

EFL Learners' Vocabulary Achievement and Autonomy: Using Memrise Mobile Application

Zahra Zohoorian (Corresponding Author)

Department of English, Mashhad Branch, Islamic Azad University, Mashhad, Iran
e-mail: z.zohoorian@mshdiau.ac.ir

Masoud Noorbakhsh

Department of English, Mashhad Branch, Islamic Azad University, Mashhad, Iran
e-mail: masoudnor@yahoo.com

Mitra Zeraatpish

Department of English, Mashhad Branch, Islamic Azad University, Mashhad, Iran
e-mail: mitra.zeraatpish@yahoo.com

Abstract

There has been rapid advancement in the use of technology through which an extensive array of mobile technologies have been introduced to educational contexts. In the same vein, mobile assisted language learning provides new possibilities for improving language learning conditions. The current study was an attempt to find out the effect of Memrise Mobile Application on Iranian upper-Intermediate EFL learners' vocabulary achievement and their autonomy. To find the effects, a pre-test post-test quasi-experimental study was conducted. Fifty participants were selected from a cluster of 110 students. The Quick placement test as a test of homogeneity was administered to select the upper intermediate learners. Accordingly, 25 participants for each of the experimental and control groups were selected. Memrise Mobile Application was employed during the treatment period for teaching the 504 Absolutely Essential Words book to the experimental group while the control group was instructed the textbook of 504 Absolutely Essential Words. The intervention continued for a period of 8 weeks. A researcher-made vocabulary test and Zhang and Li's (2004) standardized questionnaire on autonomy were administered. For the qualitative data collection, a semi-structured interview was conducted to determine the

participants' attitudes. An Independent T-test was run the results of which revealed a significant difference between the two groups in vocabulary achievement. However, there was no significant difference between the two groups in autonomy. Moreover, based on the qualitative data it was concluded that the experimental group participants were more motivated holding a more positive attitude.

Keywords: *Autonomy, EFL learners, Memrise Mobile Application, Vocabulary Achievement*

1. INTRODUCTION

It has been recommended by several scholars that using mobile applications has a positive effect on language learning (Conroy, 2010; Sole, Calic, & Neijmann, 2010; Thornton & Houser, 2005). Similarly, Burston (2013) asserts that mobile technology befits us to reflect this in our teaching practice because future is increasingly mobile and its implications are endless. Mobile sort of learning is characterized by several features including personal learning, ubiquity, and spontaneity (Miangah & Nezarat, 2012). As mentioned by Liu, Tan, and Chu (2009) Mobile Assisted Language Learning (MALL) equip educators with a combination of such features such as “flexibility, accessibility, and interactivity” which may not be possible if they employ the conventional methods.

In terms of theory, activity theory and sociocultural theory have laid the foundation for the logic of utilizing Mobile Assisted Language Learning (Nah, White, & Sussex, 2008). Activity theory mainly provides a framework to analyze and understand the human interactions with the tools. This theory conceptualizes the incorporation of technology in the form of tools as mediators for social action (Hashim & Jones, 2007). Similarly, as Lantolf (2000) asserted, the most fundamental concept of sociocultural theory is that the human mind is mediated. This mediation is often assisted by the tool use. Hence, mobile technology use plays a dominant role in the process of meaning making in terms of mediated nature of human mind.

M-learning technologies are advocated by scholars in language teaching/learning as they are being enriched with applications that are provided to learners and the availability that they provide (Djoub, 2016). Seo and Choi (2014) investigated the effect of a mobile application (Speaking 200) on Korean middle school students' achievement as well as satisfaction. Results revealed a significant difference between pre and post scores for elementary level learners. The results indicated that the use of mobile application was more effective for the elementary level of learners than advanced learners. The qualitative parts of their research similarly revealed positive responses on using the mobile application among advanced learners.

In the current era, learner autonomy has gained paramount importance and has become an ultimate goal. A learner who is autonomous is the one who is capable of developing his/her own strategies and can monitor the learning. As far as language learning is

concerned, the students' understanding of learning strategies both inside and outside of the classrooms as well as recognizing the functionality of such strategies play key roles (Bajrami, 2015).

According to Little (2022), autonomy signifies a vigorous system of learning in which learners “plan, implement, monitor and evaluate their own learning” (p.1). It has been noted by Roh and Kim (2019) that the use of project-based language learning through the use of MALL can have a contributing effect on the patterns of learner autonomy and can increase their autonomous learning. In using MALL, learners might need to be autonomous agents of their own learning as they might need to use the applications or devices independently and may need to respond through their devices without the intervention of a teacher (Sato, et al., 2015).

