, Hayati, Jalilfar, and Mashhadi (2013) indicated that using mobile devices may lead
teachers to take a passive role in the classroom, and teacher-based interaction is better and more
effective than MALL. Lai and Zheng (2018) interviewed 18 university students in Hong Kong to find
out their perceptions of using mobile phones to learn English. Results indicated that the use of
mobile phones mostly facilitated learning, though it did not improve the participants’ authenticity
and social interactions.

Lim and Lee (2015) investigated the effects of two modes of task performance (face-to-face and
mobile-assisted) on sixteen Korean EFL students’ interactions. The participants preferred face-to-
face mode because it provided them more meaningful negotiations. The researchers found signs
of a struggle among the learners using mobile devices to improve their speaking skill. They pointed
out the learners depended on nonverbal information existing in the sounds and images posted to
them so heavily that they were not able to develop their verbal skill. The learners have been further
aggravated due to inconvenience in practicing English on the small screens of their mobile phones.

Along the same vein, Stockwell and Hubbard (2013) addressed a serious concern—“psycho-social
challenges”—among EFL students in MALL settings. Arguing that EFL students encountering
“psycho-social challenges” believe that mobile phones have been developed for the purpose of
entertaining and socializing rather than learning a foreign language, the researchers concluded
positive features of mobile phones do not necessarily guarantee successful EFL learning.

2.3. Voice thread (VT)

Voice Thread (VT) is “an interactive, multimedia presentation technology that allows users to
hold conversations around images, documents, videos, and audio” (Dunn, 2012, p. 79). Dunn
(2012) added VT is a very flexible Web 2.0 technology which can accommodate a wide variety of
practicing activities and learners’ needs. He conducted a quasi-experimental study to investigate
the impacts of using VT on students’ oral skill. The control group used language laboratory and the
experimental one used VT for practicing speaking. The results of MANOVA showed the VT group
outperformed the control one in their oral proficiency. The participants of the VT group reported
that VT gave them the opportunity to repeatedly record their voices and later listen to their
recordings. As a result, they were able to practice speaking as many times as they wished and
ultimately to improve their speaking skill.

In the same vein, Pontese and Shimamuzi (2014) selected VT to improve students’ speaking skill.
The participants recorded and posted their voices, and “they would revisit their work either
corresponding grammar (accuracy), vocabulary (lexical appropriacy), or pronunciation (prosodic
feature), leading to their linguistic development” (Pontese & Shimamuzi, 2014, p. 181). The technology allowed the students to post comments in English around images, sound and video clips, and questions posted by the teacher. The comments they received from their teacher improved their confidence and made them feel validated.

In an investigation into the effects of VT on students’ English speaking skill, Dugartsyrenova and Sardegna (2017) integrated VT activities into face-to-face instruction. The participants stated that VT helped them to develop their speaking skill by providing them with extra time and resources to plan their learning procedures independently. They reported the most helpful features of VT were its record and playback which assisted them to improve their language skills, develop the process of reflection, and enhance their creativity and self-evaluation. However, they did not consider the application as a proper substitute for face-to-face communication, as their use of VT was significantly affected by their preferences for English learning tasks.

Delmas (2017) explored the role of VT in creating an online community for 39 U.S. adult learners. The participants reported they felt more connected to their peers because VT assisted them to record their voices and add the recordings to the online tasks. While they were listening to their teacher’s voice recordings through VT, this application made the teacher seem real, so students felt more connected to their teacher. Since VT had privacy controls, comment moderation, and a system of identities which allowed all the students in the class to work within one account, it was of great help for getting students use and develop their speaking skill in a fun and creative way (Richards, 2014). They valued the application as a helpful and enjoyable tool in language learning processes.

Unlike, Ebadi and Asakereh (2018) conducted a case study in Iran and concluded that VT was not helpful. They divided the students into two experimental and control groups. The control group conducted face-to-face speaking activities while the experimental group performed both face-to-face and online activities through VT. Results indicated that the experimental group could not outperform the control one in their speaking skill even though the experimental group participants’ responses to a semi-structured interview revealed they appreciated the experience.

2.4. Twitter
Since 2009, Twitter has been introduced as a language teaching/learning tool. Antenos-Conforti (2009) pointed out that Twitter can create a sense of community in which learners participate in language learning procedure willingly.

Junco, Heiberger, and Loken (2011) investigated the effects of Twitter on college students’ engagement and grades. The ANOVA results showed that the experimental group’s engagement was significantly increased, and they had higher semester grade point averages after using the application.

Along the same line, Lomicka and Lord (2011) proposed that learners using Twitter learn and share information in a collaborative learning environment. Their findings revealed that participants greatly appreciated communicating and sharing information in the active community.

