

Digital Game-based Learning as an Innovation to Enhance Student's Achievement for Arabic Language Classroom



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Abstract: Various studies have investigated the potential of employing digital games in education to help students' increase their learning achievement and their academic performance. Over the years, scholar have recognised how games could become a good learning tool that can improve learner's performance and sustain their engagement in teaching and learning activities. Therefore, the objective of this study is to explore whether mobile digital games, as a cybergogical tool, can be used to support Arabic language teaching and learning. This study is a quasi-experiment designed to determine the effectiveness of mobile digital games in supporting the learning of Arabic. This study 70 students who are taking the elementary Arabic language course in Universiti Malaysia Kelantan (UMK), Malaysia. The participants were selected through random purposive sampling. The students were divided into two groups; experimental group and control group. After the intervention of mobile digital game, the achievement scores of both groups were collected practically. The data collected were analysed using inferential quantitative analysis by using the IBM SPSS Statistics 24 software. This study reported that the adoption of mobile digital games significantly increases students' achievement in Arabic language learning.

Keywords: Digital game, Mobile digital game, Digital game-based learning, Game-based learning, Arabic language, Teaching and learning.

I. INTRODUCTION

Educators and researchers have garnered interest in the teaching and learning of Arabic language to non-native speakers. There are numerous studies that focused on approaches that could be used to improve the quality of Arabic language teaching practices for students from different backgrounds across different learning contexts. Studies have

suggested different approaches that could improve on Arabic language learning and teaching practices. In the context of Malaysia, there has been a progressive interest towards the teaching Arabic in Malaysia [22]. In this regard, Arabic has been introduced and taught formally in the elementary level through the integrated Jawi (Arabic script for writing Malay), Quran, Arabic, and Fardhu Ain (JQAF) program which was introduced in 2004. It is important to note that formal and informal teaching of Arabic in schools have been on-going since the early 70s and it has grown at tertiary level as most public or private higher learning institutions are offering Arabic language courses.

Zunita et al., [44] argued that acquisition of second language has become an important requirement for students. This is especially true in Malaysia where most students are learning second languages like English and Arabic. In this regard, students mostly start learning basic Arabic language learning at the primary level and as a result, many students are able to understand basic Arabic words and repeat common Arabic phrases [37]. On the other hand, it was argued that Arabic language acquisition among Malaysian students hardly goes beyond the elements level [9, 33, 40].

It can be argued that the traditional pedagogy used in Arabic language classes has become a major hindrance to improving Arabic language proficiency among non-native speakers. According to Janudin [14], nowadays, the Arabic language teaching system does not allow students enough opportunities to master Arabic language skills. Students also lack confidence to practice Arabic, and this factor has reduced their motivation to learn and use the language [25].

In term of learning approaches, Rosni [32] further mentioned that students should undergo self-learning and active learning via electronic materials accessible to them. It is also argued that the use of digital aids could help personalising education [24]. In recent years, a majority of students have benefited from computer assisted language learning [19] as it provides students with the opportunity to access rich resources and interact with other learners [24]. Presenting vocabulary in text mode, audio mode and visual mode could enhance the teaching and learning process because students experienced meaningful learning rather than simply reading [38]. Therefore, this study will explore the effectiveness of using mobile digital game in learning Arabic language among non-native speaker students at Universiti Malaysia Kelantan.

Manuscript published on 30 September 2019

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II. BACKGROUND OF STUDY

The conventional Arabic classes still use teacher-centred approaches, particularly the pen and paper approach [31]. Translation and memorisation are commonly used and this provide limited opportunity for students to practice the language. In this regard, students in this era, or the so called, 'digital natives' often find these traditional approaches boring and demotivating. They also feel frustrated when they are not able to master the language. This is made worst by the fact that education systems like in Malaysia are highly exam oriented where students have limited time to master the language [13]. As a result, some students only attend Arabic classes to fulfil their course requirement and to pass the examination. Here, it can be deduced that students have low motivation to learn as they do not feel any enjoyment in learning Arabic.