The impact of using one of the vocabulary learning applications called Memrise was studied by Walker (2016) who focused on the perceptions of learners. The results suggested overall that Memrise was more effective in comparison with the typical vocabulary instruction. The students also mentioned that using Memrise was enjoyable and convenient.

There have been a number of studies on the implications of mobile phones on teaching and learning of language components. However, dealing with different applications for language learning, Kim and Kwon (2012) found that the major focus of most of the ESL mobile applications is on teaching vocabulary. Across all applications, they mention that over 55% have activities for vocabulary learning. The reason for the dominant focus on vocabulary learning has perhaps been the fact that vocabulary learning can be a time consuming and boring task (Yang & Dai, 2011) which needs a lot of repetition and exposure. Thus, to boost vocabulary achievement, there are constraints of time and place for which MALL can be a solution (Miangah & Nezarat, 2012).

An experimental study focusing on the teaching of vocabulary was conducted by Abbasi and Hashemi (2013) in the context of Iran. They sought to investigate the impacts of mobile phone use on English language vocabulary retention. A group of intermediate EFL learners was chosen and the results indicated that, using mobile phones had a significant effect on the learners' vocabulary retention. Another scholar, Park (2013), concentrated on the effect of a smart-phone vocabulary application on Korean university students' vocabulary learning. The study showed that the competitive game-based application was effective in vocabulary learning.

Focusing on language learning through the short message system, Thornton and Houser (2005) used mobile phones for English vocabulary lessons and asserted that, compared with paper, and computer-based lessons, mobile-learners perceived more and preferred learning with mobile phones. While literature of English language learning supports the use of technology and MALL, it needs to be noted that in the Iranian context, many students still use traditional methods to learn English vocabulary, such as rote memorization, learning new words through teachers' explicit

instruction, and reciting from word lists (Alizade, 2016). In the same vein, Alizadeh (2016) highlights Iranian English learners memorize vocabularies in isolation and in the form of single words which is not a fast, motivating and efficient way to learn vocabularies. In the conventional college English teaching, grammatical translation is a common way to teach new words.

As asserted above, vocabulary learning is implemented through the conventional methods among many Iranian students and there is dearth of research in using applications such as Memrise, and also as mentioned by other researchers (Alizadeh, 2016; Soleimani & Gowhary, 2014) ,in Iran, vocabulary learning is through rote learning and depending on teachers' translation while visualization and verbal techniques have promised to contribute to learning. Accordingly, the present study sought to find the effects of Mobile application use (Memrise) on vocabulary learning and autonomy and was an attempt to answer the following questions.

- Q1: Is there any significant difference between the two experimental and control groups in terms of their vocabulary achievement?
- Q2: Is there any significant difference between the two experimental and control groups in terms of their autonomy?
- Q3: What are the participant's attitudes towards using Memrise Application for learning vocabulary in terms of their advantages and disadvantages?

2. RESEARCH METHODOLOGY

This study employed a mixed method. In mixed methods, there is the collection as well as analysis of both quantitative and qualitative data. The qualitative data will enrich the study findings (Tashakkori, et al., 2020). Moreover, the present study employed a sequential explanatory design in which the qualitative phase follows the quantitative data collection and analysis and the findings will be integrated at an interpretation stage (Maxwell & Loomis, 2010). Furthermore, to find the effect of the treatment a quasi-experimental pre-test post-test design with an eight week treatment was employed.

2.1 Participants and Setting

The participants were selected from a Cluster sample of 110 upper intermediate students studying English at an institute in spring semester of 2017. According to Wallen and Fraenkell (2001) cluster sampling may be used whenever random sampling of individual is not possible. To collect the required data, 50 Iranian EFL language learners in upper intermediate level were selected to participate in the study. The participants were selected based on the results of the Quick Placement Test (QPT) which is a standardized language proficiency test published by Cambridge, version 2003. The participants were both males and females from an age range of 19 to 26. To justify the number of participants it can be referred to Cohen, Manion, and Morrison (2000) and Creswell (2012) who believe that in quasi-experimental studies a number of more than 15 participants will suffice.

2.2 Instrumentation

The following instruments and qualitative data collection technique were used in the present study.

2.2.1 Test of Proficiency

A pen and paper standardized quick placement test published by Cambridge (2003) including 60 items was administered at the onset of the study to determine the participants' general English proficiency level. The test consists of two parts; part 1 was taken by all candidates (questions number 1-40). Part two was for higher ability students only (questions number 41-60). The time allocated to complete the test was 30 minutes based on the test manual. The learners whose scores were one standard deviation above and one standard deviation below the mean were selected. The items of the test included cloze and multiple choice. The reliability calculated within the study was 0.84.

