

Research paper

The Effect of "Drops" Application as Gaming on Vocabulary Learning of Iranian EFL Young Learners

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Abstract

The present study investigated the effect of using an English vocabulary learning application called "Drops" as a tool in helping English as foreign language (EFL) young learners in pre-intermediate level learn English vocabulary. This app was designed to be installed into smartphones with Android and IOS system. To examine the program's effectiveness, two groups of students (40 learners in each group) in two kinds of genders were set up as an experimental group (those with "Drops") and a control group (those without "Drops"). Knowledge of the vocabulary after homogenizing learners tested before and after using this app by pre-test and post-test PET multiple-choice test, to assess the impact of the using this app on vocabulary learning on young EFL learners in Iran. The results of the study showed that the learners who use the application significantly outperformed those in the control group that learn vocabularies by traditional methods. At the conclusion of the study, the researcher realizes that 1) using technology such as digital games should be highly emphasized where learning vocabulary is the focus of the study, 2) teaching vocabulary traditionally in the control group, though was less significant than the experimental group in this study, should be also utilized as the second priority in teaching vocabulary in class, 3) the findings revealed no difference in learning English vocabulary based on gender.

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Introduction

One of the most intense problems in the teaching and learning of subsequent languages is vocabulary acquisition, and perhaps one of the most difficult aspects of second language learning is the safeguarding of acquired vocabulary (Holden, 1999). Gao and Xu (2013) pointed to the history of English, which can be divided into three phases of study: Old English, Middle English and Modern English, respectively. English has typically collected a considerable supplement through its unique creation which encompasses over one million words. They're usually unlisted to any of these kind words; many of them are also rejected or voluntarily evacuated. They also noticed around twenty thousand English words that can be used in ordinary life, which attend scarcely so an enormous number to recall for most English learners. We should accept an effective way to recall English words in order to learn English more effectively and develop a vocabulary which can meet the requirements of normal communication.

According to Schimid (1995), teachers are supposed to tell learners various learning strategies to give them fortuitous preference if they choose. As described in Prensky (2009), learners who were born in 1980 can simply use digital resources such as video games, computers and smart phones. However, if learning procedure is simplified with devices such as smartphones or computers, students will experience the joy of learning language (Yang & Chen, 2007). Regardless of the value of vocabulary, there has been more focus on four language skills in the Iranian education system, so word definitions are still unimportant in many classrooms (Hashemi & Hadavi, 2015).

According to Juul (2010), a game may be a formal instruction-based system with an adaptable and measurable outcome, where different outcomes are assigned different values, the player uses effort to impact the outcome, the player senses attached to the outcome, and the meanings of the activity are optional and passable. The description of the game which he suggests includes six parameters: 1) Rules: games are based on rules. 2) Outcome: the games have dynamic outcomes that can be quantified. 3) Value: that the various potential outcomes of the game are given different criteria, some positive, some negative. 4) Energy: that the player puts energy into influencing the outcome. 5) The involvement of the player: that the players are interested in the outcome of the game in the sense that the player is the winner and satisfied if the result is good, and the loser and the unfortunate if the result is negative 6) Negotiable consequences: the same game can be played with or without real-life values Ang and Zaphiris (2008).

Current play theories are concerned with the ways that children's mental development supports play. They have had an effect on early childhood programs, particularly in under-five sets, where we now see play at the core of the system and use it as a tool to extend the development of children through its various domains. But logically they are distinct from the conventional theories. Piaget produced one of those new ideas about play in 1962. He changed the focus of studying from playing social and emotional features to understanding the children. Within his stage-based theory of cognitive progress, he employed play and assigned it a