Hattem (2014) conducted a case study and used Twitter to improve the grammatical competence of the participants. Retweet feature of Twitter provided the teacher with the opportunity to give the students corrective feedback in an advanced grammar class. Discourse analysis of the students’ tweets revealed they could perceive mistakes, positive feedback, and corrections. Later, they accurately produced and monitored complex grammar in their tweets. The researcher detected the existence of negotiation of meaning among the participants practicing grammar by using Twitter. Some other researchers also argued Twitter developed interactions among learners (Castrillo de Larreta-Azelaic, 2015; Kim, Park, & Baek, 2011).

Fouz-Gonzales and Mompean (2016) used pre- and post-tests interviews to investigate the effects of Twitter on students’ pronunciation. The participants were selected from a language
school in Spain. During the treatment, the researchers sent the students a number of tweets including the pronunciations of problematic words and asked them to listen to audio and video files. Results revealed that the treatment had positive effects on students’ pronunciation since they paid more attention to stressed syllables which were always problematic for them. Interestingly, it was found that participants were actively engaged during the experience.

As the existing research demonstrates, mobile devices have been introduced as ideal learning tools for EFL learners because of their three distinctive features: Mobility, accessibility, and connectivity. Research has demonstrated MALL, when used appropriately, creates the collaborative environment in which language learners have multimedia interaction opportunities to develop their pronunciation, speaking and communication skills. The integration of MALL in EFL classrooms helps both learners and instructors to overcome the limitations of traditional language instruction by increasing access to various useful learning materials as well as interacting with their teachers and classmates using English.

2.5. Purpose of the study
In an EFL context like Iran, teachers who want to provide efficient lessons encounter various challenges, such as insufficient teaching materials and large class sizes (Suzanzan & Bagheri, 2017). To overcome the challenges, they can take advantage of new technologies such as mobile applications to enhance both the quality of their instruction and the active role of their students in EFL learning processes. The problem is how students can make use of these applications to enhance their language skills, particularly their verbal skill. Moreover, regarding a large number of mobile applications that can be used in language teaching and learning, the next question of the present research is which of the applications can assist learners to overcome the difficulties of learning a foreign language. Hence, this study scrutinizes how EFL teachers can motivate their students to use their mobile devices to improve their communicative use of English.

As Pufahl and Rhodes (2011) proposed, with regard to the application of synchronous and asynchronous technologies in order to improve students’ productive skills (i.e., speaking and writing), more research is required. Because most of the Web 2.0 technologies were originally designed to be employed for sharing information and processing data, they were not considered as educational tools (Millard, 2010). In the literature, therefore, few studies have been carried out on how they can be used in teaching/learning environments. As a result, this study fills a clear gap.

Based on the pieces of the evidence mentioned above, the questions which are raised in this study are as follows:

(1) Is there any significant difference between the speaking skill of Iranian female EFL students exposed to mobile-assisted instruction and the speaking skill of those exposed to traditional instruction?

(2) Which of the mobile applications, VT or Twitter is more efficient to improve Iranian female EFL learners' speaking skill?

(3) What are the opinions of Iranian female EFL learners about MALL, in general, and the use of mobile applications, in particular, for improving their speaking skills?

3. Methodology
3.1. Design
This mixed-methods study was designed by incorporating both quantitative and qualitative modes, which indicates that a part of the data is collected quantitatively, and a qualitative method is followed to gather additional data (Johnston & Christensen, 2004). Mixed-methods research assists readers to gain a broader, deeper understanding of the study, increase confidence in the results, enhance completeness and accuracy, and finally contribute to overall validity (McKim, 2017). The
quantitative part had a true experimental design; that is, it enjoyed all the characteristics of a true experimental research, such as randomization, pre- and post-tests, control and experimental groups, and treatment. The qualitative part was done through an interview at the end of the instruction. In mixed-methods studies, the qualitative part is of secondary importance as it is often applied to supply additional clarification (Dornyei, 2007).

3.2. Participants and setting
A total of 110 EFL sophomore students majoring in English translation at the Zand Higher Education Institute in Shiraz, Iran, participated in the study. All the participants were female because only female students were conveniently available to participate in the study, which can be considered as one of the limitations of the study. They were selected based on random sampling. This sampling was employed because they were supposed to be at the same level. They were aged from 18 to 24 (M = 20.58; SD = 2.23) and were native Persian speakers with minimum opportunity to communicate with English native speakers. They had been studying English for approximately six years at school. In order to observe the ethical issues, the purpose of the research was explained to them, so they participated in the study voluntarily. To measure their level of proficiency, an internet-based test (iBT)—which is a current test form of TOEFL—was given to the group. The researchers selected 90 participants whose scores were one standard deviation (SD) less than or greater the mean on the normal distribution curve as the target sample of the study. The majority of the participants held high school diploma degrees. Only five (5.55%) held bachelor's degrees in different fields of study, such as psychology, accounting, and management. Eight students (8.88%) enrolled in other language institutes before coming to the Zand Higher Education Institute. Most of the students (93%) were locals but some (7%) were from other cities and were living in the dormitory.

