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The effect of mobile-assisted language learning on speaking accuracy of EFL learners



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Abstract

As a type of technology-enhanced learning tool, mobile-assisted language learning (MALL) provides a rich input environment enabling learners to learn a second language beyond the classroom. The present study was an attempt to explore the effectiveness of MALL in providing learners with opportunities to foster their oral accuracy. For this purpose, a total of 35 English as a Foreign Language (EFL) learners were assigned into two groups. In the experimental group (n=16), learners were asked to engage with ACO as an interactive mobile-assisted application while in the control group (n=19), learners did not receive any such intervention. Speaking accuracy was measured by oral narrative pre- and post-tests. The findings of statistical analysis revealed the positive effects of MALL, highlighting the essence of supplementing formal learning at school by non- and informal learning in enthusiastic and motivating ways through the use of ever-developing new technological aids. Implications for the language classrooms are presented.

Keywords: technology-enhanced learning, mobile-assisted language learning, speaking, accuracy, motivation

Introduction

Andujar (2016) confirms that any model of learning based on technological developments enables learners to make use of different physical and virtual sources and interact with other individuals, information or systems without any time and location boundaries. He goes on to state that “learning experiences take place in an information context where interaction is mediated through technology” (p. 64). One inseparable and practical everyday technological aid that can be used in enhancing

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language learning is mobile phones. Mobile phones provide a wide variety of services such as Short Messaging Service (SMS), Multimedia Messaging Service, email, the Internet, and different applications such as games, and so forth. Mobile learning, or m-learning, is a growing area within the e-learning movement, further documented by European innovative approaches such as m-learning and *Mobilelearn*. In spite of the usability and rising popularity, there has been limited attention paid to the role of MALL in the development of speaking skill compared to other language skills, although this trend is quickly disappearing with recent research (see Andujar, 2016; Khezrlou, 2019a, 2019b, 2019c; Rambe & Bere, 2013). The present study was therefore an attempt to examine the role of mobile learning on EFL learners speaking improvement in terms of their accuracy rate by using the game-based ACO application. Hence, it is well-worth highlighting here that MALL in this study is operationalized as the use of ACO application installed on learners' mobile phones. Particularly, the following research question was addressed: Does MALL approach affect the Iranian EFL learners' speaking development?

From a theoretical perspective, mobile-assisted language learning (hereafter MALL) receives support from different second language acquisition (SLA) models and has significant implications for language production. MALL echoes Vygotsky's (1978) theory about mediation and zone of proximal development which underscore a role for the essence of social interaction in the development of cognition, Swain's (1985) output hypothesis considering a key role for interaction, and Schmidt's (1995) noticing hypothesis signifying learners' noticing the gap between their current language and their target language. All these theories highlight the potential of MALL in the development of second language acquisition.

These theories lead to essential practical implications as a result of the use of MALL. For example, learners are enabled to reflect on their language productions. The interactional language production that occurs in MALL brings about a fundamental source of knowledge for language, as learners reflect and build knowledge in an active manner by means of meaning negotiation (Bueno-Alastuey, 2013; Khezrlou, 2020a, 2020b, 2020c). Furthermore, MALL provides a rich input environment in which in place of only one source of input, all learners take part in its development, working for authentic and real communicative needs (Rixon, 2001). Besides, all these advantages can be supplied both inside and outside of the language classroom, providing complementary opportunities for language learning of EFL learners. This latter advantage was the major motive for the adoption of MALL in this study to compensate the lack of time in written communicative activities in the classroom through a joyful way in order for not to let learners' mistakes go by unnoticed leading to the stay of erroneous structures in the learners' interlanguage system. Applying mobile phones is therefore considered a useful strategy to help EFL learners become critical and aware of their own developing interlanguage system and enhance their autonomy. Additionally, many of the Iranian EFL learners' experienced speaking problems in intermediate levels of proficiency halt them from the advancement of this skill in later acquisition stages. The reason might be due to their lack of exposure to any systematic and rich written communication and instruction.