significant role in the rising minds of children. His theories on how play donates to the cognitive growth of children are underpinned by two mechanisms by which children definition understanding, assimilation, and accommodation. Piaget continued that assimilation leads to play — children take something and make it appropriate for what they learn, for instance when a child creates rolled paper to be a royal staff. Speaking of figurative play, he bordered on the importance of play in the advancement of conceptual representation and abstract thoughtfulness of children (Verenikina, Harris, & Lysaght, 2003). Csikszentmihalyi (2015) drew up fundamental theoretical framework of game play (flow theory) in 1990 and the influence of games on children's academic development was definite in Piaget's literature in 1929. Korhonen, Montola and Arrasvuori (2009) suggest digital games are creating social connections. Csikszentmihalyi (2015) in his flow theory notes that individuals who play games struggle during game activities and interesting topics of approaching events (Demirbilek, Yilmaz, & Tamer, 2010). There is also a common belief that the use of ICTs in education offers a more constructivist learning and an improvement in students' engagement and duty (Mikre, 2011), which means that the teacher's position is supportive, and technological innovation and changes in education instantly make a noticeable effect on academic growth as well as effective management and conventional methods of reliably informing higher training less sufficiently motivating for the vast number of students (Raval, 2014).

Vocabulary is the integral part of learning a language and is stressed in books and schools as a sense of a new phrase. Alqahtani (2015) believed that in speaking (expressive vocabulary) and listening (receptive vocabulary) vocabulary means words that we use to communicate effectively. Others such as Patahuddin, Syawal, and Bin-Tahir (2017)) identified vocabulary as the total number of words in a language and Sedita (2005) stated that vocabulary is one of the five core components of reading instruction that includes phonemic knowledge, phonics and word analysis, fluency vocabulary, and comprehension.

Dalton and Grisham (2011) have suggested ten approaches on how to use technology to teach and practice vocabulary:

- a. Learn from visual word displays and textual relationships.
- b. Take a field trip on interactive vocabulary
- c. Link with online vocabulary games and learn fun
- d. Let students use media to communicate their language skills
- e. Profit from online word search resources, which are also teaching resources
- f. Enable reading and word-learning with just-in-time reference vocabulary help
- g. Using language translators to provide ELLs with just-in-time assistance.
- h. Enhance the rate of reading through reading digital text
- i. Increase the amount of reading by listening to digital text through a text-to - speech device and audio books. Combine study of vocabulary and social service.

Regardless of the previous study playing video games, learners communicate with each other and inspire learners to understand how video games can help with vocabulary learning. There are three obstacles to using computer games, as Baltra (1990) notes in his study:

- Specific goals: raise awareness of target and game packages for learners.
- Regular feedback: Learners require some kind of input to know whether they are meeting the specified goal or not.

Drops is a new and fun way to learn languages. By combining beautifully designed word games with mnemonic associations, it developed a cult following, becoming the fastest-growing learning app within the world. The short, engaging games make learning a fun a part of your daily routine and not a chore. It's easy to learn one or more of Drops' 32 languages. While fun and straightforward, the beautifully designed app is made with years of research into the way to assist you learn a language more effectively and simply.

After installing this app and completing the profile learner should choose the language that they want to learn, there are many topics with most important words that related to the topic and simple sentences that learner can discern the word is suitable for each picture, after carefully selecting the familiar word is repeating gently several periods with correct dialect, each grade of this mobile game possesses prime time for typically playing and if learners do it well they can go to lock levels. This app is very simple with simple images that all persons in each age can distinguish it but this study will focus on young learners.

As stated by Hubbard, et al. (1983) to other studies, many teachers have problems with vocabulary learning, while this part of teaching and learning is one of the necessary and successful parts of four other language learning skills, so teachers seek to test new ways of helping learners, as well as sitting on chairs for 90 minutes per segment is boring to learners. He studied many techniques relating to vocabulary presentation. He also pointed out that there are a few things to remember regardless of the manner in which new lexical objects are introduced. He showed that if teachers want new vocabulary to remind students, it needs to be learned in context, practiced, and then revamped to prevent students from forgetting. Ultimately, he concluded that teachers must ensure that students have learned the new terms best remembered if they are memorably presented.