2.2.2 Vocabulary Achievement Test

A vocabulary achievement test was made by the researchers in multiple choice format based on the book '504 Absolutely Essential Words'. A pilot stage was considered to ensure the validity and reliability of the test. The test was administered to a group of 30 upper intermediate students who were not the participants of the study. At the pilot phase of the study, to ensure the construct validity of the test the researchers used differential group study method. In addition, split-half method was used to explore the reliability of the test. The calculated Cronbach alpha was 0.72. There were 50 items based on all 42 units of the book '504 Absolutely Essential Words'. The participants were given the vocabulary test before and after the treatment as the pre-test and post-test. The estimated time for the vocabulary test was 45 minutes

2.2.3 Learners' Autonomy Questionnaire

To investigate the participants' autonomy before and after the treatment, the 5- point Likert scale questionnaire designed by Zhang and Li (2004), which covered 21 items was administered. Learners' Autonomy Questionnaire included 21 questions in two sections, the first included 11 constructs Each construct included 5 options in Likert scale from Never to Always. In the second part, there were ten questions and the test takers had to choose the closer answer to the beliefs and their attitudes. The reliability of this questionnaire used in an Iranian context was reported by Farivar and Rahimi (2014) with a Cronbach's alpha of 0.75.

2.2.4 Qualitative Technique for Data Collection

Finally, a face to face semi-structured interview was conducted as the qualitative part of the research to determine the experimental group participants' attitudes towards using Memrise Application. Ten participants were selected randomly for the interview. At the root of in-depth interviewing is an interest in understanding the lived experiences of other people and the meaning they make of that experience (Seidman,

2006). Moreover, Seidman asserted that interviewing provides access to the context of people's behavior and thereby provides a way for researchers to understand the meaning of that behavior. As a method of inquiry, interviewing is most consistent with people's ability to make meaning through language.”(Seidman, 2006, p14). The oral data yielded in research should be properly coded to mark presumed patterns (Mackey & Gass, 2005).

The interview which was conducted at the institute lasted between 3 to 5 minutes for each of the participants and all audients were recorded and then transcribed by the researcher and one of the researcher's colleagues for inter-rater reliability purposes. The questions and their content were initially evaluated by a panel of university professors in the field of English teaching. The semi structured interview included open-ended questions as following:

1. What are the advantages of using Memrise mobile application for vocabulary learning?
2. What are the disadvantages of using Memrise mobile applications for vocabulary learning?

2.3 Instructional Materials

The instructional material of this study were as follows for the control and experimental groups. For both groups, vocabularies in the book '504 Absolutely Essential Words' were considered as the supplementary material to be used beside the main course book titled 'Touchstone 4'. The book consists of 42 lessons and each lesson includes 12 new words. These new words were introduced during 16 sessions in 8 weeks, so the teacher of the class (the researcher) had to teach about 31 words per session for both the control and the experimental groups. The objective was to increase the range of students' vocabulary knowledge using the book in the control group and implementing the Memrise Software in the experimental group.

Memrise Software is a mobile application which can be installed in diverse mobile phones. The distinguishing feature of the '504 Absolutely Essential Words' Memrise Application is that it is not only an application but also has some aids for vocabulary learning. Memrise mobile application provides the text, meanings and pictures of the words to assist word memorizing. This application screen is divided into three main sections. When a word is displayed on the screen, the learner can read the word by him/herself from phonetic symbol or can click the button on the bottom to listen to the pronunciation of the word. In the second section, Persian (the learners' native language) explanation is given to help learners understand the word. In the third section three sentences are given to provide a context that the word can be used in. Memrise Application with '504 Absolutely Essential Words' data base was used by the experimental group for the improvement in vocabulary.

Both the control and the experimental groups had the same amount of time exposure to new vocabularies of the book 504 Absolutely Essential Words about 20 minutes at the end of every session as one of the materials of teaching but the only difference was

using Memrise vocabulary application by the experimental group instead of the book. Moreover, the researcher assured that the control group participants did not have access to this application in their smart phones during the treatment phase. The experimental group was trained to install and use Memrise Mobile app. This mobile application is featured by visualization of the vocabularies.

The Control Group was taught through exposure to the book 504 Absolutely Essential Words as placebo of the research. 20 minutes out of 90 minutes of class time was allocated to this book and the only material which was used for the control group was the book.

