An Exploratory Cross-Sectional Study: FlipQuiz as a Digital Tool for Learning English Vocabulary in Language Classroom

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To cite this article:
Jabali, M. & Walker, C. (2021). An exploratory cross-sectional study: FlipQuiz as a digital tool for learning English vocabulary in language classroom. International Journal of Technology in Education (IJTE), 4(3), 516-526. https://doi.org/10.46328/ijte.149

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Abstract

The study was carried out to investigate the impact of a digital review tool had on students’ grades, learning motivation, and engagement. An exploratory cross-sectional study was accomplished with two groups of students. The Experimental Group was taught using the digital tool FlipQuiz while the Control Group was taught with the conventional method. Pretests, posttests, and surveys on the students’ learning motivation and engagement toward gamification in language learning were the instruments used in this study. The data of Posttests of both groups were analyzed using Paired Sample t test. The results revealed no statistically significant differences with regard to FlipQuiz on English vocabulary exam scores. The data of two surveys were analyzed using descriptive analysis, parametric data analysis, and nonparametric data analysis. Findings indicated that there was a strong relationship among students in both groups regarding the importance of including technology in the classroom as well as the overall experience of utilizing FlipQuiz in learning English vocabulary.

Introduction

Students need to learn to use the tools as they are mandatory in today's digital world. Having an effective classroom with needed equipment such as digital tools and resources, internet, and computers will make their learning process more attractive, engaging, and meaningful. Hence, students align with their teachers in terms of having access to this new technological world.

Teachers in this point must be prepared to organize the new approaches of learning that will allow students to have equal access of using the technological resources. Students then will realize and remember more when their education is relevant, engaging, and meaningful to their lives. Students may realize that integrating technology in their learning process will make them live in a multitasking, technology-driven, various, and energetic world, which might impact on their lives positively as today's innovative world requires people with enough awareness of using technology.
Gamification in Learning

In education, schools, universities, and educational organizations have become active users of technology. This leads the researcher to extend the use of technology tools in education, especially in teaching and learning English as a second/foreign language. Gamification is a learning method that attracts students’ attention in order to enhance their learning performance, motivation, and engagement. Solmaz and Çetin (2017) defined gamification as the use of game elements and methods in educational environments. The concept of game-based learning in education was formed based on gamification concept that was created from the positive contributions of elements in the games, for example, competition, challenge, points, leaderboard, nicknames, avatars etc. (Solmaz & Çetin, 2017).

Despite the importance of gamification in education today, the effectiveness of gamification on student learning still has disagreements. Many related studies, on the other hand, indicated that the gamification and its effectiveness for learning and education have a positive influence in terms of gamification and expected outcomes. Hence, learning achievement is considered one of the most important outcomes in learning and education (Kim S., Song K., Lockee B., Burton J., 2018). Many researchers indicated that gamification for learning can develop achievement of the learners. Kim and others (2018) illustrated that gamification has developed these three aspects; higher order thinking skills, declarative knowledge and procedural knowledge, and test performance in the School. Psychological and behavioral changes, in addition, were noticed in other research findings. Hence, students' and learners' motivation and engagement were fostered through gamified learning environments, Kumar and Khurana (2012).

Solmaz and Çetin (2017) explained that students with the use of gamification in learning had a positive experience. Hence, students’ points of view indicated that gamification activities enhanced motivation, learning and fun, and reduced test anxiety. Students showed a positive attitude when they engaged in a game-based learning environment. Hanus and Fox (2015) supported this argument by stating that utilizing games in education have advantages. Many game design mechanics illustrated success in educational environments, such as play again and recoverable errors. Students' engagement made them study and interact without fear. Hence, playing and integrating online digital learning tools or platforms led to the positive effect on students' performance. For example, an online digital platform called Kahoot improved students' motivation and satisfaction positively (Medina & Hurtado, 2017).