There are several studies that found Malaysian student who taking Arabic courses have low proficiency and can only use basic Arabic [12, 42]. This means that these students might not able to comprehend even simple Arabic texts [36] as it is posited that in order for a language user to be competent, they need to understand at least 2000 vocabulary high frequency words. Based on this argument, to improve students' proficiency, teachers and instructors should practice and encourage active learning such as by introducing electronic and interactive teaching tools [35].

The advent of digital technology has change how students learn and being taught. The advancement in Information Technology has undoubtedly brought many resources and opportunities for using new tool, approaches, and strategies for teaching and learning of languages, including Arabic. Thus, it is high time for teacher and instructors to use the latest advances in technology to gauge the interest of their learner.

One of the highly sought after modern teaching and learning tool is digital games. It is deemed that the use of digital games could potentially help digital native in learn more optimally. The use of digital games has garnered the interest of many parties and it has been recognised as an engaging learning tool that can motivate students to actively participate in learning [1, 3, 8, 17]. Studies have found that the use of digital games could improve student's knowledge, create fun and engaging lessons and develop soft skill such as leadership and decision making skills [11, 18, 23, 27, 28, 39, 41].

III. DIGITAL GAME-BASED LEARNING

Digital game-based learning could potentially enhance teaching and learning. In this regard, the use of digital games has garnered the interest of many researchers. There are many definitions for digital-based learning. Prensky [30] defined digital game-based learning as a novel electronic learning (e-learning) model while Kim, Park, & Baek [16] defined it as a learning strategy to ensure particular learning objectives are achieved through game play.

Moreover, Salen and Zimmerman [34] defined educational games as a system where players try to solve simulated conflict based on the prescribed rules to achieve a quantifiable outcome, specifically learning outcomes. Juul [15] further elaborated that digital games constitute of a rule-based system with a quantifiable outcome. In this regard, each outcome has different values and the players will strive

to achieve desirable outcome. In this process, the players will be motivated to achieve the goal. It is important to note that in some games, the outcome of the activity is different optional and negotiable.

Conventional game-based learning comprises of different forms of strategy-based entertainment board games. Digital game-based learning is a subcategory of gaming, which is normally designed four other contexts such as health and entertainment. The figure below illustrates an overview of digital game-based learning and similar instructional media concept [5].

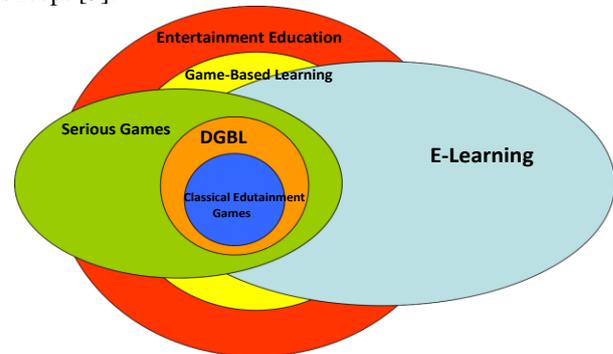


Fig. 1 Overview of Digital Game-based Learning and Similar Instructional Media Concept

Digital game-based learning is a form of entertainment education, or edutainment or the use of entertainment media to serve educational purpose. It also can be considered as a subcategory of e-learning where the learning materials are delivered electronically to remote learners via a computer network [43]. Thus, digital game-based learning refers to the adoption of entertaining power of digital games to achieve an educational outcome [29]. In this regard, a digital game-based learning need to be fun, entertaining and engaging and in the same time, has an educational benefit [4]. In other words, digital game-based learning is a form of game play aimed to help teachers achieve learning outcomes. Consequently, digital-games employed in the traditional could facilitate students' engagement and encourage problem solving.

IV. RESEARCH HYPOTHESIS

The hypotheses of this study are:

1. There is no significant difference between the pre-test scores of the control group and the experimental group.
2. There is no significant difference between the pre-test score and post-test score of the students in the control group.
3. There is significant difference between the pre-test score and post-test score of the students in the experimental group.
4. There is a significant difference between the post-test score of the students in the experimental group and in the control group.