3. Procedure

At the first stage of the study, homogeneity of the participants was determined by using Quick Placement Test published by Cambridge in 2003. Then, they were divided into two groups of the experimental and the control group. A researcher-made vocabulary achievement test was used as pretest to determine participants' knowledge of vocabulary but the validity and reliability of the test was confirmed in advance. To determine the content and face validity of the test, the researchers asked the supervisor and 3 experts in language teaching (holding PhD) to pass their comments. Based on the comments of the experts those items which were not formed according to the standards mentioned in Hughes (2003) were omitted or modified.

The vocabulary test was used as pre and posttest. In the same vein, the participants' level of autonomy was measured before and after the treatment. Finally, an interview was conducted to collect more in-depth information on the learners' perspectives of the advantages and disadvantages of the Memrise application treatment.

The treatment included 20 minutes out of 90 minutes of class time allocation to this book. The Experimental group was taught 504 Absolutely Essential Words by applying Memrise mobile The book consists of 42 lessons and each lesson includes 12 new words. These new words were taught during 16 sessions in 8 weeks. Accordingly, 31 words per session had to be introduced to both the control and the experimental groups.

4. Data Analysis and Findings

As the study included both quantitative and qualitative data, the analyses are presented in two separate sections.

4.1 Analysis Results of the Quantitative Data

To examine the pre-existing differences between the students' proficiency level in the two groups (the control and the experimental), an independent sample t-test was performed between the mean scores of the control and the experimental groups in Quick Placement Test. Table 1 shows the descriptive statistics of the groups in QPT test.

Table 1: The Descriptive Statistics of Groups in QPT t-test of Homogeneity

	Group	N	Mean	Std. Deviation
Pretest	Control	25	40.96	2.44
	Experimental	25	41.64	2.11

As Table 1 shows, the mean score of the experimental group in Quick Placement Test (41.64), is a little higher than the control group (40.96). As is presented in the above table the standard deviation for the control group pretest is 2.44 and for the experimental group it is 2.11. To find if this difference is significant, t-test was run. The results of the independent-samples t-test are presented in Table 2.

Table 2: Results of the Independent-samples t-test for QPT-test of Homogeneity
t-test for Equality of Means

	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
QPT	-1.052	48	.298	-.680	.646

Levene's test indicated homogeneity of variance on the QPT-test ($P=353$). As it is indicated in table 2, there was not any significant difference between the groups in QPT-test ($t=-1.052$, $P=.298$). As the table illustrates, for QPT the p value is 0.29 which is more than the alpha 0.05 (QPT-test \rightarrow $p\text{-value} = 0.298 > \alpha = 0.05$). It shows that with a confidence interval of difference of 95%, there was no significant difference between the mean scores of the control and experimental groups. It means that the students in the control and the experimental groups were homogenous on the part of their proficiency.

To answer the first research question and to examine the pre-existing differences between the students' vocabulary level in the two groups, an independent sample t-test was run between the mean scores on the vocabulary pre-test. Table 3 shows the descriptive statistics.

Table 3: The Descriptive Statistics of Groups in Vocabulary Test (pre-test)

	Group	N	Mean Std. Deviation
Pretest	Control	25	17.36.73
	Experimental	25	16.72.85

As Table 3 shows, the mean score of the control group in pre-test of vocabulary (17.36) was higher than the experimental group (16.72). To find if this difference was significant, t-test was run. Results of the independent-samples t-test are presented in Table 4.

Table 4: Results of the Independent-samples t-test for Vocabulary Test (pre-test)
t-test for Equality of Means

	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Pretest	.567	.48	.573	.64	1.12

Levene's test indicated homogeneity of variance on vocabulary pre-test (P=.233). As it is indicated in table 4, there was not any significant difference between the groups in vocabulary pre-test (t=.567, P=.573). It means, for vocabulary achievement (pre-test), the p-value is calculated as 0.567 which is higher than 0.05. Thus, it can be concluded that the two groups did not have any significant differences at the onset of the study in terms of the vocabulary.

To answer the first research question, after the treatment, an independent sample t-test was performed between the mean scores of the post-tests of vocabulary achievement of the two groups to find if there has been any significant differences. Table 5 shows the descriptive statistics of the groups in post-test of vocabulary achievement.

Table 5: The Descriptive Statistics of Groups in Vocabulary Achievement (post-test)

	Group	N	Mean	Std. Deviation
Posttest	Control	25	27.40	4.63
	Experimental	25	32.32	6.00

As Table 5 shows, the mean score of the control group in the post-test of vocabulary, (27.40) was lower than the experimental group (32.32). To find if this difference was significant, t-test was run. Results of the independent-samples t-test are presented in Table 6.