The speaking test of the Preliminary English Test (PET) provided by Cambridge English Language Assessment was given to them (M = 14.15; SD = 0.83), and the results of one-way ANOVA showed that they were homogeneous in their speaking ability before the treatment. Then, they were randomly assigned to one control and two experimental groups. These three groups included the Control group (n=30), VT group (n=30), and Twitter group (n=30).

The researcher works as a teacher at the Zand Higher Education Institute. Her role was presented by teaching the participants of both control and experimental groups. She also interviewed the participants in the experimental groups. All the participants were her students in the 2018-2019 fall academic year.

3.3. Instruments
To collect quantitative and qualitative data and to provide proper answers to the previously mentioned research questions, two different instruments were used in this study. The speaking tests of two parallel versions of the Preliminary English Test (PET) provided by Cambridge English Language Assessment were used as the pre- and post-tests to differentiate the participants’ performances before and after the treatment. Each pre-test and post-test, which took about 10–12 minutes for each student, showed how good the subject's spoken English was in making conversation. There were three parts to the tests: General introductions, discussion about a photograph, and discussion about a topic. Using PET as the pre- and post-tests in the current study had the following advantages: First, there are parallel forms of the test which are readily available. Second, the assessment criteria and scale are accessible and well-defined; therefore, the chance of examiner’s being biased or subjective is the least. Finally, Cambridge examinations are all designed around validity, reliability, impact, and practicality. For this study, to ensure inter-reliability of the pre-test, a second trained and experienced assessor listened to the recorded voices once more and scored them according to the PET speaking scale as the first rater (i.e., the researcher) did. Next, the Pearson
correlation was obtained. The high index of inter-rater reliability ($r = 0.98$) indicated that the two raters gave consistent estimates of the participants' speaking scores.

The second instrument was a semi-structured interview that was researcher-made. Based on the literature review and what the researcher expected to ask (Lindlof & Taylor, 2002), she formulated the interview questions in advance. The interview was used to elicit information about the students' attitudes toward mobile learning and the use of mobile applications for improving their speaking skill. To ensure the relevance of the questions to the construct being studied, three professors of the field were asked to validate the questions. They were asked to determine whether they were relevant regarding the research questions. They were also asked to write some comments about them. The experts' comments helped the researcher to reconstruct, eliminate and reword some questions. It included 5 questions allowing the interviewees to show their opinions freely. Necessary explanations were provided in order to remove the ambiguity involved. The interview was conducted through a face-to-face conversation in English after the treatment.

3.4. Data collection procedures

First, the participants of the study were randomly sampled from available sophomore female students majoring in English translation at the Zand Higher Education Institute in Shiraz, Iran. The speaking test of the PET was conducted as the pre-test to find out if all the participants were homogeneous before the treatment and to compare their performances before and after the treatment. For the pre-test, which took about 10–12 minutes, the participants in both control and experimental groups were examined one by one in the class by their teacher who was the researcher. The test had three parts. For the first part, they were first asked to introduce themselves and talk about their family, hobbies, likes, and dislikes. For the second part, they were given two pictures of Paris and Toronto, and were asked to look at the pictures for 5 minutes and describe them. For the last part, they were asked to discuss which city or country they would prefer to visit. All their audio responses were recorded by the teacher. After the pre-test, the students were randomly divided into one control and two experimental groups. Before the treatment, the teacher introduced the experimental groups the applications and the ways they could be used thoroughly. In class, they watched YouTube videos such as https://youtu.be/ypyXRqedG6s and https://youtu.be/5jWNpLvdocU and learned how to download and make their own accounts on VT or Twitter. Afterward, the teacher started the treatment for three months. She adopted traditional instruction to teach all the participants in the control and experimental groups their routine lessons in the classroom for 1 hour per week. However, they followed different activities out of class. The students in the control group did the activities presented in ACT Series books, while the participants in the experimental groups were subjected to VT or Twitter to do their out-of-class activities. For the control group, the teacher asked the students to do the activities presented in four sections in each unit: Communication Spotlight, Conversation Close-Up, Speaking Target, and Real-Life Snapshot. These speaking activities include several conversations which incorporate vocabulary, structures, and useful expressions from each unit in a natural dialog about the theme of the unit. The main objective of doing these speaking activities is to help the students to speak as naturally as possible. For the first experimental group, the teacher selected the topics from ACT Series book by the students' course content for that week, uploaded some pictures and sound clips related to the topics, and sent them to the students’ accounts on VT. For the second experimental group, she uploaded pictures and videos related to the topics of their weekly course content and sent them to the students’ accounts on Twitter. Next, she asked them to download, watch, and listen to her recommended pictures, audio, and video posts. Then, she asked them to record and post their English comments about her posts via the application. The teacher posted her comments on their production via the application. Then, they listened to their teacher’s comments on the application. Later, they recorded different versions based on the teacher’s comments on the application and posted to the teacher. In class, all the participants in both control and experimental groups were asked to give an oral presentation of what they did out of class every
session. The teacher gave all the participants the required feedback. She also told them what they were doing more differently than before. The strategies included pinpointing, caring, providing an example answer, and rephrasing. Figure 1 illustrates the learning cycle.