Students' motivation and engagement are the main reasons for applying technology tools in learning process. According to many studies, games helped students and motivated them to learn (Hanus & Fox, 2015; Heaslip, Donovan, & Cullen, 2014; Medina & Hurtade, 2017; Solmaz & Çetin, 2017; Wichadee & Pattanapichet, 2018). The lack of students' performance with learning English vocabulary allowed the researcher to investigate this problem with the use of a game-review digital tool called FlipQuiz. Similar digital tools such as Kahoot, Socrative, Quizlet etc. showed positive results in respect to students' motivation, engagement, and academic performance (Solmaz & Çetin, 2017).
Purpose of the Study

The researcher examined the online gameshow-style test review tool for the classroom called FlipQuiz, which teachers can use in order to motivate their students and summarize the positive impacts when reviewing learning content. Unlike other learning tools, FlipQuiz demonstrated its effectiveness in the learning process, which FlipQuiz requires verbal participation. FlipQuiz is a web application that relies on questions that are reflected using a projection device, verbal replies by students, and online feedback and evaluation (Solmaz & Çetin, 2017). The study addressed the question of how FlipQuiz is applicable to learning English as a second language, especially with learning English vocabulary. The researcher also examined the students’ point of view toward the use of FlipQuiz in classroom.

The study designed to investigate the impacts of FlipQuiz on students’ English vocabulary test scores as well as their learning motivation and engagement. The engagement focuses on students’ learning development in vocabulary knowledge whereas motivation demonstrates enthusiasm in learning (Wichadee & Pattanapichet, 2018). The study focused also at encouraging students’ engagement and boosting their motivation by using digital games such as FlipQuiz rather than the passive methods use in traditional classrooms, which is a teacher-directed style.

Research Question

Following research question was included in the current study based on the abovementioned statements:

- Does the use of FlipQuiz impact vocabulary test scores of 7th grade students in a Saudi Arabia English learning classroom?

Method

Design of the Study

Participants were selected from one of Saudi middle public schools with students enrolled in an English class. All participants were enrolled in the same English course. The aimed grade for the study is 7th grade that has two classrooms with almost equal number of students in each class. Thus, one class is the Control Group and the other is the Experimental Group.

Participants in the Control Group were taught the English vocabulary lesson in a traditional classroom learning using Flashcards and Handouts at the end of the class period. Participants in the Experimental Group were taught the English vocabulary lesson in an advance learning classroom with technology equipment including an LCD projector, teacher computer, loudspeakers, and a high-speed Internet. The English teacher has employed ‘FlipQuiz’, which is gameshow-style boards for test reviews in the classroom, during studying the assigned unit (see Appendix for FlipQuiz Survey). FlipQuiz used to review the given vocabulary lessons at the end of each class period. Then participants in both groups have completed posttest exams, in order to evaluate and compare their scores, at the end of the unit. McDaniel et al. (as cited in Iwamoto, Hargis, Taitano & Vuong, 2017) noted
that, experiments that were done in 7th and 8th grade science classrooms applied used different quiz and exam items were different to the previous stated experiments where questions with the random assignment of multiple-choice items were the same.

This quantitative research study is an experimental design that employed pretest and posttest designs (Experimental Group) and (Control Group) in order to compare the outcomes, and a survey used a Likert scale. The survey was given to students to see their opinion toward learning with the use of FlipQuiz as well as evaluated the use of FlipQuiz on their learning motivation and engagement (Iwamoto, Hargis, Taitano, & Vuong, 2017; Medina & Hurtado, 2017; Wichadee & Pattanapichet, 2018).

Participants

In this exploratory cross-sectional study, the sample size was 51 Saudi middle school students from Al-Asamelah Intermediate and Secondary School a public school located in Jazan region, Saudi Arabia. Data were collected during the Spring semester from January 2019 –May 2019 for two weeks. Starting on March 10th and ending on March 25th. Participants enrolled in 7th grade English language course ages 12-13 (100% males). In the present study, convenience sample was used. Students in the Experimental Group used (FlipQuiz), students in Control Group used (Flashcards and Handouts). Both groups were taught using the same learning content and used review tools in the last ten minutes of class period. Survey and pretest posttest data were analyzed.

Data Gathering Procedure

The researcher applied the study with 7th grade students in Saudi Arabia. Students prior the intervention were required to provide a consent form signed by their parents in which they would have the option to participate in survey completion. The Pretest for Experimental Group and Control Group were conducted in order to evaluate the test scores average among students in both groups. The pre-test was a Paper-Based English vocabulary test. Its layout is the 10 questions-multiple choice exam. The total score of the exam was 20 points/scores, each question equal 2 points / scores.

After that, for two weeks, the researcher used FlipQuiz for reviewing English vocabulary lessons with the students in the Experimental Group. While students in the Control Group were taught with the conventional method, therefore, students in control group were taught by using FlipQuiz if needed following the study. Both groups were taught using the same content of English lessons.