Table 6: Results of the Independent-samples t-test for Vocabulary Achievement (post-test)
t-test for Equality of Means

	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Posttest	-3.242	48	.002	-4.92	1.51

Levene’s test indicated homogeneity of variance on vocabulary achievement (post-test) ($P=.051$). As indicated in table 6, the p-value is calculated as 0.002 which is lower than 0.05. Thus, the hypothesis “there is no significant difference between the experimental and control groups” is rejected and it can be concluded that there was a significant difference between the groups in vocabulary achievement after the treatment and in their performance on the post-test.

To answer the second research question and to examine the pre-existing differences between the students' level of autonomy in the two groups, an independent sample t-test was performed between the mean scores of the control and the experimental groups regarding the autonomy scale (pre-test). Table 7 shows the descriptive statistics of the groups in autonomy scale (pre-test).

Table 7: The Descriptive Statistics of Groups in Autonomy Scale (pre-test)

	Group	N	Mean Std. Deviation
Pretest	Control	25	69.527.99
	Experimental	25	71.601.7

As Table 7 shows, the mean score of the control group in pre-test of autonomy scale (69.52) was lower than the experimental group (71.60). To find if this difference was significant, t-test was run. The results of the independent-samples t-test are presented in Table 8. Levene’s test indicated the homogeneity of variance on autonomy scale (pre-test) ($P=.556$). As indicated in table 8, there was not any significant difference between the groups in autonomy scale (pre-test) ($t=-.881$, $P=.383$).

Table 8: Results of the Independent-Samples t-test for Autonomy Scale (pre-test)
t-test for Equality of Means

	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Pretest	-.881	.48	.383	-2.08	2.36

For the pre-test of autonomy the p value was 0.38 which is more than the alpha 0.05 . It can thus be concluded that the hypothesis ‘there is no significant difference between the two experimental and control groups’ can be confirmed. It means that the students of the control and the experimental groups were homogenous on the part of their level of autonomy before the treatment (pre-test).

To answer the second research question, after the treatment, an independent samples t-test was performed between the mean scores of the post-tests of autonomy scale of the two groups. Table 9 shows the descriptive statistics of the groups in post-test of autonomy scale including mean and standard deviation.

Table 9: The Descriptive Statistics of Groups in Autonomy Scale (post-test)

	Group	N	Mean	Std. Deviation
Posttest	Control	25	68.84	8.02
	Experimental	25	70.08	10.57

As Table 9 shows, the mean score of the control group in the post-test of the autonomy scale, (68.84), was lower than the experimental group (70.08). To find if this difference was significant, t-test was run. Results of the independent-samples t-test are presented in Table 10.

Table 10: Results of the Independent-Samples t-test for Autonomy Scale (post-test)

t-test for Equality of Means					
	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Posttest	-.467	.48	.643	-1.24	2.65

Levene's test indicated the homogeneity of variance on the autonomy scale (post-test) with a sig value of $P=.181$. As it is indicated in table 10, there was no significant difference between the groups in autonomy scale at the post-test with a p-value of 0.64.

4.2 Analysis Results of the Qualitative Data

The following questions were raised for the semi-structured interview.

Q1:What are the advantages of using Memrise mobile application for vocabulary learning?

Q2:What are disadvantages of use of Memrise mobile applications for vocabulary learning?

In order to analyze the data which were gained from the interviews, the researchers conducted thematic coding through inductive approach to find the pre-specified themes. Three stages of open coding, axial coding, and selective coding were used (Ezzy, 2013; Roulston & Choi, 2017). According to Dey (2003), pre-specified themes are known to the researcher which were advantages and disadvantages in the current study and emergent themes and subthemes were found through analyzing the data. Based on the pre-specified themes of advantages and disadvantages, the researchers sifted through data to find the related factors to these two themes to categorize them as subthemes.

Theme 1, advantages, was divided into 5 subthemes as follows: Motivation, Visualization, Accessibility, Efficiency, user-friendliness subthemes. Those features

related to the ability of testing, competitive ability, privileging quality, and dictation checking which were coded as the Efficiency subtheme. Those features related to personalization and customization ability of the application were coded as the user – friendliness subtheme. Those features which related to the portability, ubiquity, flexibility and convenience, were coded as the accessibility subtheme.

Theme 2, disadvantages, was divided into 3 subthemes as follows: Dependency to the Internet, dependency to physical aspects of phone and eye fatigue. Those features related to some problems like the small screen size, dependency to battery life, dependency to memory size were coded as ‘dependency to physical aspects of the phone’ subtheme. The following table presents the themes and subthemes.