This study intended to evaluate the role of mobile phones in improving the written accuracy of Iranian EFL learners which can be regarded as a novel research approach compared to prior empirical research conducted on using mobile phones. Put differently, the majority of the previous studies attended to other linguistic features such as lexical choices, tests, speaking, grammar and so forth (e.g., Alwi, Adams, & Newton, 2012; Jepson, 2005; Khezrlou, 2019c; Khezrlou, Ellis, & Sadeghi, 2017). In opposition to these studies, the purpose of the present research was the enhancement of accurate language production of EFL learners emerging from an interactive learning environment. As far as we know, there has been no systematic investigation of the use of mobiles for the purpose of fostering the speaking skill. Therefore, the present study would provide significant findings for language teachers

and curriculum developers for a better and enhanced speaking development outside the classroom to scaffold learners' interlanguage development (Diaz, 2014).

Review of the Literature

The significance of the speaking skill

In comparison with the teaching of the other skills, speaking is one of the more challenging teaching activities of the teacher than other skills (Rivers, 1981; Brown & Yule, 1983). According to these researchers, teaching speaking is a difficult task for the teacher to help his/her students. The main reason for the statement is that a language speaker should listen to the partner with the purpose of understanding each other in the target language.

Speaking tasks must be selected carefully in order to improve the speaking ability of students and to make them use the speech pattern of the language they learn. Moreover, students should be stimulated to face with intensive oral exercises that are basically intended for communication purposes, in which such activities provide confidence and motivation for oral practice (Rouhshad, Wigglesworth & Storch, 2016). This is true not only for classroom exercises but also for use of the language outside classroom (Bygate, 1987). Gower, Phillips and Walters (1995) demonstrated the reasons why speaking tasks are developed as follows: Communicative tasks are designed for learners with a purpose for speaking: they are bridging an information or opinion gap; they are requiring real information or discovering the perspectives of their fellow learners. Not only do these tasks appear encouraging and inspiring in the classroom, but they also provide a challenge, which reflects real life interactions (Khezrlou, 2012a, 2012b).

In order to stimulate L2 speaking, the numerous computer-assisted language learning (CALL) contexts (automatic speech recognition, s/synchronous communication, computer-assisted pronunciation training, and storytelling to name a few) provide the teacher with a rich variety of options to motivate more and better L2 production (Blake, 2017). Technological aids bring to the fore the learner empowerment, language reflection, and, finally, appropriate L2 usage. In the CALL context, advanced learner agency not only direct how learners use technology, but also suggests that they become developers of language through their active development of blogs, wiki entries, chat exchanges, audio and video postings (Blake, 2013, 2015).

Technology in language learning

Applied linguists working in language teaching and research routinely draw on computer technology for a variety of purposes to the point that technology becomes integral to applied linguists' concerns such as communication and language learning. In a paper that problematizes the seeping of technology into the mainstream language related activity, Bruce and Hogan (1998) portray a world in which the technology is an invisible but integral aspect of language use, and therefore where knowledge of technology is assumed of anyone who wishes to participate. Their point is that language professionals need to recognize how technology is deployed strategically by the competent language user if they are to teach the language learner about and through technology. As Cummins (2000) puts it, "we should acknowledge the fundamental changes that IT is bringing to our societies and seek ways to use its power for transformative purposes" (p. 539). What are the fundamental changes that technology has brought and will bring to society? There is no shortage of speculation on this question. However, those who attempt to conceptualize the world of technology take different perspectives. The technologist sees rapid advances in technological developments that transform all aspects of life, especially communication and education. In the future vision of technologist, Kurzweil (1999) believes that more

communication will take place between humans and computers than will take place between humans, in part due to advances in technologies for language recognition.

A social pragmatist moderates this perspective with anecdotes about how technology really works—or fails to work—in the real world, and with analysis of how human communication is accomplished within organizations (Brown & Duguid, 2000; Sadeghi, Khezrlou & Modirkhameneh, 2017). The critical analyst takes still another perspective, viewing technology as a force that is neither neutral nor inevitable, and therefore requires careful analysis and deliberate action. The plea of the critical analyst is for educators to move beyond a shallow, technically oriented discussion of technology in education and society to analysis of the values inherent in the use of technology for communication and education (Bowers, 2000).