After completing the assigned unit, the researcher conducted the Posttest, which was Paper-Based English vocabulary test. It was the same design of the Pretest exam. As soon as the Posttest conducted, two printed surveys were given to the students in both groups Experimental Group and Control Group in order to evaluate their opinions of studying with the use of FlipQuiz and conventional method as well as their learning motivation and engagement. The data were analyzed using (descriptive analysis, parametric data analysis, and nonparametric data analysis).
Results

A paired-samples $t$ test was conducted to evaluate the impact of FlipQuiz on student’s English vocabulary test scores. There was no statistically significant difference between Control Group (M= 16.46, SD= 4.71). Experimental Group (M=17.6, SD= 4.24) conditions; $t$ (24)=.76, $p$.45. These results showed that both groups had no significant difference in posttest English vocabulary exam (see Tables 1 and 2).

Table 1. Paired Differences of Posttest

| Pair 1 | Posttest (Experimental group) - Posttest (Control group) |
|--------|----------------------------------------------------------|
| Mean   | 1.040                                                   |
| Std Deviation | 6.816                                                   |

 Table 2. Descriptive Statistic of Posttest

| Pair 1 | Posttest (EG) | Mean | N | Std. Deviation | Std. Error Mean |
|--------|---------------|------|---|----------------|-----------------|
|        | Posttest (CG) | 16.46| 26| 4.709          | .924            |

Students in both Experimental Group with 96 % and Control Group with 68 % of the total percentage reported that there is a positive relationship regarding the use of technology and its importance for students in learning English vocabulary (see Figures 1 and 2). This demonstrate that students were excited to experience the use of gamification in education. Students in Experimental Group used FlipQuiz in an effective way, which impact on the survey answers by stating that it is very important to integrate technology in the classroom. Only 4 % total percentage of participants replied with not important to integrate technology in the classroom (see Figure 1). It can be seen also in the Control Group that 32 % total percentage of participants stated that including technology in the classroom is not important (see Figure 2).
Regarding students’ motivation and engagement, Experimental Group with the use of FlipQuiz showed that students were happy with using technology with 88% of the total percentage (see Figure 5). While 81% total percentage of students in the Control Group want to try studying English with the use of technology rather than the traditional way of teaching (see Figure 6). In terms of engaging technology in educational environment, Solmaz and Çetin (2017) indicated that game-based learning environment showed a positive attitude. This also supports the research by Kim and others (2018) indicated that one of the most important outcomes in learning and education is learning achievements, which results by motivation and engagement.

Overall students’ experience illustrated that students in Experimental Group has an excellent impact regarding learning English vocabulary using FlipQuiz. These results support other studies in terms of the positive effects of using gamification in learning (Hanus & Fox, 2015; Heaslip, Donovan, & Cullen, 2014; Medina & Hurtade, 2017; Solmaz & Çetin, 2017; Wichadee & Pattanapichet, 2018). Integrating games in learning process has advantages, and many game design mechanics demonstrated success in educational environments, play again, making errors recoverable (Hanus & Fox, 2015).
Learning that includes fun activities in the course outline create a good atmosphere for the students to gain knowledge. It generates more achievement and motivation to the students that are engage in it compared to those that are not. Therefore, FlipQuiz and other similar game review tools are good digital games, which can be used to increase the students’ interest in learning language and make it more fun. The results of the research showed that the FlipQuiz has a significant effect on student motivation and engagement, especially in the English vocabulary lessons. These results were consistent with participants’ motivation and engagement in terms of using a game-based learning as described. According to many studies, gamification in learning environments has a positive impact in terms of student motivation, interest, and active participation (Hanus & Fox, 2015; Heaslip, Donovan, & Cullen, 2014; Medina & Hurtade, 2017; Solmaz & Çetin, 2017; Wichadee & Pattanapichet, 2018).

In this experiment, findings of posttest exams for Experimental Group and Control Group indicate that there was no significant difference among students’ English vocabulary exam scores. The surveys demonstrated a strong relationship among students in both groups regarding the importance of including technology in the classroom. Therefore, students in the Experimental Group enjoyed their experience with the use of FlipQuiz as well as students in the Control Group who want to try learning English with the use of technology. Findings also indicated that the learning experience of students in Experimental Group with using FlipQuiz was excellent with 100% survey answers. On the other hand, students in the Control Group survey answers showed that 88% of students found flashcards and handouts excellent to be used in learning English vocabulary, while 12% of them found that flashcards and handouts poor and not helpful. In a similar research study by Pektas and Kepceoglu (2019), participants showed that they were delighted to participate in the gamification application integration, their learning experience was effective, positive competition also improved their outcomes, and their interests and motivations were improved.