V. METHODOLOGY

A. Research Sampling

This study involved 70 Universiti Malaysia Kelantan undergraduate students who are enrolled in the Arabic language elementary for the 2019/2020 academic year. These students are non-native Arabic speakers. The participants were selected via random purposive sampling.

B. Research Instrument

This study's were collected through a pre-test and post-test. The items of the test were validated by four experts in teaching Arabic as a second language. The items were categorised into three domains according to the revised bloom's taxonomy [2], which are comprehension (C2), application (C3), analysis (C4) and creation (C6). The test comprises of 35 questions and the total mark is 100. The time allocated for answer the questions is one hour.

C. Research Design

The pre-test and post-test approach was used to measure whether the use of mobile digital game is effective in teaching Arabic language. The participants were divided into two groups, experimental and control group. In experimental group, there are 35 students learning Arabic language through mobile digital game and another 35 students doing traditional learning activities in control group. In order to avoid affect from different factors, both experimental group and control group have the same lecturer, equal teaching content material and teaching hour per week. The pre-test was administered to measure the initial score of both groups before the intervention. After four weeks of intervention, a post-test was then administered to students in both groups after the intervention. Table 1 shows the research design.

Table 1: Research Design

Group	Pre-Tes	Treatment	Post-test
	<i>t</i>		
Control Group	O ₁	-	O ₂
Experimental Group	O ₁	X	O ₂

D. Data Analysis

The collected data were compiled and keyed-in into the IBM SPSS Statistical 24 software. Then, the inferential analysis was conducted. The research hypotheses were tested using the t-test to determine whether the use of mobile digital games learning Arabic language is effective for non-native Arabic students.

VI. RESULTS AND FINDINGS

The inferential analysis was conducted via a T-Test to analyse the data obtained from the pre-test and post-test. T-tests were used to reinforce the probability of the value of (p) measured. In this light, the null hypothesis will be rejected and the alternative hypothesis will be accepted if the p value is below than 0.05 (p < 0.05), meanwhile if the p value obtained is more than 0.05 (p > 0.005), the null hypothesis will be accepted and the alternative hypothesis will be rejected.

Table 2: Significant Difference Between the Pre-Test Score of the Control Group and Experimental Group

Variable	Group	Mean	SD	df	t Value	p Value
Pre-test	Control	55.63	2.72	68	-1.56	0.12
	Experiment	54.51	3.21			

Significant level of alpha (α) = 0.05

The table 2 above illustrates the result of t-test for pre-test of control and experiment group. The study involved 70 Arabic students comprises of 35 in control group and 35 in experiment group taking pre Arabic test. The result shows mean for control group is 55.63, while the mean pre-test score for experiment group is 54.51. The difference between both group is 1.12. The probability value (p) is 0.12 which higher than the alpha significant level (α). A t-test is significant when the probability value is lower than alpha significant level. As the p value is 0.12 > 0.05, hence there is no significant difference of pre-test between control and experiment group. Therefore, the first hypothesis that there is no significant difference in pre-test score between control group and experiment group is accepted.

Table 3: Pre-Test and Post-Test Score of Control Group

Variable	Test	Mean	SD	df	t Value	p Value
Score Control Group	Pre	55.61	2.68	34	-2.02	0.51
	Post	57.81	6.43			

Significant level of alpha (α) = 0.05

The t-test results of pre and post test score of the control group are illustrated in Table 3. As shown for the pre-test, the students in the control group scored the mean score of 55.61, while the post test score is 57.81, there is a 2.20 point difference between the mean of the pre and post-test score of students in the control group. In this regard, the probability value of (p) is higher compared to the significance level of alpha (α), which is 0.51 > 0.05. This indicates that the difference in pre-test score and post-test score in the control group is not significant. Therefore, we accept the second hypothesis stating that there is no significant difference between the pre-test score and post-test score of the students in the control group.