One particularly popular area of significant growth in technology-enhanced learning is mobile-assisted language learning in which learners use mobile technology to get involved in language learning (Burston, 2015; Duman, Orhon & Gedik, 2015). There have been different definitions for MALL; nevertheless, the main components consistently comprise (a) flexibility in the place and time of study; (b) consistency of study on different devices including mobile phones, tablets, and laptop/desktop computers; (c) simple access to information; and (d) compliance to individual learning habits (Duman et al., 2015; Petersen & Sachs, 2016; Reinders & Pegrum, 2015). As a result, learners are able to study anytime and anywhere, and their learning resources can be easily accessed across devices. In addition to considering portable devices, Reinders and Pegrum (2015) refer to mobile materials that are concerned with web services and apps that comprise built-in language learning materials and activities. Regardless of some limitations such as an inclination to rely on a behaviorist, teacher-centered approach to language teaching (Reinders & Pegrum, 2015), such apps have been found to be fairly well-known for independent language learning, with learners often using MALL material outside of classroom study (Stockwell, 2010; Rosell-Aguilar, 2018). It needs to be noted that in the present study, learners were asked to communicate through the ACO application using their mobile phones.

Empirical research on MALL

In an endeavor to explore whether mobile phones are useful learning tools, Baleghizadeh and Oladrostam (2010) carried out a study to measure the utility of mobile phones in fostering grammatical accuracy of Iranian EFL learners while engaged in speaking activities. Forty pre-intermediate Iranian female participants took part in the study. The participants in both experimental and control groups were asked to review and reuse three grammatical features. During class interactions aimed at eliciting the targeted grammatical structures, the participants in the experimental group recorded their voice on their mobile phones and as an out-of-class activity, they analyzed their language use and commented on them in the following session. The participants in the control group, on the other hand, were exposed to no further treatment at all. The results indicated that the participants who had benefited from MALL outperformed the control group learners on a multiple – choice grammar posttest. According to Nation (2001), learning a word is a gradual, cumulative process, which occurs slowly over time. Regardless of being short in length, text messages provide growing lessons over time which can be accessed in any time and location (Nation, 2001). Additionally, text messaging might encourage learners to advance their studies out of the classroom and thereby it exerts a positive influence on language learning (Hashemi & Aziznezhad, 2011).

Stockwell (2008) explored 75 university language learners' purposes to use mobile phones for language learning provided that other options were accessible and compared this with their real use patterns to find out when and why they employed mobile phones. Participants were asked to carry out vocabulary learning activities either on a mobile phone or computer. Participants' attitudes and

preferences were examined using a post-survey, and usage patterns were analyzed through server logs. The findings indicated that the majority of learners (61.3%) did not select to use the mobile phone for language learning activities. Furthermore, most of learners who in fact used mobile phones to perform the vocabulary learning activities seemed to be evaluating the platform. Similarly, Stockwell's study in 2007 showed that learners who were given a choice to enact vocabulary learning activities on either a mobile phone or a desktop computer chose the desktop computer in most cases, and only 6.3% of all activities were performed using the mobile phone. In another study by Stockwell (2010), 175 pre-intermediate learners of English were also given a choice to complete their vocabulary activities on either a mobile phone or a desktop computer. The results demonstrated that vocabulary learning via mobile phones was not more beneficial than through desktop computers. And, there were no differences regarding the learners' performance in vocabulary learning with the two technologies. Stockwell (2010) found that learners and teachers were unwilling to use mobile phones for vocabulary learning. He attributed this reluctance to the costs of the hardware, preference for familiar and proven computer technology, and the weaknesses in the mobile device such as a small key pad and display screen, which lead to "a higher cognitive burden" (Stockwell, 2007, p. 380). Irrespective of these findings, he is optimistic about the role of mobile phones in language learning and teaching. In another study also carried out with Japanese EFL learners, Gromik (2012) asked learners to use the video recording function of their mobile phones to produce short English monologues. He revealed that the participants were able to make increasingly longer videos over time in terms of the number of words in one monologue.