The results of this research study compared to others illustrated that there is a relationship between students’ motivation and engagement as well as improving in terms of exam scores. Pektas and Kepceoglu (2019)
indicated that teachers who participated in their study have impacted positively when using gamification with their students. The use of gamification enhanced learning motivation, saving time, and avoiding cheating. It also limits classroom management difficulties and technological problems. In terms of assessment of instruction, participants also suggested to use gamification applications. It can be suggested that game-based review tools like FlipQuiz have the potential to enhance and improve English vocabulary examination scores at 7th grade level. Students in the experimental group felt positive about their experience towards the use of FlipQuiz. The findings of this study also suggested that including technology in the classroom, creating a fun and engaging, and motivating environment can support academic performance, which reflects on students' exam scores positively.

**Limitation and Future Research**

The main limitation of this study was the time period of the study. Within two weeks, it could be difficult to calculate any statistically significant results. In addition, the sample was not diverse in regard to age, gender and level of education. Students used to study with the traditional way of teaching, thus they would be more likely to prefer the traditional methods they are already familiar with. Therefore, the results of the study would be heavily influenced. One more limitation is that some students in the Experimental Group might not have had the opportunity to fully participate in the study because of shyness or hesitation, as FlipQuiz requires verbal participation. This means that motivating and engaging students during the class period is necessary. In this study, FlipQuiz was only applied in an English class with the vocabulary skill. Future research in a variety of subject areas needs to be accomplished in order to see the wide-ranging advantages and disadvantages of FlipQuiz.

**References**

Hanus, M. D., & Fox, J. (2015). Assessing the effects of gamification in the classroom: A longitudinal study on intrinsic motivation, social comparison, satisfaction, effort, and academic performance. *Computers & Education, 80*, 152–161. https://doi.org/10.1016/j.compedu.2014.08.019

Heaslip, G., Donovan, P., & Cullen, J. G. (2014). Student response systems and learner engagement in large classes. *Active Learning in Higher Education, 15*(1), 11-24. https://doi.org/10.1177/1469787413514648

Kim S., Song K., Lockee B., Burton J. (2018). What is Gamification in Learning and Education?. In *Gamification in Learning and Education*. (pp. 25-38). Springer, Cham. https://doi.org/10.1007/978-3-319-47283-6_4

Kumar, B., & Khurana, P. (2012). Gamification in education-learn computer programming with fun. *International Journal of Computers and Distributed Systems, 2*(1), 46-53.

Iwamoto, D. H., Hargis, J., Taitano, E. J., & Vuong, K. (2017). Analyzing the Efficacy of the Testing Effect Using Kahoot™ on Student Performance. *Turkish Online Journal of Distance Education, 18*(2), 80-93. DOI: 10.17718/tojde.306561
Medina, E. G. L., & Hurtado, C. P. R. (2017). Kahoot! a digital tool for learning vocabulary in a language classroom. *Revista Publicando, 4*(12 (1)), 441-449. Retrieved from https://www.rmlconsultores.com/revista/index.php/crv/article/view/673/0

Pektas, M., & Kepceoglu, I. (2019). What Do Prospective Teachers Think about Educational Gamification?. *Science Education International, 30*(1), 65-74. Retrieved from https://eric.ed.gov/?id=EJ1209291

Solmaz, E., & Çetin, E. (2017). Ask-response-play-learn: Students' view on gamification based interactive response systems. *Journal of Educational & Instructional Studies in the World, 7*(3), 28-40.

Wichadee, S., & Pattanapichet, F. (2018). Enhancement of performance and motivation through application of digital games in an English language class. *Teaching English with Technology, 18*(1), 77-92.

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Appendix. FlipQuiz Survey

**FlipQuiz as a Digital Tool for Learning English Vocabulary in Language Classroom**

*(This survey is ONLY for students in the EXPERIMENTAL GROUP)*

Please Note:

Your answers will remain COMPLETELY CONFIDENTIAL. Any answers you give will be combined with those of others and NEVER identified as yours.

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1-How many hours do you spend on studying English per night?