Having done the treatment in about three months, the teacher gave them the post-test, i.e., the parallel version of the PET, to investigate the impact of the treatment on the experimental and control groups. It was taken with the same procedures and under the same condition as the pre-test. Similarly, the post-test had three parts: General introductions, discussion about a photograph, and discussion about a topic. For the post-test, the teacher selected holiday as the topic for discussion and asked the participants to describe two pictures related to the topic and talk about their last holiday. All the responses were recorded by the teacher.

For the scoring procedure for both tests, the teacher herself listened to the recorded responses and scored them by applying performance descriptors from the Analytical Speaking Test Assessment scale of the PET test provided by Cambridge English Language Assessment. The grading rubrics rated the participants from 1 (minimal proficiency) to 5 (superior proficiency) for the following criteria: 1) grammar and vocabulary, 2) discourse management, 3) pronunciation, and 4) interactive communication. For instance, if a participant was scored 1 on the descriptor of grammar and vocabulary, the score could show that the participant had insufficient mastery of simple grammatical forms and used limited vocabulary to discuss the assigned topic. The scale also offered a conversation chart to assist the teacher to convert the participant’s performance on the pre- and post-tests into a numerical score. The scores could show whether the participant had the ability to achieve the standards of oral proficiency. The participants’ scores could range from 4 to 20.

As the final step, the teacher interviewed the students in the experimental groups to identify their perceptions of the mobile applications that they used during the treatment. The interview was conducted through a face-to-face conversation in English in the classroom after the treatment. The interview took about 5–10 minutes and the students were interviewed one by one. They were asked to answer the following questions:

1. Did you find mobile applications useful and tend to employ them when learning English?
2. Did you recognize the positive effects of mobile applications on your studies?

Figure 1. Students’ learning cycle (Rogers, 2002, p. 112).
(3) Will you instead have mobile-assisted instruction?
(4) Are you experienced and reassured enough to employ mobile applications to learn English by yourself in the future?
(5) Will you use mobile applications like VT and Twitter to enhance your verbal skill?

The participants’ answers were recorded, transcribed, and coded. By the participants’ comments, their positive, negative, and uncertain answers were coded by converting them into Agree, Disagree, and Undecided. The item Agree showed the participants were in favor of using MALL. Disagree implied they were against MALL. In some cases, the participants had no idea of using MALL. They answered conservatively or even did not answer at all. In case the researcher could not decide whether they agreed or disagreed, she coded these answers as Undecided. The researcher allowed the interviewees to reveal their viewpoints freely.

3.5. Data analysis procedures

In the process of quantitative analysis, to ensure inter-reliability of the pre-test, a second trained and experienced assessor listened to the recorded voices once more and scored them according to the PET speaking scale as the first rater (i.e., the researcher) did. Next, the Pearson correlation was obtained. To see if all the participants in three groups were at the same level in terms of speaking ability before the treatment, a one-way ANOVA was run. After the treatment, a paired samples t-test was run to see if there had been any significant difference in speaking performances of all groups in the pre- and post-tests. Then, the participants’ gain scores were calculated to determine the degree of improvement in speaking. The statistical procedures involved a one-way ANOVA followed by a Scheffe test. The one-way ANOVA was employed to determine the possible effect of both traditional and mobile-assisted instructions on the participants’ gain scores in speaking test. To see where exactly the area of difference was, the Scheffe was employed. To analyze the data of the qualitative part, the number of Agree, Disagree, and Undecided responses was counted. The data of the qualitative part were presented in the form of frequencies and percentages in order to obtain a better interpretation of the qualitative data, a clear understanding of the phenomenon, and finally a logical degree of validity in conducting the research (Dornyei, 2007). To make the data easy for implementation, the data gathered through the pre-and post-tests and the interview were tabulated. The SPSS software version 22 was used to conduct all the statistical procedures.

4. Results

4.1. Results before the treatment

The speaking test of the PET was conducted and the participants’ recorded voices were scored by the teacher (Rater 1) according to the PET speaking scale. To ensure inter-reliability of the PET, a second trained and experienced assessor (Rater 2) listened to the recorded voices once more and scored them as Rater 1 did. The descriptive statistics of both tests graded by the two raters were presented in Table 1.

Next, the Pearson correlation was obtained. As shown in Table 2, the high index of inter-rater reliability (r = 0.98) indicates two raters gave consistent estimates of the participants’ speaking scores in the PET.

