

Examining Effectiveness of Game-Based Learning Quizizz in Improving Performance of Economics Subject among Students in Public University

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DOI: <https://dx.doi.org/10.47772/IJRISS.2026.100400001>

Received: 04 April 2026; Accepted: 09 April 2026; Published: 23 April 2026

ABSTRACT

Gamification in education is important as it provides a new pathway for learners to be more engaged in their learning journey. “Quizizz” is an online game that is used by educators for academic purpose and enables the students to enjoy interactive learning and have fun. The study in this paper is a quantitative study undertaken to examine the perception of 61 Diploma students towards the effectiveness of Quizizz in increasing Economics performance, enhancing class participation and enriching learning experience. The Diploma students in two classes that have taken Economics class and undergone Quizizz in a university in Kuching, Sarawak are chosen as respondents. Questionnaire in Google Form is then given to the respondents to answer. The data is analysed using descriptive (frequency and percentage) analysis in Excel and SPSS 29.0 software. The results show that Quizizz can increase passing rates of students by 26 percent and increase of 15 percent for students that score A in Economics. It is hoped that the findings could provide some insights to educators in employing Quizizz as their formative assessments to improve universities’ students’ performance.

Keywords: Quizizz, gamification, students’ performance, Economics.

INTRODUCTION

The use of information communication technology (ICT) in education has evolved since the mid-20th century and is promoting e-learning as an alternative tool to facilitate student learning (Zou et al. 2025). The integration of web-based games or mobile language learning has benefited teachers and students by making teaching and learning more effective. This technological medium not only increases students’ motivation and autonomy or independence, it also allows students to perform self-assessment based on the feedbacks provided after immediate assessment (Munuyandi et al., 2021). In Malaysia, the four most searched and used gamified quizzes are Kahoot, Quizlet, Edupuzzle, and Quizizz for teaching and learning.

Game-based education becomes popular because it can help students develop a deeper understanding of the concepts and theories by providing them with opportunities to see the direct impact of their decisions and actions within the simulated game environment (Rani and Hasan, 2024). Students of the 21st century need several skills such as critical skills, Information and Technology skill and problem-solving skills. In the era of technology equip with commercial games and game-based education, students need to be equipped with information technology skills and develop interest in learning through game. Game enhances student interest in learning (Yunus and Tan, 2021). Traditional teaching method that focuses on teacher-centred learning makes teaching and learning become dull and boring and not able to enrich learning experience to students. Students become lack of mood to study and thus fail to master important concepts in teaching and learning. Therefore, it is

important and imperative to integrate game in education context. Platz (2022) mentions that game-based education can bring fun to the students and at the same time enables the students to gain practical knowledge and enhance critical thinking.

Diploma students in tertiary education often engages in traditional education in universities and colleges in Sarawak. Most of the Diploma students' loss interests in learning as traditional method of teaching such as teacher-centred education becomes predominant in the universities and colleges. There is less active participation, and less learning experience cultivated among Diploma students. This may lead to Diploma students losing interest to further their studies to bachelor's degree and perform moderately in studies. There is less discussion and limited literature on examining the effectiveness of Quizizz in increasing Diploma students' Economic performance, enhancing students class participation and enriching learning experience. Up to the knowledge of the authors, there are only 2 studies that focus on examining impact of Quizizz on Diploma and university students in Malaysia (Rahman, 2023; Rani and Hassan, 2024). This paper intends to determine the effectiveness of Quizizz Game-Based Education on improving Economics performance perceived by Diploma students.

LITERATURE REVIEW

Theory of Game-Based Learning

Game-based education or gamification is an interactive learning tool in which students can collaborate with their peers to interact actively and engage in any education activities based on game. Embracing gamification in education favours learning in a fun, interactive and engaging environment.

Game-based education and gamification hopes to create collaboration and encourage users to use game components such as approaches, scoreboards, and critiques along with other benefits (Viray, 2016). Gamification in teaching and learning promotes collaboration among students. Collaboration is vital to the overall human capital development of the students. Students today not only need to have knowledge on their subject but need to develop technology skill, Information technology skill, problem solving skill and collaborative skill. In order to nurture skills among students, there are some popular Web 2.0 applications such as Kahoot, Quizlet, Edupuzzle and Quizizz that are used for teaching grammar subjects in Malaysian schools.