Genç İter (2009) investigated the effect of technology on motivation in EFL classrooms through questionnaires. The analyses of the data have proved that effective EFL activities can be facilitated by means of technology. It also revealed that EFL students want their teachers to use technology in their classrooms. Most of the students said using technology increases their motivation. SMS as a technology in mobile communications is not an exception. It has the potential of engaging learners out of the classroom and increasing their motivation as well (Rau, Gao & Wu, 2008). Derakhshan (2007) utilized text messages in a more interactive way for EFL freshmen's vocabulary learning. In his study he taught 15 to 20 words from the book *Check Your Vocabulary for Academic English* by David Porter (2001) to two groups of students each session. The participants were assigned into groups according to their proficiency. Learners in the experimental group were required to send the researcher a text message consisting of an original sentence for each word instructed in the class; they also sent one text message including a sentence to their three preplanned peers on the afternoon of the same days. In contrast, the participants in the control group were required to write one sentence to exchange with their partners. The findings of this study revealed that there was no significant difference between the retention of vocabulary between the two groups.

Tabatabaei and Heidari Goojani (2012) explored the usefulness of text-messaging in bringing about enhanced vocabulary learning. For this purpose, 60 high school learners attended the treatment in the study. The target lexical items in the pre-university English book were instructed to the groups, by means of synonyms and antonyms. Whereas the participants in the experimental group were asked to send the researcher SMSs of a sentence for each word taught in the class, control learners did not receive any technology enhanced instruction. Results of the study signified that participants in the experimental group outperformed those in the control group.

In another study, Motallebzadeh, Beh-Afarin, and Darily Rad (2011) examined the impact of SMS on collocations learning of Iranian lower intermediate EFL learners. In so doing, forty university learners were divided to experimental and control groups. The participants were exposed to English collocations coupled with definitions and example sentences either through hard copies or via SMS messages in a scheduled way of delivery within five weeks. Afterwards, learners received two quizzes

either on paper or via SMS to measure whether the learners developed during the treatment. The results pointed that participants in SMS group significantly outperformed the ones in the control group.

Liu and Chen (2014) looked into the effect of using mobile phones in taking pictures on the language learners' phrase learning skills. A total of 116 Taiwanese learners were assigned into two groups of control and experimental. Whereas the control group participants were provided with an online phrase learning task, the experimental learners were encouraged to learn the phrases by means of taking pictures using their mobiles. The findings of this study exhibited a higher phrase learning amount for experimental group learners compared to their control peers. The authors argue that:

The process of learners taking photos can be considered a productive learning activity because the learner must engage in an activity that is related to the instructional objective – taking relevant photos with peers and then constructing sentences based on the photos. Thus, profound learning occurs when learners are encouraged to engage in productive learning activities. (p. 10)

Further evidence regarding the effectiveness of mobile apps in facilitating L2 speaking emerged from Payne and Whitney's (2002) study in which learners' keyboarding had a positive influence on improving L2 speaking proficiency. At the moment, the linguistic similarities between texting and speech hardly would be astonishing, particularly with respect to the way people produce tweets on *Twitter* or texts on the mobile phone. Irrespective of a type of written communication, tweeting has been found to be an appropriate tool for developing what sociocultural research terms a community of practice with geographically different speakers, native and non-native, who can answer back and forth similar to a chatting situation in a cafe (Lomicka & Lord, 2011).

Method

Participants

This study consisted of two intact groups of experimental (N = 16) and control (N = 19) including Iranian EFL learners aged between 15 to 21. The participants consisted of both male (N = 14) and female (N = 21) learners. They were language learners in a language institute located in Guilan. The participants' nationality and background language were controlled in the current study, i.e., all participants were Iranian EFL learners whose first language was Farsi. Intact classes were randomly assigned into experimental and control groups. Even though the control group did not receive any mobile-based intervention, it was used for comparing the differences between groups after the treatment. Pre-testing was used to establish any distinctions between the control and experimental groups.