The results of one-way ANOVA in Table 3 show that the significance level is 0.24 for speaking, which is higher than 0.05. Therefore, it can be concluded that there was no significant difference among groups in their speaking skill before the treatment (p > 0.05).

| Table 1. Descriptive statistics of the PET graded by rater 1 and rater 2 |
|------------------|----------|-------------|----------|-------|------|
| Rater | N | Minimum | Maximum | Mean | Std. Deviation |
| 1 | 90 | 13.00 | 15.50 | 14.155 | 0.833 |
| 2 | 90 | 13.50 | 16.00 | 14.200 | 0.850 |
4.2. Results for research question one

To respond to the first research question of the study, the researcher tried to find out if there is any significant difference between the speaking skill of Iranian female EFL students subjected to mobile-assisted instruction and the speaking skill of those subjected to traditional instruction. To compare the participants’ speaking performances in the pre- and post-tests and to investigate the effect of the treatment on their speaking skill, a paired samples t-test was run with the results presented in Table 4 (p > 0.05).

As reported in Table 4, the significance level for all groups is 0.000. So, it can be concluded there is a significant difference in the participants’ speaking performances in both tests for all groups. This result shows the instruction has been effective for all groups, and they performed better in the post-test.

The scores gained by the participants through speaking tests in all groups were collected and compared to see if there was any significant difference both between the control and experimental groups and among the experimental groups. To achieve this goal, a one-way ANOVA was run on their speaking gain scores (Table 5).

As indicated in Table 5, the significance level for speaking is less than 0.05, suggesting that there was a significant difference among groups in their obtained speaking scores (p < 0.05).

4.3. Results for research question two

The second research question addresses which of the mobile applications, VT or Twitter, is more efficient to improve the speaking skill of Iranian female EFL learners. To discover precisely the area of difference, a Scheffe test was performed (Table 6).

According to Table 6, both experimental groups outperformed the control one, suggesting the effectiveness of the treatments. The comparison of the control group with experimental groups showed the VT group had the highest performance, followed by the Twitter group and the control group.
Table 4. Paired samples t-test to compare the performances of the participants’ speaking scores in the pre- and post-tests

| Paired Differences          | Mean | Std. Deviation | Std. Error | Interval of the Difference | t     | df. | Sig. (2-tailed) |
|-----------------------------|------|----------------|------------|---------------------------|-------|-----|----------------|
| Pre-voice                   |      |                |            |                           |       |     |                |
| Pair 1                      |      |                |            |                           |       |     |                |
| Post-voice                  |      |                |            |                           |       |     |                |
| Pre-twitter                 |      |                |            |                           |       |     |                |
| Pair 2                      |      |                |            |                           |       |     |                |
| Post-twitter                |      |                |            |                           |       |     |                |
| Pre-control                 |      |                |            |                           |       |     |                |
| Pair 3                      |      |                |            |                           |       |     |                |

**Note:** Table 4 details the comparison of speaking scores between the pre- and post-tests for different groups, using a paired samples t-test. The table includes the mean differences, standard deviations, standard errors, confidence intervals, t-values, degrees of freedom, and significance levels. The significance levels are 0.000 for all comparisons, indicating highly significant differences.
4.4. Results for research question three

The last research question asked: What are the opinions of Iranian female EFL learners about MALL, in general, and the use of mobile applications, in particular, for improving their speaking skill? The interview data regarding students’ perceptions of mobile applications showed the majority of the students who used mobile applications to learn English had positive attitudes toward MALL. They were mostly content with the program and appreciated it. About 81.6% of the participants reported they would use VT and Twitter to practice speaking. Only 2% of them reported they were not experienced enough to employ the applications to learn EFL in the future (Table 7).

5. Discussion

The present study aimed to find out if mobile-assisted language learning is preferred over traditional language learning and to compare the impacts of VT and Twitter on the speaking skill of Iranian EFL female learners. It also explored the participants’ perceptions of mobile applications.

The first research question was whether there would be a significant difference between the speaking skill of Iranian female EFL students exposed to mobile-assisted instruction and the speaking skill of those exposed to traditional instruction. Based on the results, there was a significant difference between the control and experimental groups with regard to their speaking skill. The results also indicated through incorporating asynchronous Internet communication technologies into courses, an independent and collaborative learning experience was facilitated. This experience contributed to the satisfaction and better accomplishments of the students. Moreover, mobile technology provided the participants with authentic communication activities and social interactions that, according to Communicative Language Teaching approach, were both the means and the goal of learning a new language. The results supported several researchers who studied the effectiveness of integrating online activities with students' tasks and concluded connecting with social networking during classes could aid students in mastering the knowledge and increasing their skills (Jaldemark et al., 2018; Pachler et al., 2012; Sun et al., 2017).