The study aims to examine the role of the application of Drops on Iranian young EFL vocabulary learning. Researchers intend to find the impact of using this application on the student's learning and what's the difference between the two genders of young learners and their motivations. So as a sequence, this research study helps Iranian young learners to learn vocabularies by new audio-visual methods and using technology.

Throughout this paper 'digital game' (DG) will be used to talk about the games that can be played on any technological platform such as computers, mobile phones, etc. regardless of the game type or software itself.

Literature review

Vocabulary learning, even the key difficulties in L2 learning) because it could potentially hinder the communication skills of learners have been simplified by using mobile apps that

enable learners to obtain words as well as single words or multi-word constituents (Lopez, 2018) because of their various features (Lin & Lin, 2019). The ever-present and interactive affordances of mobile apps build possible L2 vocabulary learning in which students can apply their spare time or superiority to working words that are adapted to their recent language ability level (Hung, Hwang, & Su, 2012; Sung, Chang, and Liu, 2016). From a socio-cultural point of view, having familiar supplies to the ability level of the pupils helps them reach their Proximal Development Zone (ZPD) (Ebadi, Vakilifard, & Bahramlou, 2018). These used systems as appropriate, omnipresent, socially interacting, and contextually sensitive life (Kukulka-Hulme, 2006), to familiar name but a few, have adequately prepared for the ongoing creation of experimental MALL-oriented vocabulary investigation studies with dissimilar research efforts counting the age and language capacity of the willing participants (Lin & Lin, 2019). Likewise, these affordances have inspired dissimilar researchers to perform relative studies with an attempt to assess the efficiency of application development as distinct from conventional methods of vocabulary learning and to obtain insights from students who have used mobile apps to improve their lexical variety (Rachels & Rockinson-Szapkiw, 2018).

Kafipour, et al.(2011) examined the result of the meta-cognitive approach drill by using simple strategy teaching on the growth of lexical knowledge among 53 male and female Iranian EFL learners engaging in a severe sequence of English at the Tehran Institute of Technology aged 19 to 25. The findings presented that there was no substantial difference in vocabulary knowledge among two clusters. But, post-test revealed that while at the beginning of the study there was no substantial difference between control and experimental group in terms of lexical comprehension, at the end of the research the experimental group outdone the control group in terms of lexical knowledge. Consequently, the findings of this study indicate that strong metacognitive approach teaching has a positive impact on the increase in the lexical comprehension of EFL students.

Learning vocabulary over cell phones may also suit this principle well. First, the amount of attention provided to the task and the steps required to achieve it are important for learning tasks to be efficient, and it is best to access the Whatsapp and Online Dictionary applications to get the tasks. Revamping the motivations of the learners towards the assigned tasks, making the tasks part of their weekly scheduled assignments and the expected rewards of receiving extra credit can also increase the students' attention to the models and important components that are deemed necessary for the reward (Bandura, 2006).

Secondly, the text, graphics, audio, and video that can be downloaded to the mobile devices may theoretically enhance the memory of the experienced content. Memory is used to arrange the things to be attended and observed and to label them mentally. Third, based on teacher feedback through Whatsapp, the behaviors of the learners are changed, and the appropriate responses can be replicated for the task.

Q1. Does the application of “Drops” have any statistically significant effect on the vocabulary learning of Iranian young EFL learners?

Q2. Is there any statistically significant difference between the vocabulary learning of Iranian male and female young EFL learners who use the application of “Drops”?

MethodDesign This research adopts a quantitative experimental design as it aims to examine the influence of the use of Drops application on vocabulary learning among Iranian young EFL learners. The participants were selected through available sampling and then were randomly divided into two groups. The study was conducted at Roham language center in Karaj, Iran. The treatment lasted for 13 sessions. Students in the experimental group were under the treatment (using digital games). On the other hand, students of the control group didn't receive such kind of treatment. They received a traditional teaching method. The teacher for both groups was the same. The independent variable in this study was the digital game application and the dependent variable was vocabulary learning.