Instruments

Oral narrative tasks

Two oral narrative tasks were used in this study in order to evaluate participants' pre- and post-treatment speaking accuracy. The oral narrative tasks were both adopted from Heaton (1975) and they required the learners to narrate a story orally based on six pictures. It needs to be mentioned that the same oral narrative tasks were employed in the experimental and control groups. In the pre-test, "A Surprise" (Heaton, 1975, Appendix A) narrative task was used where learners had to look at the pictures for no more than two minutes and narrate the story. For the post-test, a similar task, called "Waiting for a Bus" (see Appendix B) was used asking learners to narrate the events as a measure of

learners' rates of accuracy. All participants agreed to participate in this study through oral informed consent forms.

Measure of accuracy

Accepted measures for accuracy according to previous research (e.g., Crookes, 1989; Foster & Skehan, 1996; Wendel, 1997; Yuan & Ellis, 2003) were used as criteria. Accuracy, as was in Yuan and Ellis (2003) was measured according to the 'error-free clauses' and 'correct verb forms'. Error free clauses comprised the number of clauses without syntactic, lexical and morphological errors. And, the correct verb forms consisted of the number of the accurately applied verbs following the rules of tense, aspect, modality, and subject-verb agreement.

Procedure

The present study was a quasi-experimental research including an experimental group exposed to MALL treatment and a control group not receiving any such intervention. Learners' level of proficiency was ascertained by means of the language institute's placement test and it was found that all the learners were intermediate level learners. The classes were held two days a week and each session lasted for 90 minutes. This study lasted for eight sessions: one session for pre-test, six sessions for the treatment and a final session for the post-test. Speaking activities using the 'ACO' app were done outside the classroom environment to foster learners' out-of-class language exposure. Learners in both groups were first pre-tested on their accuracy through an oral narrative task. Afterwards, ACO as mobile-assisted application was used to develop interactive speaking skill development. It should be noted that the use of ACO was not a sole language teaching tool; rather, it was a means to foster oral production in pair-oriented way. All the experimental participants had mobile phones with enabled wi-fi Internet together with an installed ACO application. The expenses of wi-fi Internet connection were covered by the language center in order to avoid any accessibility problems. In order to make sure that all the experimental group learners used the app out of the classroom context, they were required to bring their recorded conversation and submit it to their teacher. It needs to be noted that the control group learners did not received any mobile-assisted speaking activity either inside or outside the classroom and their speaking activities included whole class discussions.

The obtained data were then analyzed statistically using Statistical Package for the Social Sciences (SPSS). Firstly, in order to ensure the normality of data, the Kolmogorov-Smirnov test was conducted which confirmed the normality of both pre-test ($p = .58$) and post-test ($p = .68$). Prior to the conduction of statistical procedures for the research question, the inter-rater reliability of two raters' evaluation of the participants' oral transcription was computed using Cohen's Kappa test. The resulting Kappa of .89 indicates that raters provided similar opinions.

In order to provide an answer to the research question of the present study, a one-way Analysis of Covariance (ANCOVA) was conducted. First, the assumptions for the conduction of ANCOVA were tested. The primary assumption is that the control and experimental groups are the same. The results obtained from Table 1 confirm this assumption that there are not statistically significant differences between the control and experimental groups ($p > 0.05$).

Table 1 *The homogeneity of variance assumption*

F	df1	df2	Sig.
2.287	1	33	.140

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.
Design: Intercept + pretest + groups

Having estimated the assumptions of ANCOVA, the next step was to conduct ANCOVA to investigate the research question of the study concerned with the differences between control and experimental groups with regard to oral accuracy. First, the results of descriptive statistics are exhibited in Table 2.