### Table 5. One-way ANOVA to compare the participants’ speaking gain scores in the control and experimental groups

|                     | Sum of Squares | Df | Mean Square | F     | Sig. |
|---------------------|----------------|----|-------------|-------|------|
| Speaking posttest   | 146.756        | 2  | 72.878      | 75.661| 0.000|
| Between Group       |                |    |             |       |      |
| Within Group        | 83.800         | 87 | 0.963       |       |      |
| Total               | 229.556        | 89 |             |       |      |

### Table 6. Scheffe test to compare the differences among speaking scores gained in the groups

| Group 1          | Group 2        | Mean | Std. | 95% Confidence interval |
|------------------|----------------|------|------|-------------------------|
| (I)              | (J)            | (I-J)| Error| Sig. | Lower Bound | Upper Bound |
| Pair 1 Voicethread| -3.100*        | 0.253| 0.000| -3.731 | -2.468 |
|                  | Twitter        | -1.266* | 0.253| 0.000 | -1.897 | -0.635 |
| Pair 2 Control   | 3.100*         | 0.253| 0.000| 2.468 | 3.731 |
|                  | Twitter        | 1.833* | 0.253| 0.000 | 1.202 | 2.464 |
| Pair 3 Control   | 1.266*         | 0.253| 0.000| 0.635 | 1.897 |
|                  | Voicethread    | -1.833| 0.253| 0.000 | -2.464 | -1.202 |

* The mean difference is significant at the 0.05 level.
However, the findings did not support the results of Zhang, Song, and Bruston’s (2011) study which demonstrated MALL caused distractions and forgetting and there was no significant difference between the control group subjected to MALL and the experimental group subjected to traditional instruction. Also, the results were not in line with the study carried out by Hayati, Jalilfar, and Mashhadi (2013) who showed MALL was less effective than traditional instruction.

The second research question was which of the mobile applications, VT or Twitter is more efficient to improve Iranian female EFL learners’ speaking skill. The comparison of speaking gain scores of the experimental groups revealed the speaking skill of VT participants was improved more than the speaking skill of the Twitter group participants. VT gave the participants an opportunity to talk about their speaking topics and interact over what they would record and forward to the teacher. As a collaborative multimedia slide show, VT helped the students to have images and videos and navigate slides. It also enabled them to follow their teacher’s comments by using videos, voice recordings, audio files, and texts. They could share a VT with their teacher and classmates and could record comments on the slides. VT persuaded the participants to experience language learning in multisensory contexts in which they practiced activities such as typing texts, watching videos, recording voice messages, and drawing. Consequently, English learning was more appealing in this context. Utilizing this mobile application assisted the teacher in creating a supportive learning context in which the participants of the experimental groups engaged in the activities encouraging independent learning. Regarding the positive effect of VT application, the obtained results supported several researchers who explored how VT provided learners with extra time and resources to plan their learning procedures independently and ultimately to improve their speaking skill (Delmas, 2017; Dugartsyrenova & Sardegna, 2017; Dunn, 2012; Pontese & Shimamuzi, 2014; Richards, 2014). However, the results were not in line with the study conducted by Ebadi and Asakereh (2018) in Iranian context. They concluded VT could not help the experimental group students to improve their English speaking although they had positive attitudes toward using the application.

Concerning the positive impacts of Twitter, the findings were in line with the study of Junco et al. (2011) which showed learners’ engagement was significantly increased and they had higher semester grade point averages after using the application. Results were also in agreement with those of Fouz-Gonzales and Morpean’s (2016) study which indicated the students using Twitter were actively engaged during the experience and outperformed in their pronunciation. Interestingly, the findings of Hatem’s (2014) study, which showed Twitter prompted negotiations

| Questions                                                                 | Agree | Disagree | Undecided |
|---------------------------------------------------------------------------|-------|----------|-----------|
| 1. Did you find the mobile applications useful and tend to employ them to learn English? | 44    | 7        | 9         |
| 2. Did you find the positive effects of mobile applications on your studies? | 43    | 6        | 11        |
| 3. Will you instead have mobile-assisted instruction?                     | 48    | 3        | 9         |
| 4. Are you experienced and reassured enough to employ mobile applications to learn English by yourself in the future? | 47    | 2        | 11        |
| 5. Will you use mobile applications like VT and Twitter to enhance your speaking ability? | 49    | 2        | 9         |

Table 7. The frequency and percentages of the participants’ answers to the five questions of the interview

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for meaning among learners and developed interactions, were in good agreement with the results of the present study.

As VT focused on having a conversation and sharing concise messages with the teacher and classmates, it was more efficient than Twitter. Twitter had the limitation of 140 characters on the length of each note that the students and the teacher posted. Besides, videos posted and shared on Twitter should be only 2 minutes and 20 seconds or even less.

With regard to the last research question, i.e. the experimental group participants’ perceptions of their learning experience, the analysis of the students’ answers to the interview questions confirmed their interests in using mobile applications to improve their language skills. They reported that they are now aware of the potential of mobile applications in their future language learning career.