Participants

The sample of the current study consisted of 40 Iranian female and male participants between the ages of 12 and 16 years. They were selected among 60 students from Roham language center, Karaj, Alborz, Iran. They took an Oxford Quick Placement Test (OQPT). Upon the administration of this test, 40 participants (20 males and 20 females) whose scores were one standard deviation above and below the mean were selected as participants of the study, and randomly divided into two groups; control group (CG) and experimental group (EG). All of them were at pre-intermediate level of proficiency in English based on the results of OQPT. Each group contained two sub-groups of 10 males and 10 females each. All the participants were native speakers of Persian.

Instrumentation

Several instruments were utilized in the process of the development of the present research. The first instrument of this study was the Oxford Placement Test (OPT). The Second Version of Quick Placement Test developed by Oxford University Press and University of Cambridge Local Examinations Syndicate (Syndicate, 2001)) had been used to choose two nearly homogenous experimental and control groups in which all the participants were at the pre-intermediate level of language proficiency. This placement test has two main parts including part one (Questions 1 – 40) and part two (Questions 41 – 60) that needed to be completed in 40 minutes. This instrument was used to gather information on the learners' proficiency. It included 60 multiple-choice items and the learners who achieved from 19 to 39 were determined as the pre-intermediate level. The reliability of the test was checked using the KR-21 formula. Based on Najmi (2020) the OPT was validated.

The second instrument was a vocabulary-based pre-test. To realize current participants' vocabulary comprehension level, a researcher-made pre-test was designed based on the students' text book. (i.e., Super Minds). The test was made of 40 multiple-choice items testing the participants' vocabulary knowledge and each item had a score of one. This test was given to measure the students' vocabulary knowledge before receiving the treatment.

The third instrument which was utilized in this study to ascertain the effects of the treatment on the participants' vocabulary learning was a researcher-made vocabulary post-test based on the instructed content during the treatment sessions to evaluate their achievement. The post-test, consisting of 40 multiple-choice items, was an achievement test. The post-test was assigned during the last treatment sessions and each item had a score of one. It was administered to determine the effect of digital games on the participants' vocabulary learning. All characteristics of the post-test were similar to the pre-test in terms of time and the number of items. Only the order of questions and options were changed to wipe out the probable recall of pre-test answers. The time allocated for each test was about one hour. Because the level of students was pre-intermediate, the pre-test and post-test were designed at the same level. Furthermore, face and content validity of the tests were confirmed by two English experts in the fields of SLA and its reliability index was calculated through Cronbach's Alpha formula.

Procedure

For this study, 60 students who studied at Roham language center were selected. The participants were administered a test to determine their homogeneity regarding their levels of proficiency at the pre-intermediate level based on the OQPT and then 40 learners whose scores were one standard deviation above and below the mean were selected and randomly comprised of two experimental and control groups.

After the homogeneity test, all the participants were pre-tested, and then the treatment was practiced. Some new words with a broad application domain in online games were selected to be presented to the participants of both groups. The researcher taught the experimental group using digital games. They received step-by-step instructions on playing online games. The participants assigned to the experimental group learned how to play the video game based on Drops application for vocabulary learning; whereas the participants of the control group met in a traditional class to practice and drill the same vocabulary. Participants in the experimental group were allowed to use the internet in the classroom. During class time, students in the experimental class enjoyed an enjoyable environment where they used a variety of words in the context. Acquiring new words can enable students to cooperate and compete with each other so they are willing to learning them quickly. On the other hand, students of the control group were deprived of such kind of treatment. They received a traditional teaching method. The conventional method, paper, and pencil technique were used to instruct new words to the participants in the control group. This group learned new words in sentences, texts, and passages. The course was about 16 sessions; 2 sessions per week. The allocated time for each session was 75 minutes. In the first two sessions the OQPT and the pre-test were administered respectively; in 13 sessions the students received the treatment-using Drops application in learning English words, and in the last session (16th session) the post-test was given to the participants of both experimental and control groups to measure the students' progress as a result of the instruction.