Table 11: Presentation of the interview themes and subthemes

Theme 1	Advantages	Theme 2	Disadvantages
Motivation		Dependency to Internet	
Visualization		Dependency to physical aspects of phone	
Accessibility		eye fatigue	
Efficiency			
User-friendliness			

An analysis of the sub-themes is presented in table 12 as follows.

Table 12: Themes and Subthemes Related to Interviewees

Interviewees ID	Theme 1 Adv.					Theme 2 Disadv.		
	Sub.t	Sub.t	Sub.t	Sub.t	Sub.t	Sub.t2.	Sub.t2.	Sub.t2.
	1.1	1.2	1.3	1.4	1.5	1	2	3
Int. 1	1	1	1	0	0	0	0	0
Int. 2	1	1	1	1	1	1	0	0
Int. 3	1	1	1	0	1	0	0	0
Int. 4	1	1	1	1	0	0	0	1
Int.5	1	1	1	1	1	0	0	0
Int. 6	1	1	1	1	0	0	0	0
Int. 7	1	1	1	1	1	0	0	0
Int. 8	0	1	1	0	0	1	1	0
Int. 9	1	1	1	1	0	0	0	0
Int. 10	0	1	1	0	1	1	0	1
Percentages	80%	100%	100%	60%	50%	30%	10%	20%

*Int. means Interviewee

As it is shown in table 12, the answers related to the motivating aspects of Memrise mobile Application (subtheme 1) included 80% of the interviewees’ responses. It was also revealed that all of the interviewees (100%) believed in the fact that Memrise application had a high accessibility and also its visualization was acceptable.

Moreover, 30% of the interviewees mentioned some of Memrise disadvantages related to the dependency of the application to the internet in case of downloading the data bases and activating some of its features like online tests.

Furthermore, 20% of the interviewees mentioned some other disadvantages of Memrise mobile application like its harmfulness for eyes and 10% referred to the dependency of this application to some physical features of mobile phones like, dependency of application to smart quality of phones and some of the interviewees referred to the defects related to shortages in memory size of the cellphone.

Considering the results related to interviewees from the experimental group, 90% of participants believe that Memrise mobile applications' advantages are more than its disadvantages. They believe that using Memrise application is motivating and fun and while visualizing new vocabulary, it is more effective than book. All of the participants (100%) in the interview had the same attitude toward using Memrise Application in case of visualization.

Similarly, 100% of the participants believed that using Memrise application was beneficial in case of accessibility of material everywhere and every time for instance, one of the participants claimed that because mobile is a light-weighted device he could even use it in the bed.

Additionally, 60% of the participants believed that using Memrise application in case of providing pronunciation was time saving and there was no need to check a dictionary for correct pronunciation (Efficiency subtheme). This finding is in line with the findings of Aminatun and Oktaviani (2019) who have highlighted the positive views of their study participants regarding Memrise application in boosting pronunciation of vocabularies.

However, only one of the participants believed that using Memrise application has some shortcomings because the participants do not get used to application as a tool of learning and this interviewee declared that the traditional way of using the conventional book more convenient.

Finally, by analyzing the interviews, it can be concluded that the students in the experimental group enjoyed their class and found their instruction effective for vocabulary learning. The study findings regarding the efficiency of Memrise are in line with Nuralisah and Kareviati (2020) as well as Paradhina and Laksman-Huntley (2021).

The findings of this phase of the study conform to what was found in the quantitative phase. Both sets of results suggested that using Memrise mobile application contributed to the EFL learners' improvement of vocabulary achievement.

5. DISCUSSION

The first question of this study investigated the significant effect of using Memrise app on upper-intermediate Iranian EFL learners' vocabulary achievement. The results

showed that there was a statistically significant difference in vocabulary achievement of the participants in the experimental group. Findings of this study is consistent with those of Thornton and Houser's (2005) study found that mobile phones can effectively serve to educate a foreign language learner and short text messages are very useful in teaching vocabulary. This is due to two important characteristics of mobile apps: visualization and accessibility of the needed information. Findings are also supported by Mahmoodi and Fahandezh's (2015) research outcomes that confirmed the effectiveness of using mobile application on students' performance which in turn lead a better vocabulary learning. In keeping with the present study findings are those of Graham (2003), Knowles (2008), as well as Leakey and Ranchoux (2006) who realized that using soft wares with comprehensible input can boost vocabulary achievement

Results of the second research question revealed a nonsignificant effect of Memrise mobile app on upper-intermediate Iranian EFL learners' autonomy. This might be explained in terms of the insufficient length of exposure time to Memrise app by the participants. Findings are in line with Djoub's (2016) findings in that limited use of such technological devices is not likely to help the learners develop autonomy since it does not go beyond the objective of enhancing their knowledge of language. Qing's (2016) results are also in agreement with the present study findings since autonomy was realized to be achieved in a long time and because most research is not longitudinal, significant results could not be obtained.