Quizizz Game-Based Learning

Quizizz is a popular online educational tool that enhances learning through interactive quizzes and gamified experiences (Rani and Hassan, 2024). It is widely used in classrooms and professional learning environments for their ease of use and interactivity. Quizizz can be found on their official websites, in product documentation, or educational blogs that review and analyze these platforms. It is a type of game-based learning. The objective of game-based education is to increase participation of the students in class activities.

Quizizz is thus an important digital platform that demonstrates how game-based learning can be applied in the classroom setting and context. Quizizz is a popular tool that gamifies quizzes to make learning more interactive and engaging. When students are more engage in learning, they become motivated to learn and learn things effectively. Students get interested to Quizizz as it provides numerous features such as enable students to play game and learn quizzes. Moreover, the students are able to look at the score and standings in the leadership board. These real-time statistics enable the students and teachers to look at the weak areas of students that need development (Rani and Hassan, 2024). Thus, teachers can immediately provide assistance to help the address the problems of the students.

Empirical Literature Related to Quizizz Used in Economics Subject

There are some studies that Quizizz has been used in Economics subject by certain literature (Rani and Hassan, 2024; Hassan et al., 2023). By using a total of 40 respondents who took economics subjects, Rani and Hasan (2024) found that the implementation of Quizizz and QuizWhizzer increased the number of students actively participating in class and enhanced their learning by increasing students' interest and preventing them from being bored in class game-based learning in economics subjects can help address the perception of economics as being

too mathematical or disconnected from real-life applications. Rani and Hasan (2024) found out that by incorporating game-based learning in economics courses, teachers can bridge the gap between theoretical concepts and their practical application, making the subject more relatable and engaging for students. For educational purposes, game elements are a novel form of interactive content that merits investigation (Zaina et al., 2019).

The integration of game elements and techniques into higher education instruction is intended to simplify the comprehension of difficult theoretical concepts (Gachkova & Somova, 2020). However, those studies of the use of Quizizz in Economics subjects are having small sample size (about 40 respondents) and only focus on secondary school Economics subject. There is limitation of studies that examine the effectiveness of Quizizz to increasing students' performance and enhancing learning experience in Diploma study and tertiary education. It is imperative to study the use of Quizizz in Diploma level as Diploma students are the future human capital that can bring progress to nation when they enter real working world.

METHODOLOGY

The data is collected from 61 Diploma students that have taken Economics subject in a public university in Malaysia in year 2025. The data is obtained by using questionnaires in Google Form. The questionnaire was distributed to 61 university students in Malaysia for the academic year 2025/2026. The sample size for quantitative data collection of this study is based on purposive sampling. This strategy is used to specifically target Diploma students who have taken Economics subject that are most relevant to meet the objective of the paper. The questionnaire consists of two parts. The first part consists of demographic questions whereas the second part consists of perception of students before and after the application of Quizizz to improve Economic performance. This study is a non-experimental descriptive research study. The data is analysed using Statistical Package for the Social Sciences (SPSS) and Microsoft Excel. SPSS and Excel are used to calculate percentage of marks before and after the implementation of Quizizz and perceptions of students towards effectiveness of Quizizz. Tables and figures are utilized to summarize and present the study's results. Descriptive statistics are used to show the results of the perceptions. The results are presented in next section.

RESULTS

The results consist of two parts, profiling of students and the perception of students towards effectiveness of Quizizz in improving Economics results. Table 1 shows the results of profile of students.

Results of Descriptive Statistics of Respondents

The results of descriptive statistics can be divided into socio-demographic variables and effectiveness of Quizizz in improving marks of Diploma students.