Table 2 Descriptive statistics for experimental and control groups' oral accuracy

Groups	Mean		Standard deviation	
	Pre-test	Post-test	Pre-test	Post-test
Experimental (N = 16)	6.43	12.18	2.15	2.99
Control (N = 19)	7.10	7.57	3.03	2.29
Total (N = 35)	6.76	9.68	2.59	3.48

As the mean and standard deviation scores in Table 2 demonstrate, there were differences between the experimental (M = 12.18, SD = 2.99) and control (M = 7.57, SD = 2.29) group learners' performance in the post-test. However, in order to get more accurate and reliable results, an ANCOVA test was run, the results of which are displayed in Table 3.

Table 3 ANCOVA results for oral accuracy across groups

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	189.243 ^a	2	94.622	13.499	.000	.458
Intercept	356.335	1	356.335	50.837	.000	.614
pretest	4.769	1	4.769	.680	.416	.021
groups	189.050	1	189.050	26.971	.000	.457
Error	224.300	32	7.009			
Total	3697.000	35				
Corrected Total	413.543	34				

a. R Squared = .458 (Adjusted R Squared = .424)

According to Table 3, there was a significant main effect for group, $F(1, 35) = 26.97$, $p = .000$, reflecting the superiority of experimental group over control group also corroborated by the results of descriptive statistics. Hence, the results of ANCOVA pinpoint the efficacy of MALL in resulting in a substantial enhancement of the learners' oral accuracy. The results are better exhibited in Figure 1.

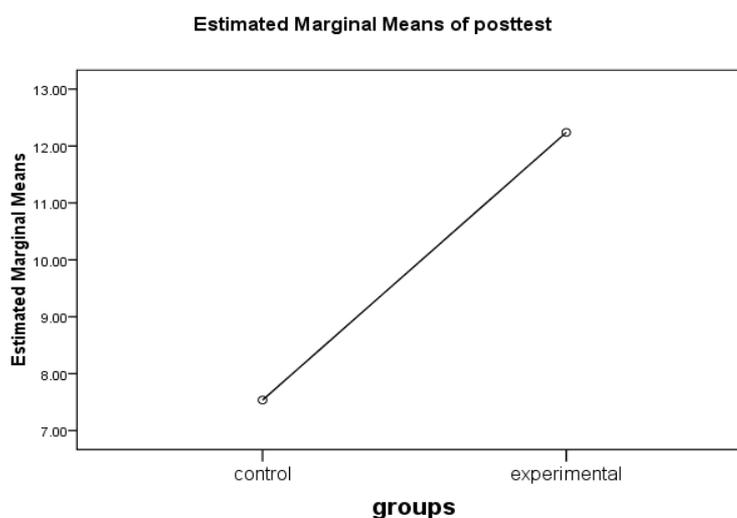


Figure 1 Oral accuracy across groups

Discussion

The present study was aimed at the investigation of the impact of out of class mobile-assisted conversation through the use of ACO application on Iranian learners' speaking skill development. The main research question which was concerned with the difference of experimental group learners who received technology-enhanced practice via the use of mobile phones after the treatment showed that the learners in the experimental group outperformed those in the control group. This finding is in line with those of the previous studies (e.g., Amirghassemi, Azabdaftari & Saedi, 2013; Chen & Eslami, 2013; Guillén, 2014; Lee, 2008; Millrood, 2015; Oskoz, 2009; Pellettieri, 2000; Rezaee & Azizi, 2012). These findings however run contrary to those of Stockwell (2007, 2008, 2010) who reported the learners' reluctance to use mobile phone for the purpose of language learning.

This positive effect implies that learners were more active and participated in the learning through the use of ACO apps outside the classroom fostering their narration skills (Lee, 2005; 2006; Rambe & Bere, 2013; Rouhshad, Wigglesworth & Storch, 2016; Van Deusen-Scholl, Frei, & Dixon, 2005). Active participation is recognized as one of the significant components of a successful virtual learner-oriented learning program (White, 2007). Learners' self-confidence, active participation and motivation are all the offshoots of the autonomous learning where the learners are actively involved in learning through the mobiles out of the class.