Regarding the tendency to use MALL for learning English, while 73.3% of the participants preferred to use the technology, 11.6% disagreed with using it. Among all the students, 15% were uncertain about their tendency to use MALL because they believed using MALL takes much time, and it sometimes distracted them from their lessons.

The second interview question was whether they found the positive effects of mobile applications on their studies. Examining their answers to this question showed that 71.6% of the students had positive attitudes toward using the applications. For example, a student said that practicing speaking on Twitter helped her to develop her knowledge of vocabulary. Only 6% believed the positive impact of MALL on their studies was low, which indicated they disagreed with using MALL for learning English.

Considering the third interview question, the students were asked if they would instead have mobile-assisted instruction. 80% of the students were willing to have the instruction. They said that their teacher’s feedback was significant because they got motivated when they saw their activities were checked by their teacher. Some students (5%), however, disagreed with having mobile-assisted instruction. They believed practicing on small screens of mobile phones were too tiring, indicating they were not interested in using their mobile devices for practicing English.

When students were asked whether they would employ mobile applications to study English by themselves in the future, 78.3% of the participants were positive about their future use of MALL. Some students said that when the teacher instructed them how to use VT and Twitter to do their speaking activities in the first session, they were too confused to do what she assigned them. At the end of the treatment, they said, they felt satisfied with the experience. 3.3% reported that they would not employ MALL in the future, and 10% were not certain about it. Although they accepted the fact that the experience assisted them to improve their speaking skill, they doubted if they would use the applications by themselves in the future.

As for the last interview question concerning the use of VT and Twitter to enhance their speaking ability, the majority of the students (81.6%) believed MALL was useful. Some referred to particular English skills. For instance, a student said that practicing on Twitter gave her the opportunity to communicate with native speakers of English, which helped her to improve her communication skill. Another student said that she is more active in the classroom now because VT provided the opportunity to practice speaking as many times as she liked before sharing it with her teacher and classmates; therefore, she is not afraid of making mistakes anymore.

All in all, the qualitative findings confirmed the majority of the participants in experimental groups (71.25%) had positive attitudes toward MALL, which was supported by several researchers (Lai & Zheng, 2018; Lomicka & Lord, 2011; Rosell-Aguilar, 2018). It is worth mentioning that there were only few students (6.64%) who disagreed with the program because they believed they had
to spend much time to do something that could quickly be done in a paper-based class. About 14.66% were uncertain about using MALL because they thought MALL works better in developed countries where the Internet speed is high enough.

6. Conclusion
Since classroom environments affect how well learners receive instruction, the structuring of the learning environment is of paramount importance for both teachers and students. An effective teaching and learning environment can create an atmosphere in which both teachers and students enjoy foreign language learning procedure. In EFL contexts like Iran and other similar contexts, learners encounter many problems in acquiring speaking skill due to hard access to native speakers and authentic materials. The findings of the present study revealed the selected mobile applications (i.e., Twitter and VT) provided the opportunity for the students to practice speaking as many times as they liked before sharing it with their teachers and classmates, and they received teacher’s immediate comments individually, which improved their confidence and made them feel validated. In other words, they practiced English speaking in a place where lessons were available in both speech and text, and they had access to a full variety of available high-quality websites helping them with their language skills very efficiently. As “the main goal is to give EFL learners the time and the space they need to practice speaking effectively and efficiently” (Bahrani, 2011, p. 283), the results provided empirical evidence on the importance of integrating mobile applications such as VT and Twitter in English speaking learning, especially in EFL environments in which classroom size is continuously increased (Pufahl & Rhodes, 2011).

In Iran, some teachers do not allow their students to use their mobile phones in the classroom due to the limitations of the institute curricula and the strict rules of the institute (Dashtestani, 2016). Providing teachers with more information about the concept of mobile-assisted instruction, the findings bring about the best use of both physical and virtual environments by them in improving the learning quality of their students. Hence, both EFL instructors and institute authorities can persuade students to use their mobile phones properly by informing them how modern technology tools are useful in their speaking and how technology enables them to share knowledge with their key-pals all over the world.

In the view of our research results, we recommend that materials developers incorporate some online speaking materials in speaking courses by introducing educational applications at the end of each lesson. Similarly, course designers can plan for integrating tech tools such as mobile applications in conversation classes and accompany some online activities as follow-up activities out of the classroom for each English lesson in the students’ textbooks. As a result, students will have sufficient time to practice English speaking. The findings may also help syllabus designers include some practical suggestions for achieving learners’ autonomy through a series of tasks designed to offer students choices about their learning.

One of the objectives of this research was to drive practical implications for encouraging more use of mobile devices for educational purposes. Based on the results of this study, EFL teachers can be assured of the effectiveness of MALL in improving their students’ language learning in general, and their speaking skill, in particular. Moreover, in MALL environments, it would be easier for teachers to provide immediate feedback on their students’ performances. Thus, they may design their course instruction in a way that students are encouraged to use their mobile phones for better language learning. This requires that teachers themselves have good knowledge of the technology. As proposed by Gomez (2016), it is very important that students have technology-wise teachers who can integrate tech tools facilitating language teaching and learning in their classroom.