- I do not spend any time on learning English at night.
- 0-1 hours per night
- 1-2 hours per night
- 2-3 hours per night
- 3-4 hours per night
- 4-5 hours per night
- 5+ hours per night

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2-How would you rate your overall experience with using FlipQuiz in learning English vocabulary?

| Rating         | 1 | 2 | 3 | 4 | 5 |
|----------------|---|---|---|---|---|
| Excellent      |   |   |   |   |   |
| Good           |   |   |   |   |   |
| Average        |   |   |   |   |   |
| Below Average  |   |   |   |   |   |
| Poor           |   |   |   |   |   |

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3-On a scale of one to five: In today's society, how important is it to include technology in the classroom?

- (Not Important at all)
- 1
- 2
- 3
- 4
- (Very Important)

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Survey scale: 1 = Strongly agree, 2 = Agree, 3 = Neutral or no opinion, 4 = Disagree, 5 = Strongly disagree

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| Learning motivation and engagement | 1 | 2 | 3 | 4 | 5 |
|-----------------------------------|---|---|---|---|---|
| 1 I like learning English vocabulary using FlipQuiz. |   |   |   |   |   |
| 2 FlipQuiz can develop my language proficiency. |   |   |   |   |   |
| 3 The activities in FlipQuiz captured my attention. |   |   |   |   |   |
| 4 I am satisfied with the use of FlipQuiz in learning English vocabulary. |   |   |   |   |   |
| 5 I enjoyed my experience learning English with the use of FlipQuiz. |   |   |   |   |   |
| 6 I see myself able to learn faster when teacher used FlipQuiz in reviewing vocabulary lessons. |   |   |   |   |   |
| 7 FlipQuiz motivates me to succeed in learning English vocabulary in a quick way compared to the traditional way of learning. |   |   |   |   |   |
| 8 My teacher motivates me to participate orally when using FlipQuiz in the classroom. |   |   |   |   |   |
| 9 I would recommend FlipQuiz as a preferred tool for learning English vocabulary. |   |   |   |   |   |
| 10 The lack of technology in the classroom hinders a student from reaching their full potential. |   |   |   |   |   |
| 11 I think more technology in the classroom would create a disconnect between the students and the teacher. (Less social interaction). |   |   |   |   |   |
| 12 Overall, my teacher did a good job of incorporating technology into his lessons. |   |   |   |   |   |
FlipQuiz as a Digital Tool for Learning English Vocabulary in Language Classroom

(This survey is ONLY for students in the CONTROL GROUP)

Please Note:
Your answers will remain COMPLETELY CONFIDENTIAL. Any answers you give will be combined with those of others and NEVER identified as yours.

4- How many hours do you spend on studying English per night?
- I do not spend any time on learning English at night.
- 0-1 hours per night
- 1-2 hours per night
- 2-3 hours per night
- 3-4 hours per night
- 4-5 hours per night
- 5+ hours per night

5- How would you rate your overall experience with using Flashcards and Handouts in learning English vocabulary?

| Excellent | Good | Average | Below Average | Poor |
|-----------|------|---------|---------------|------|
| ممتازة | جيدة | عادية | ضعيفة | سيئة |

6- On a scale of one to five: In today’s society, how important is it to include technology in the classroom?

لiterals on the scale:
- 1 (Not important at all)
- 2
- 3
- 4
- 5 (Very important)

Survey scale: 1 = Strongly agree, 2 = Agree, 3 = Neutral or no opinion, 4 = Disagree, 5 = Strongly disagree

Learning motivation and engagement.

| 1 | I enjoy studying English. | 1 2 3 4 5 |
|---|---------------------------|----------|
| 2 | I actively participate in the activities of English lessons. | 1 2 3 4 5 |
| 3 | I think the given tasks are not too difficult. | 1 2 3 4 5 |
| 4 | The content of English lessons is useful to me. | 1 2 3 4 5 |
| 5 | The content of English lessons motivates me to learn. | 1 2 3 4 5 |
| 6 | The activities in the English lessons capture my attention. | 1 2 3 4 5 |
| 7 | Teaching technique made the lessons more fun. | 1 2 3 4 5 |
| 8 | The use of flashcards and handouts technique increased engagement with the class. | 1 2 3 4 5 |
| 9 | The use of flashcards and handouts technique increased my interest in the lessons. | 1 2 3 4 5 |
| 10 | The use of flashcards and handouts technique enabled me to learn better. | 1 2 3 4 5 |
| 11 | I want to try learning English with the use of technology rather than using flashcards and handouts. | 1 2 3 4 5 |
| 12 | In the future, I would like to learn English using technology equipment in classroom. | 1 2 3 4 5 |

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