Data Analysis

The collected data were summarized and the procedures of descriptive statistics (means, standard deviations, etc.) were followed by inferential statistics. To conduct any parametric statistical tests, the underlying assumptions have to be checked. Thus, the Kolmogorov-Smirnov test of normality was conducted before running a one-way ANCOVA, which was used for the purpose of the first research question of the study. Through one-way ANCOVA, the researcher could control for any possible pre-existing differences between the EG and CG, and compare their posttest scores accordingly. For the second research question, to compare the male and female EFL learners in the EG, because of low sample size, the researcher opted for a Man-Whitney U test.

Results

Before conducting the parametric statistics of ANCOVA, it was necessary to check the normality assumption of parametric tests. Thus, the results of the Kolmogorov-Smirnov test of normality for the pretest and posttest scores of the EG and CG learners are displayed in Table 1.

Table 1

Results for the Test of Normality

| | Kolmogorov-Smirnov | | | Shapiro-Wilk | | |
|------------|--------------------|----|------|--------------|----|------|
| | Statisti | | | Statisti | | |
| | c | df | Sig. | c | Df | Sig. |
| EGPretest | .14 | 20 | .20 | .96 | 20 | .66 |
| EGPosttest | .13 | 20 | .20 | .96 | 20 | .70 |
| CGPretest | .16 | 20 | .16 | .96 | 20 | .62 |
| CGPosttest | .10 | 20 | .20 | .98 | 20 | .96 |

The p values under the Sig. column show whether the distributions for the pretest and posttest scores of the learners in the EG and CG were normal or not. Because all the p values lined up under the Sig. column (for both Kolmogorov-Smirnov and Shapiro-Wilk tests) in Table 1 were greater than the .05 level of significance, it could be concluded that the all the above-mentioned distributions were normal. It was thus safe to proceed with the analysis of the parametric test in this study (i.e., the one-way ANCOVA).

Results for the First Research Question

The first research question of the study was formulated to investigate whether the application of *Drops* had any statistically significant effects on the vocabulary learning of Iranian young EFL learners. For this purpose, the researcher compared the posttest scores of the learners in the EG with those of learners in the CG. To control for any possible pre-existing differences between these two groups of learners, one-way ANCOVA was conducted. This statistical procedure controlled for any possible differences between the two groups on the pretest and then compared their posttest scores. Table 2 presents the results of the descriptive statistics of the one-way ANCOVA:

Table 2*Descriptive Statistics for the Posttest Scores of the Learners in the EG and CG*

| Groups | Mean | Std. Deviation | N |
|--------|-------|----------------|----|
| EG | 31.55 | 2.54 | 20 |
| CG | 25.00 | 2.69 | 20 |
| Total | 28.27 | 4.20 | 40 |

Such descriptive statistics (mean and standard deviation) are shown for the learners in both EG and CG learners in Table 2. The posttest mean score of the EG learners ($M = 31.55$) was larger than the posttest mean score of the CG learners ($M = 25.00$). To see whether this difference was a significant one or not, the researcher needed to look down the Sig. column across the row labeled Groups in the ANCOVA table (Table 4.3):