Results obtained from the analysis of the third research question revealed positive attitudes of participants towards using Memrise App for learning vocabulary. They enjoyed pronunciation learning using this app. The findings were in line with the study of Mahmoodi and Saadi(2015) who showed that the participants had a positive attitude toward mobile learning. They also believed that the success of mobile learning depends largely on whether mobile technologies are accepted by the students. Based on the interview results, all participants expressed that they liked the experiences of using their own mobile. Moreover, they enjoyed the convenience and flexibility that mobile phones brought to them for vocabulary development. Some of the advantages of using Memrise app which were mentioned by the interviewees are as follows:

- Mobile phones are small and can be carried very easily unlike heavy books and dictionaries
- When EFL learners use mobile phones for vocabulary learning, they have access to the online database of Memrise and online testing is facilitative and very useful for learners' learning.
- Accessibility of mobile apps everywhere even when travelling in the bus or taxi is appreciable.
- This application has user friendly facilities and it is easy to navigate and use its different parts.

- The ability to personalize the app and provide a part in the app to share translated items is a benefit which helps the learners provide their own translation.
- The users can check their rate in a worldwide context(Allow for personalization of content creation)

Some of the disadvantages of using Memrise app which were mentioned by the interviewees are as follows:

- There is too much dependence on the Internet for using some of its parts.
- The screen size is small and there is limitation in battery life and memory size.
- There is high occupation of the mobile storage by the Memrise app.

6. CONCLUSIONS

This study confirmed the effectiveness of using Memrise mobile application in boosting vocabulary achievement. Among the reported advantages of such applications are their convenience, accessibility, and user friendliness. Besides EFL learners are highly motivated using this app. Despite the significant results obtained, participants did not become autonomous as a result of practicing learning with this app.

The findings of the present study provide some pedagogical implications for educators and stockholders of language teaching field. First, integrating mobile technology into vocabulary instruction is a viable teaching/learning method to promote engagement and motivation on the part of students. Teachers are recommended to introduce these kinds of Applications to their students and their colleagues. Also, syllabus designers and curriculum developers can focus on such mobile Applications like Memrise and determine some tasks, exercises based on Memrise Application or any other which relate to mobile assisted language learning. Finally, Mobile applications as language learning tools are highly recommended in schools and language institutes. It is suggested to replicate this study within a longer period of time to probe how using memrise app may enhance autonomy among EFL learners.

7. REFERENCES

- Abbasi, M. & Hashemi, M. (2013). The impact/s of using mobile phone on English language vocabulary retention. *International Research Journal of Applied and Basic Sciences*, 4(3), 541-547.
- Alizadeh, I. (2016). Vocabulary Teaching Techniques: A Review of Common Practices. *International Journal of Research in English Education*, 1(1), 22-30.
- Aminatun, D., & Oktaviani, L. (2019). Using “MEMRISE” to boost English for business vocabulary mastery: students ‘viewpoint. *Proceedings Universitas Pamulang*, 1(1).
- Bajrami, L. (2015). Teacher’s new role in language learning and in promoting learner autonomy. *Procedia - Social and Behavioral Sciences* 199, 423 – 427.