In addition, the results of the present research are beneficial to those instructors who intend to design a MALL environment and also to the researchers who have been investigating the impacts of MALL on EFL learning.
7. Limitations and suggestions for further research

Due to a number of limitations, these results and implications must be interpreted and generalized with more caution. One of the main limitations of this study is the lack of information on the participants’ cognitive style. Since learners’ cognitive style satisfaction is the key role in learning (Shahsavar & Tan, 2011), undertaking further research in this area is recommended. Another limitation is slow Internet connection in the context of the study which “greatly influenced the motivation for online learning” (Djiwandono, 2019, p. 36). The third limitation is the characteristics of the sample. Only female students from one university were selected to participate in the study. It could be more interesting to do the same research and investigate the effect of gender differences on learners’ achievements and their perceptions of MALL. Although mixed-methods methodology has been supported in the literature for several reasons, such as deeper meanings, confirmation of findings, and multiple perspectives (McKim, 2017), it sometimes becomes so difficult and time-consuming that might discourage many researchers. Thus, some methodological purists recommended that researchers choose either quantitative or qualitative approach but not both. Finally, individual interviews were used to collect the data required for the qualitative part of the present study, and the data have been interpreted using frequencies and percentages, which can bring in the probable statistical measurement limitations (Dornyei, 2007). If researchers conduct in depth investigations of students’ responses to MALL program and use observation and diaries to collect qualitative data, they may provide researchers a better understanding of the program.

Funding
The authors received no direct funding for this research.

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Correction
This article has been republished with minor changes. These changes do not impact the academic content of the article.

Citation information
Cite this article as: Iranian female students’ perceptions of the impact of mobile-assisted instruction on their English speaking skill, Farideh Ataeifar, Firooz Sadighi, Mohammad Sadegh Bagheri & Fatemeh Behjat, Cogent Education (2019), 6: 1662594.

References
Ally, M. (2013). Mobile learning: From research to practice to impact education. Learning and Teaching in Higher Education: Gulf Perspectives, 10(2), 10–22.
Antenros-Conforti, E. (2009). Microblogging on twitter: Social networking in intermediate Italian classes. In L. Lomicka & G. Lord (Eds.), The next generation: social networking and online collaboration in foreign language learning (pp. 59–90). San Marcos, TX: Computer Assisted Language Instruction Consortium.
Bahrami, T. (2011). The implications of the monitor theory for foreign language teaching. Asia Social Science, 7, 281–284. doi:10.5539/ass.v7n10p281
Castrillo de Larreta-Azelain, D. (2015). Learners’ attitude toward collaborative writing in e-language learning classes: A Twitter project for German as a foreign language. Revista Española De Lingüística Aplicada, 26, 127–138.
Dash teste R. (2016). Moving bravely toward mobile learning: Iranian students’ use of mobile devices for learning English as a foreign language. Computer Assisted Language Learning, 29(4), 815–832. doi:10.1080/09588221.2015.1069360
Delmas, P. M. (2013). Using voice thread to create community in online learning. Tech Trends: Linking Research and Practice to Improve Learning, 61(6), 595–602. doi:10.1007/s11528-017-0195-z
Djiwandono, P. (2019). Scaffolding moves by learners in online interactions. International Journal of Foreign Language Teaching and Research, 7(27), 29–39.
Dornyei, Z. (2007). Research methods in applied linguistics. Oxford: Oxford University Press.
Dugarstyrenova, V., & Sardegna, V. (2017). Developing oral proficiency with voice thread: Learners’ strategic uses and views. ReCALL, 29(1), 59–79. doi:10.1017/ S0958344016000161
Dunn, M. (2012). The effect of voice thread integration on high school students’ anxiety and oral proficiency in the foreign language classroom. (Doctoral dissertation). Retrieved from https://digitalcommons.liberty.edu/doctoral/618.
Ebadi, S., & Asakereh, A. (2018). Using voice thread to enhance speaking accuracy: A case study of Iranian EFL learners. J-manager’s Journal of English Language Teaching, 8(3), 29–42. doi:10.26634/jelt.8.3.13998
Fouz-González, J., & Monpean, J. A. (2016). Twitter-based EFL pronunciation instruction. Language Learning & Technology, 20(1), 166–190. Retrieved from http://llt.msu.edu/issues/February2016/monpeonfouzgonza lez.pdf.
Gomez, J. G. (2016). Virtual commitments of practice for non-native K-12 Spanish educators as professional development. (Doctoral dissertation). Retrieved from https://aquila.usm.edu/dissertation/355
Hattem, D. (2014). Microblogging activities: Language play and tool transformation. Language Learning and