As found in previous studies of computer-mediated communication such as Bueno-Alastuey (2013), Jepson (2005) or Rouhshad, Wigglesworth, and Storch (2016), technology-enhanced conversation is a productive field for the exchange of language related episodes resulting in better speaking proficiency. Consistent with this, mobile-assisted learning, with respect to the similarities to computer-mediated communication, consists of quite a few of the language related episodes which lead to the development of knowledge as well as to second language development (Andujar, 2016). The distinctions in the language related episodes between mobile-assisted learning and computer-mediated communications constitutes a realm of enquiry as the specificities of mobile devices provide an environment ripe with opportunities for interaction and feedback. Although the present study only looked into the learners' development of oral accuracy as a result of MALL, there are other studies such as the study by Gromik (2012) who revealed benefits for the use of MALL in terms of the amount of spoken words at time. These promising findings thus call for more research comparing the accuracy and fluency of spoken output following exposure to MALL.

An instructional strategy that leads to high performance for language learners meets specifically the pragmatic and social needs of the language learners in their real lives outside the classroom, subsequently setting up a domain in which the learners are urged to effectively practice and prepare the information (Nunan, 2000; Sadeghi & Khezrlou, 2014, 2016). Shrum and Glisan (2005), as well, indicate the significance of learner interest as a central point in language learning. Particularly, if the interest is coordinated with the background information and working memory, it can be a noteworthy determiner of comprehension and processing. In sum, this finding is in line with the findings of Willougby and Wood (2008) who stated that the presence of technologies in both formal and informal contexts provides a particularly salient and motivating learning tool. Lytras, Gasevic, Ordonez de Pablos, and Huang (2008) also found that a learner's interest is connected to the learner's engagement with the learning material. Moreover, these situations provided enthusiasm and excitement for learners. In conclusion, Sigman (2007) emphasized that an individual's achievement is based on the extent to which he is motivated in the environment.

In sum, the results provide evidence that the English learners as foreign language learners can learn just as well outside of the classroom, in their free time, as at formal educational contexts. This finding

is significant proposing that formal learning at school can be supplemented by non- and informal learning (Mifsud, 2002; Sharples, 2000). This bears important implications for teachers discussed below.

Conclusion

The present study approved the positive role of mobile application using learners' mobile phones in encouraging students to use it and that the application provided adequate learning opportunities to create a learning effect. The application has demonstrated its worth as a supplement to the formal teaching of English at school. It was shown that time on task could be increased by presenting the learner with an opportunity to learn in the informal context of his or her spare time. This is especially significant regarding the EFL context of Iran and the limited hours of instruction. Acknowledgement of non-formal and informal learning should not be taken for granted. Teachers in general need to get accustomed with the idea that the formal instruction cannot be the only source for learning and that they need to be eager to appreciate the value of informal out-of-the class learning. One technique to promote teachers' perspectives about informal learning would be to involve them in the process of creating applications for out of school use. There are numerous interesting and appealing ways of learning through technology that are coming to the fore. The positive results of the present study pinpoint the need to examine other ancillary and supplementary methods of learning such as constituting groups in online programs as Telegram, chatting in Facebook and Twitter, emailing and so forth which can be adopted by teachers as complementary activities. For larger group chats, *Google Hangout* can be a good option and is not limited by any charges and provides a visible interface that influences many of *Google's* other applications such as *YouTube*, *Google Drive*, and other third party *Google*-friendly applications.

The present study is limited by a number of factors that necessitate the conduction of further studies in this area. The learning phase was short and restricted. Particularly, in order to establish an impact of individualistic learning, a few MALL interactions should be considered insufficient. Additionally, it is not clear whether the learners who have access to a mobile application at any time, would continue to make use of it over time. This study observed an initial peak in speaking accuracy of learners. To be able to examine motivation over time and its connection to learning outcomes and long term enhancement, there is certainly a need for a much more extended learning phase. Furthermore, these comparisons should be made for speaking fluency and complexity over time to get a clearer vision about the efficacy of MALL on the overall speaking proficiency.

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