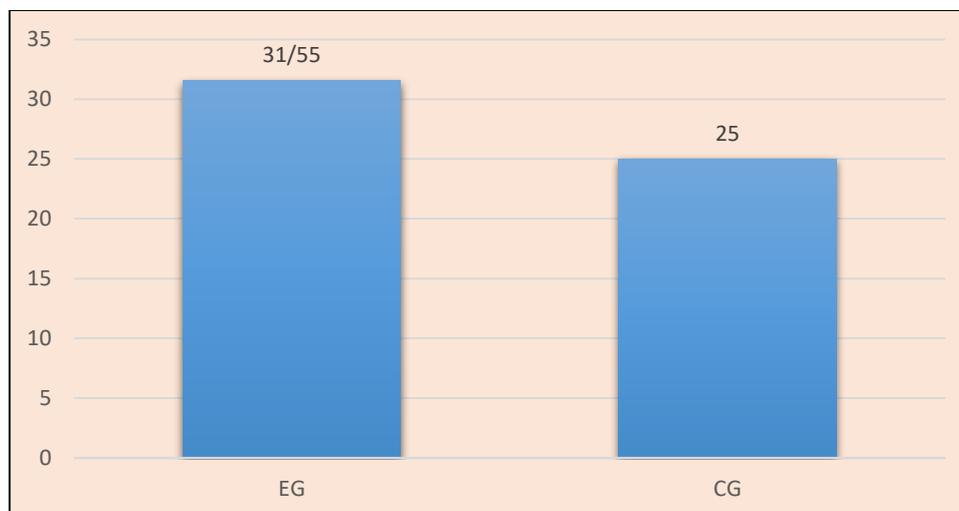
Table 3*One-way ANCOVA for the Posttest Scores of the EG and CG Learners*

| Source | Type III Sum of Squares | Df | Mean Square | F | Sig. | Partial Squared | Eta |
|-----------------|-------------------------|----|-------------|---------|------|-----------------|-----|
| Corrected Model | 483.99 | 2 | 241.99 | 43.46 | .00 | .70 | |
| Intercept | 7161.00 | 1 | 7161.00 | 1286.31 | .00 | .97 | |
| Pretest | 54.96 | 1 | 54.96 | 9.87 | .00 | .21 | |
| Groups | 431.89 | 1 | 431.89 | 77.58 | .00 | .67 | |
| Error | 205.98 | 37 | 5.56 | | | | |
| Total | 32669.00 | 40 | | | | | |
| Corrected Total | 689.97 | 39 | | | | | |

In Table 3, if you find Groups in the leftmost column and read across this row, under the Sig. column, you can find the p value, which should be compared with the significance level. The p value here was smaller than the specified level of significance ($.00 < .05$), indicating that the difference between the learners in the EG ($M = 31.55$) and the CG ($M = 25.00$) was statistically significant. Under Partial Eta Squared, the relevant value was .67, which shows that being in different groups (EG vs. CG) accounted for 67% of the variance in the posttest vocabulary scores of the learners. This result is also shown in Figure 1 below:

Figure 1:

Posttest mean scores of the learners in the EG and CG



From the bar graph in Figure 1, it could be understood that the EG learners (who were exposed to the *Drops* application) significantly outperformed their counterparts in the CG. Consequently, the first null hypothesis of the study was disconfirmed.

Results for the Second Research Question

The second research question of the study intended to examine whether there were any statistically significant differences between the vocabulary learning of Iranian male and female young EFL learners who used the application of *Drops*. To this end, the researcher used the Man-Whitney U test (because of the low sample size as there were only 10 male learners and 10 female learners in this analysis) twice: once to compare the pretest scores of the male and female learners in the EG to make sure they were not different from each other at the outset of the study, and once at the end of the study to see whether different gender groups benefited differently from the treatment or not. The results for these analyses are shown in what follows:

Table 4

Descriptive Statistics for Pretest and Posttest Scores of Male and Female Learners in the EG

| | Pretest Males | Pretest Females | Posttest Males | Posttest Females |
|-------------------|------------------|--------------------|-------------------|---------------------|
| <i>N</i> | 10 | 10 | 10 | 10 |
| Median | 3.00 | 5.50 | 32.50 | 30.00 |
| Mean | 3.30 | 5.60 | 32.50 | 30.60 |
| Std. Deviation | 2.21 | 2.91 | 1.77 | 2.91 |

Table 4 shows the descriptive statistics (i.e. number, median, mean, and standard deviation) for both pretest and posttest scores of the male and female learners in the EG. The pretest median of the EG males (3.00) was smaller than the pretest the EG females (5.50). To find out whether this difference in the pretest scores of the two gender groups was a significant one or not, the researcher needed to look at the relevant p value in Table 4.5. Before that, it could be seen in Table 4 that the medians for the posttest of EG males (32.50) and EG females (30.00) were also different from one another. To see if the difference between these two posttest medians was of statistical significance or not, the researcher again needed to look at the relevant p value in Table 5.