- Burston, J. (2013). *Mobile-Assisted Language Learning: A selected annotated bibliography of implementation studies, 1994-2012* (17).
- Cohen, L., Manion, L., & Morrison, K. (2011). *Research method in education*. Routledge.
- Conroy, M. A. (2010). "Internet tools for language learning: University students taking control of their writing. *Australian journal of educational technology*, 26(6), 861-82.
- Creswell, J. (2012). *Educational research planning, conducting, and evaluating quantitative and qualitative research*. Pearson.
- Dey, I. (2003). *Qualitative data analysis: A user friendly guide for social scientists*. Routledge.
- Djoub, Z. (2016). Mobile Technology and Learner Autonomy in Language Learning. In J. Keengwe (Ed.). *Promoting active learning through the integration of mobile and ubiquitous technologies* (pp.194-212). IGI Global.
- Ezzy, D. (2013). *Qualitative analysis*. Routledge.
- Farivar, A., & Rahimi, A. (2014). The Impact of CALL on Iranian EFL Learners' Autonomy. *Procedia - Social and Behavioral Sciences* 192, 644 – 649.
- Hashim, N & Jones, M.L. (2007). *Activity theory: a framework for qualitative analysis*, in 4th International Qualitative Research Convention(QRC), 3-5 September, PJ Hilton, Malaysia.
- Hughes, A. (2003). *Testing for language teachers*. Cambridge university press.
- Kim, H.& Kwon, Y. (2012). Exploring smartphone applications for effective mobile-assisted language learning. *Multimedia-Assisted Language Learning*, 15(1), 31-57.
- Lantolf J, P. (2000). *Sociocultural Theory and Second Language Learning*. Oxford University Press.
- Little, D. (2022). Language learner autonomy: Rethinking language teaching. *Language Teaching*, 55(1), 64-73.
- Liu, T. Y., Tan, T. H., & Chu, Y. L. (2009). Outdoor natural science learning with an RFID supported immersive ubiquitous learning environment. *Journal of Educational Technology & Society*, 12(4), 161-175.
- Mahmoodi , S. M., & Saadi, F. F. (2015). Exploring Iranian EFL University Students' Attitudes toward Mobile Applications for Vocabulary Learning. *International Journal of Language Learning and Applied Linguistics World*, 9(1), 130-142.
- Mackey, A., & Gass, S. M. (2005). *Second language research: Methodology and design*. Lawrence Erlbaum.
- Maxwell, J. A., & Loomis, D. M. (2003). Mixed methods design: An alternative approach. In A. Tashakkori & C. Teddie (Eds), *Handbook of mixed methods in social and behavioral research* (pp. 241-272). Sage Publications.
- Miangah, T. M., & Nezarat, A. (2012). Mobile-Assisted Language Learning. *International Journal of Distributed and Parallel Systems*, 3(1), 309-319.

- Nah, K. C., White, P., & Sussex, R. (2008). The potential of using a mobile phone to access the Internet for learning EFL listening skills within a Korean context. *ReCALL*, 20(3), 331-347.
- Nuralisah, A. S., & Kareviati, E. (2020). The effectiveness of using Memrise application in teaching vocabulary. *Professional Journal of English Education*, 3(4), 494-500.
- Paradhina, N. R. H. P., & Laksman-Huntley, M. (2021, December). The Efficacy of Memrise as a Supplementary Study Material in Understanding French as a Foreign Language. In *International Seminar on Language, Education, and Culture (ISoLEC 2021)* (pp. 249-252). Atlantis Press.
- Park, J. Y. (2013). *A study on the effect of smart-phone application along with types of learning on university students' vocabulary ability and learning attitudes.* (Master's thesis, Ewha Woman's University, Seoul) Retrieved from <http://www.riss.kr.access.korea.ac.kr/link?id=T13080150>
- Qing, X. (2016). A Brief Study on English Autonomous Learning Ability Based on Mobile Learning in EFL Curriculum. *Canadian Social Science*, 12(11), 114-118.
- Roh, J., & Kim, T. (2019). Fostering learner autonomy through CALL and MALL in a Korean class: A case study. *Journal of Interactive Learning Research*, 30(2), 215-254.
- Seidman, I. (2006). *Interviewing as qualitative research: A guide for researchers in education and the social sciences.* Teachers College Press.
- Seo, Wonhwa & Choi, Inn-Chull. (2014). The effect of using a smart-phone speaking application on Korean middle school students' English expression learning and satisfaction. *Multimedia-Assisted Language Learning*, 17(1), 34-57
- Sole, C., Calic, J. & Neijmann, D. (2010). A social and self-Reflective approach to MALL. *ReCALL*, 22(1), 39-52.
- Soleimani, Y., & Gowhary, H. (2014). The Affirmative Impact of Visual and Verbal Techniques upon Raising Vocabulary Achievement of Iranian High School Students. *International Journal of Language Learning and Applied Linguistics World(IJLLALW)*, 7(4), 130--144.
- Tashakkori, A., Johnson, R. B., & Teddlie, C. (2020). *Foundations of mixed methods research: Integrating quantitative and qualitative approaches in the social and behavioral sciences.* Sage Publications.
- Thornton, P., & Houser, C. (2005). Using mobile phones in English education in Japan. *Journal of Computer Assisted Learning*, 21(3), 217-228.
- Walker, L. (2016). *The impact of using Memrise on student perceptions of learning Latin vocabulary and on long-term memory of words* (Vol. 16).
- Wallen, N.E. & Fraenkel, J.R. (2001). *Educational research: A guide to the process.* Lawrence Erlbaum Associates Publishers.
- Yang, W. & Dai, W.(2011). "Rote Memorization of Vocabulary and Vocabulary Development." *Canadian Center of Science and Education* 4(4), 61-64.
- Zhang L. X. & Li, X.X. (2004). A comparative study on learner autonomy between Chinese students and west European students. *Foreign Language World*, 4, 15-23.