Table 1: Descriptive Statistics for Socio-Demographic Variables

Gender	Male	Female
Percentage of Respondents	29.5	70.5

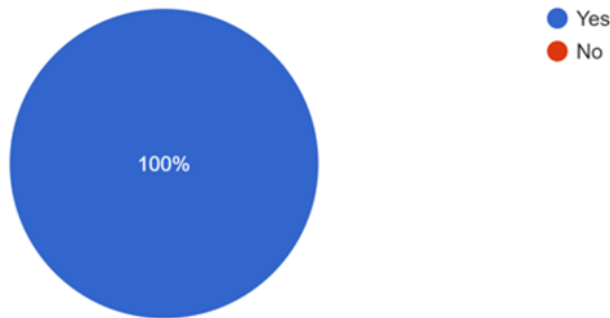
From Table 1, the percentage of male is 29.5 percent and percentage of female is 70.5 percent from total 61 respondents that answered the questionnaire. This shows that female is dominant in the Diploma Economics classes in the university.

Results of Perception of Diploma Students towards Game-Based Learning Quizizz in Improving Economics Results

The results of Quizizz game-based learning in improving students' performance can be shown by perception of Diploma students towards Quizizz in improving Economics results and the percentage of marks before and after the use of Quizizz.

Figure 1: Perception of Diploma students towards Quizizz can Improve Economics Results

5. Does Quizizz game-based education increase your performance of Economics subject?
 61 responses



From Figure 1, it shows that 100 percent of the Diploma students perceive that Quizizz game-based education can increase the performance of Economics subjects. They feel that their results improve, and they have learnt some key economics concepts after the use of Quizizz.

Comparisons of Economics Marks Before and After Implementation of Quizizz

The Economics marks before and implementation of Quizizz are surveyed to validate the perception of Quizizz can increase the performance of Economics subjects. The results of marks comparison are shown in Table 2.

Table 2: Comparisons of Economics Marks Before and After Implementation of Quizizz

Marks of Students	Before Quizizz	After Quizizz
1. Percentage of Respondents (Students) Got 50 Marks and Above	28 Percent (17 out of 61 students)	54 percent (33 out of 61 students)
2. Percentage of Respondents Who Got A (80 and above)	0 Percent (0 out of 61 students)	15 percent (9 out of 61 students)

From Table 2, before the implementation of Quizizz, the percentage of students (respondents) who score 50 marks and above is only 28 percent (17 out of 61 students). After the implementation of Quizizz, 54 percent of students score 50 marks and above. This shows that Quizizz is effective in improving passing rates of students as an increase of 26 percent of students pass the Economics subject.

In terms of percentage of students who score A, it has improvement of 15 percent due to implementation of Quizizz. Before Quizizz, there is no students who score A. After Quizizz, there is 15 percent who score As. The improvement shows that Quizizz can improve Diploma students' economics performance and achieve objective one.

CONCLUSION

The results show that the implementation of online games like Quizizz has brought about an improvement in the Economics performance of Diploma students. This is also supported by the previous study of Yunus and Tan (2021) who found out that Quizizz can improve performance of the students especially subjects that require irregular concepts. Yunus and Tan (2021) mentioned that the use of Quizizz game-based learning in computers and the interactive tool teaching provides more effective learning when compared with traditional methods, increases the motivation of the learner, develops positive attitudes in students. Hence, it can be concluded that the use of Quizizz does assist in enhancing pupils' learning of basic economics concepts and thus helping them to score better Economics performance.

This paper also becomes the guidelines for lecturers to understand the impacts of Quizizz and effectiveness of it in improving students' performance beside improving their interest to learn. Thus, lecturers are more confident to implement Quizizz in the context of Diploma students setting. The findings of the study lend support to the effectiveness of Quizizz in improving Diploma Students Economic Performance. Those lecturers that teach Economics subjects should always adopt Quizizz in the teaching and learning and integrate interactive teaching tool to attract students' interest to learn. However, implementation of Quizizz must be carefully designed to ensure students learning and teaching. Lecturers must always adapt to changes and always obtain feedback from the students on the use of the Quizizz. Lecturers must improve on the implementation of Quizizz to ensure smooth learning by the students. Every student has different pace of learning. Thus, lecturers need to adapt to the pace of students.

FUNDING ACKNOWLEDGEMENT

This study did not use any funding from any institution and the write-up for the manuscript are the efforts of the authors. However, the authors acknowledge the time provided by Universiti Teknologi Malaysia Sarawak Branch to write this article.

Conflict of Interest

The author declares that there are no conflicts of interest with any party.

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