Table 5

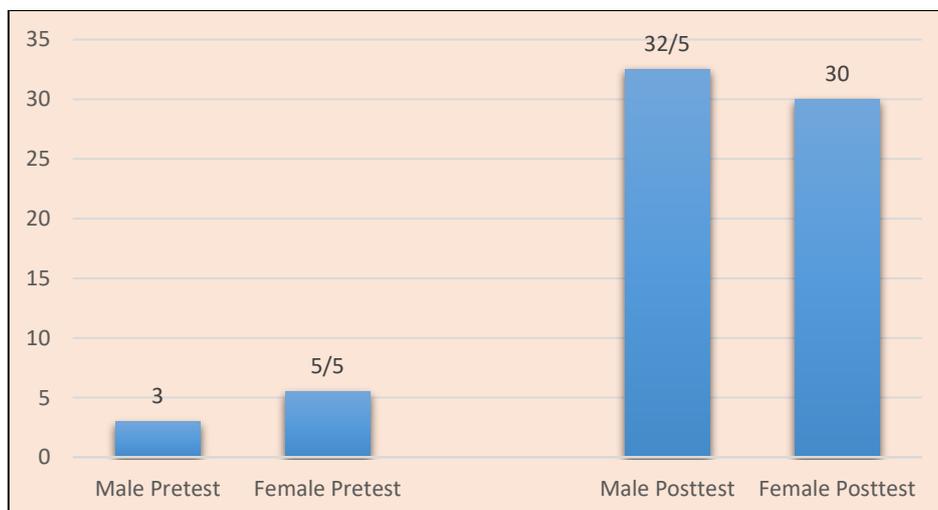
Man-Whitney U Test for Pretest and Posttest Scores of Male and Female Learners in the EG

| | Pretest | Posttest |
|--------------------------------|---------|----------|
| Mann-Whitney U | 26.50 | 27.00 |
| Wilcoxon W | 81.50 | 82.00 |
| Z | -1.78 | -1.75 |
| Asymp. Sig. (2-tailed) | .07 | .08 |
| Exact Sig. [2*(1-tailed Sig.)] | .07 | .08 |

In Table 5 under the pretest column and in front of Asymp. Sig. (2-tailed), it could be seen that the p value was larger than the specified level of significance ($.07 > .05$), indicating that the difference between the male and female learners in the EG with respect to their vocabulary pretest scores was not statistically significant. Likewise, the p value for the posttest analysis ($p > .05$) implied that the two gender groups in the EG did not differ significantly from one another on their posttest scores. These obtained results are also shown in Figure 2.

Figure 2

Pretest and posttest medians for male and female learners in the EG



The bar graph in Figure 2 shows that the male and female learners in the experimental group were not drastically different from one another on their pretest of vocabulary. It could also be seen in the figure above that the male and female learners in the EG did not differ considerably from one another on the vocabulary posttest. These obtained results boil down to the acceptance of the second null hypothesis of the study.

Discussion

Discussion of the results and findings focuses on answering the research questions to accept or reject the null hypotheses. Two research questions and their answers are as follows:

RQ1: Does the application of “Drops” have any statistically significant effect on the vocabulary learning of Iranian young EFL learners?

The results of the present research (based on one-way ANCOVA), showed that there existed a statistically significant difference between learners in the EG and CG on vocabulary learning. It was shown that the EG learners (who were exposed to the Drops application) significantly outperformed their counterparts in the CG. Therefore, using Drops application affected positively in helping Iranian EFL learners to improve their vocabulary knowledge at the pre-intermediate level. Consequently, the first null hypothesis of the study was rejected. According to Yip and Kwan (2006) students who used games for their learning were more successful in learning new words compared to those who used traditional methods to learn the same vocabulary.