Table 4: Pre-Test and Post-Test Score of Experiment Group

Variable	Test	Mean	SD	df	t Value	p Value
Score Experiment Group	Pre	54.51	3.21	34	-18.23	0.00
	Post	72.17	7.25			

Significant level of alpha (α) = 0.05

Table 4 shows that for the pre-test, the mean score for the experimental group is 54.51, while the mean for post-test is 72.17. This illustrates the mean difference of 17.66 between the pre and post-test for the experimental group. Furthermore, the t-test is significant as the probability value of p is less than alpha level (α). This indicates that there is a significant difference between the pre-test score and post-test score of the experimental group. Consequently, we accept the third hypothesis on the significant difference between the pre-test score and post-test score of students in the experimental group.



Table 5: Significant Difference Between the Post-Test Score of the Control Group and Experimental Group

Variable	Group	Mean	SD	df	t Value	p Value
Post-test	Control	56.97	4.10	68	10.79	0.00
	Experiment	72.17	7.25			

Significant level of alpha (α) = 0.05

As observed from Table 5, the mean score for the control group in the post-test is 56.97, while the experiment group scored the mean of 72.17. There is a 15.20 point difference between the post-test scores of both groups. It can be deduced there is a significant difference between the mean post-test score of students in the control group and the experiment group as the probability value (p) is lower than the significance level of alpha (α) which is $0.00 < 0.05$. Thus, the last hypothesis on the significant difference between the post-test score of the students in the control group and in the experiment group was accepted.

VII. DISCUSSION

This study evaluated the learning effectiveness of mobile digital game in learning Arabic language. The study demonstrated that digital games is effective in promoting the students' knowledge of Arabic language as shown through the significant difference between the mean test score of the students in control and experiment groups. The significant increase in the post-test score after the intervention indicates that the use of mobile digital game in Arabic language classroom has positive impact towards students' achievement. This finding is in line with previous studies on the effectiveness of digital game [11, 18, 27, 39, 41].

Mobile digital game can also be used in higher institutions. It could help tertiary level students to improve their knowledge of different subject matters in addition to increasing students' motivation, engagement, enjoyment and interest to learn different subjects, including Arabic. This finding is supported by prior studies [6, 10, 27, 28, 39].

The mobile digital game used in this study is simple and can be used for short-term intervention. It could be argued that it lacks the complex multimedia elements and digital game principles. However, it could be argued that the game's simplicity helps reinforce the significance of the findings. This shows that even a simple game can positively affect language knowledge acquisition and enhance students' engagement in the learning activities. It is anticoagulant that can be expected that a more complex game would warrant more positive results.

The most significant limitation of this present study is that it involves a short-term intervention and focused on the short-term retention of Arabic knowledge. Thus, future studies could focus on long-term retention of Arabic and conduct pre – post tests to provide more insights into the effect of mobile digital game in learning Arabic.

VIII. CONCLUSION

This study examined whether mobile digital game can be an effective tool for teaching and learning Arabic. In all, we formulated and tested four hypotheses which are accepted. This study had implemented a digital game-based learning for Arabic language classroom and the learning achievement is significant after the evaluation process. From the results,

some findings could be highlighted: (1) the study found that the use of mobile digital games positively impacts students' learning and acquisition of Arabic language and in turn, enhance their Arabic language achievement and performance. (2) In the experimental group, the students have high learning achievement in post-test than pre-test after using mobile digital game in learning Arabic language. (3) The experimental group where the students use mobile digital game exhibits higher learning achievement than the control group.

The use of mobile digital game offers a fun and engaging learning experience and provides with the students a new learning environment. It also helps develop soft skills, higher order thinking skills, improve technological used skills, and enhances their access to learning outside classroom as the mobile digital game can be accessed using their mobile devices.

This study presents interesting prospect for future studies. In this regard, future studies could examine how the use of mobile digital game could motivate students to learn Arabic language. Future studies could also study motivation based the students' gender and language background. Furthermore, studies could examine students' acceptance of mobile digital games in the Arabic language classroom through the technology adoption model.

ACKNOWLEDGMENT

The researchers would like to acknowledge the Research Management Innovation Centre (RMIC) Universiti Pendidikan Sultan Idris (UPSI) for funding through University's Research Grant 2018 (2018-0104-106-01).

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