The findings of this study are in agreement with Levine (2006) also pointed out the fact that games, more than books, movies, and music, force students to make decisions, an important component of learning. The results of this study are also in line with that Aslanabadi and Rasouli (2013) conducted a study on the impact games have on improving the awareness of Iranian EFL vocabulary in kindergartens. Their research sought to find a way to help young EFL learners focus their minds on the novel vocabulary. The study was carried out at two kindergartens. They divided the students into the category of experimental and control. The experimental group provides an online language teaching game, and regular teaching is given by the control group. The results of their study showed that games not only bring fun to the class for experimental learners, but also motivate learners and enhance their confidence.

These findings are in agreement with research conducted by Tuan (2012) who researched game-based learning and traditional workbook methods with vocabulary learning in a Vietnamese elementary school and found game-based learning to have significant gains over traditional learning methods.

RQ2: Is there any statistically significant difference between the vocabulary learning of Iranian male and female young EFL learners who use the application of “Drops”?

To answer the second question, descriptive and inferential statistics are useful. According to the results (based on Man-Whitney U Test), it was indicated that the difference between the male and female learners in the EG with regard to their vocabulary pretest and posttest scores was not statistically significant. These obtained results confirmed the second null hypothesis of the study. In fact, gender didn't affect the vocabulary learning based on Drops application. The results of this study are in line with that of Blunt (2007) who found no significant differences on academic achievement based on gender. Blunt's (2007) study focused on business and technology at a university rather than second or English language learning, but the findings that gender was not a predictor of academic achievement in business and technology specific language is helpful for this study. Blunt's (2007) study did show significant gains of both genders when game-based learning was implemented.

The findings of this study are in disagreement with that of Vahdat and Rasti-Behbahani (2013) investigated the impact video games have on vocabulary learning of Iranian EFL students. Their study participants were 40 male and female intermediate EFL learners, who selected their participants through a TOEFL proficiency test. They divided them into two groups: a control group and an experimental group (10 males and 10 females in each); in typical schools, the control group learned vocabulary while the experimental group encountered vocabulary learning (the same words) through a video game called "Runaway: A Road Adventure". Their study results revealed that learning vocabulary through video games was beneficial, and males were shown to be more inclined towards learning video games than females. In fact, there is a positive connection between gender and vocabulary learning through video games. This study does not support the findings of Benoit (2012) who found gender to play a significant role in learner's performance of vocabulary acquisition.

Conclusion

The conclusions that can be made are: 1) using technology such as digital games should be highly emphasized where learning vocabularies is the focus of the study, 2) teaching vocabularies traditionally in the control group, though was less significant than the experimental group in this study, should be also utilized as the second priority in teaching vocabularies in class, 3) the findings revealed no difference in learning English vocabulary based on gender.

The results obtained here are in agreement with what found by Sørensen and Meyer (2007) and Yip and Kwan (2006). They viewed games in general and online ones in specific as effective educational aids which result in learners' increased motivation and improved performance during the process of vocabulary learning. Participants in "online games" had to understand the content of the context written on the screen to survive or win the game. On one hand, the gamers became more interested in playing and wished to achieve better results, and on the other hand, they tried to learn more new words in addition to vocabulary prepared for the class. The more and sooner they acquire the new vocabulary, the better they play the game.

The results of this study showed that the effective method could be the use of technology in general and using digital games in particular for teaching new vocabularies. In the EFL context; teachers should provide opportunities for them to raise their level of motivation and interest. Teachers should first introduce the importance of vocabulary to language learners. Then, they must elevate their students' knowledge of these strategies, as well as recommending them and give them some instructions on how and when to utilize these strategies for enhancing vocabularies.

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