Journal of Educational Sciences
Journal homepage: https://jes.ejournal.unri.ac.id/index.php/JES
P-ISSN 2581-1657
E-ISSN 2581-2203

Implementation of Quizwhizzer as A Teaching Evaluation Media Based on Educational Games in Informatics Subjects at Al-Maliki Islamic Boarding School

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ARTICLE INFO

Article history:

Received: 19 Aug 2025
Revised: 31 Aug 2025
Accepted: 10 Sept 2025
Published online: 29 Sept 2025

Keywords:

QuizWhizzer,
Game-based Learning,
Evaluation,
Informatics,
Student Achievement

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Article Doi:

https://doi.org/10.31258/jes.9.5.p.4645-4656

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A B S T R A C T

The rapid development of digital technology in education requires innovative approaches to teaching and evaluation that not only measure outcomes but also motivate students to learn actively. Informatics, as a subject in junior high schools, is often perceived as difficult by students, which makes effective and engaging evaluation methods essential. This study aims to implement and analyze the effectiveness of QuizWhizzer as an educational game-based evaluation medium in Informatics learning at SMP Pondok Pesantren Al-Maliki. The research employed an experimental method with a Pretest–Posttest Control Group Design, involving 38 students divided equally into an experimental class using QuizWhizzer and a control class applying conventional evaluation. Data were collected through pretests, posttests, questionnaires, and expert validation. The results show that QuizWhizzer was validated as feasible by material experts and received positive responses from students, who considered it fun and motivating. Furthermore, the experimental class showed higher improvement in learning outcomes compared to the control class. In conclusion, QuizWhizzer effectively enhances students' engagement, motivation, and academic performance, making it a promising alternative for modern digital-based evaluation in education.

1. Introduction

Education is a fundamental foundation to prepare the young generation for future challenges. Along with the rapid development of informatics, digital applications have become an essential part of junior high school students' daily lives (Hotimah et al., 2024). Informatics, as a school subject, plays a vital role in fostering digital literacy and computational skills. However, many students still perceive it as difficult, creating challenges for teachers in delivering material and evaluating learning effectively. Therefore, innovative evaluation methods are needed not only to measure outcomes but also to increase students' interest and motivation in learning. In the context of education, evaluation is considered a fundamental

component of the learning process. Learning evaluation refers to the systematic process in which teachers assess the knowledge, skills, and attitudes that students acquire. Although evaluation is often conducted at the end of learning activities, it should be designed and planned from the beginning of instruction (Aulia et al., 2020; Fitriyani & Razilu, 2024). Learning and evaluation are integral responsibilities of educators, contributing to the improvement of learning quality and the enhancement of students' motivation to continue studying, especially in subjects like computer science (Ramasari et al., 2024; Syah, 2024). With the curriculum transformation from Information and Communication Technology (ICT) into Informatics, the focus of learning has shifted to digital literacy and computational thinking. To achieve these objectives, teachers require appropriate learning media that facilitate communication between educators and students (A. et al., 2023; Reza et al., 2024).

One promising innovation in this regard is educational game-based learning. Several studies have shown that educational games are effective in supporting teaching, especially in informatics and other subjects (Liandri et al., 2024; Sintaro, 2020). Educational games offer online learning activities supported by internet connectivity, fostering student engagement and active participation (Ekaputra, 2023). Unlike traditional teacher-centered learning, game-based learning encourages students to explore knowledge interactively and enjoyably (Arifah et al., 2022; Ilhami & Dimyathi, 2024). Among the various educational games available, QuizWhizzer has emerged as an innovative evaluation tool designed to combine game elements with classroom assessments (Isnaini et al., 2025; Wafara, 2023).

QuizWhizzer is a game-based learning application that adopts a board game model to deliver assessments interactively. Through its competitive features, students are encouraged to participate actively and enthusiastically in classroom activities (Agustiningsih et al., 2022) This application allows teachers to design questions in a format that resembles popular board games, making the learning atmosphere more engaging and fun. As a result, QuizWhizzer serves not only as an evaluation medium but also as a motivational tool that enhances students' interest in the learning process. The relevance of using QuizWhizzer in learning evaluation is supported by real conditions observed at Pondok Pesantren Al-Maliki Junior High School. Based on the teacher's report, the average score of Grade VIII students in informatics during the previous semester was 75, which only met the minimum passing standard (KKM 75). Although digital learning tools such as Google Form and Quizizz have been applied and shown improvements in student outcomes from 75 to 85, their implementation has not been consistent due to several obstacles. These include limited computer and internet access, unequal student ability in operating technology, lack of teacher training, and insufficient integration into the school curriculum. QuizWhizzer, in particular, has not yet been utilized optimally in this setting, highlighting the need for research on its effectiveness in supporting evaluation activities in informatics learning.

According to (Juhaeni et al., 2023), QuizWhizzer is suitable for learning because it offers various game types that create an enjoyable environment. Its features allow

teachers to design interactive question flows, customize scoring, player movements, and board layouts (Faijah et al., 2022). Previous studies also confirm its potential in different contexts (Kurniyawati & Suneki, 2024) applied it in Pancasila Education, while (Karima et al., 2024) demonstrated its adaptability in mathematics and online learning. These findings show that QuizWhizzer is a versatile platform relevant for supporting informatics learning as well. Based on the background, this study aims to evaluate the use of QuizWhizzer as an educational game-based medium in junior high school informatics. The research focuses on two aspects: (1) students' and teachers' responses to its use in learning evaluation, and (2) its effectiveness in enhancing student engagement and motivation. The main purpose is to analyze how QuizWhizzer supports interactive and enjoyable evaluation activities to improve students' understanding of informatics.

2. Methodology

Research Design

This study uses an experimental method with a Pretest–Posttest Control Group Design. The experimental method was chosen because it was able to test the influence of the implementation of QuizWhizzer as an educational game-based evaluation medium on student learning outcomes in a measurable manner. This design involves two groups, namely the experimental class that uses the QuizWhizzer media and the control class that uses conventional evaluation methods.

Population and Sample

The research population is all grade VIII students of Pondok Pesantren Al-Maliki Junior high school for the 2025/2026 school year. The sampling technique used purposive sampling, with a total of 38 students who were divided into two groups: 19 students as the experimental class and 19 students as the control class.

Research Procedure

The research steps are designed through the following stages:

1. Planning: Prepare research instruments in the form of pretest and posttest questions, observation sheets, and student response questionnaires.
2. Pretest Implementation: Both groups were given an initial test to determine the initial ability before treatment.
3. Treatment:
    a) The experimental class was given a learning evaluation using QuizWhizzer media.
    b) The control class was evaluated using conventional methods (written tests).
4. Posttest Implementation: Both groups were given a final test with the same material to measure the improvement in learning outcomes.

5. Response Collection: Student responses to the use of QuizWhizzer media were collected through questionnaires. The stages of the research conducted in this study are summarized systematically through a flowchart, as illustrated in Figure 1.

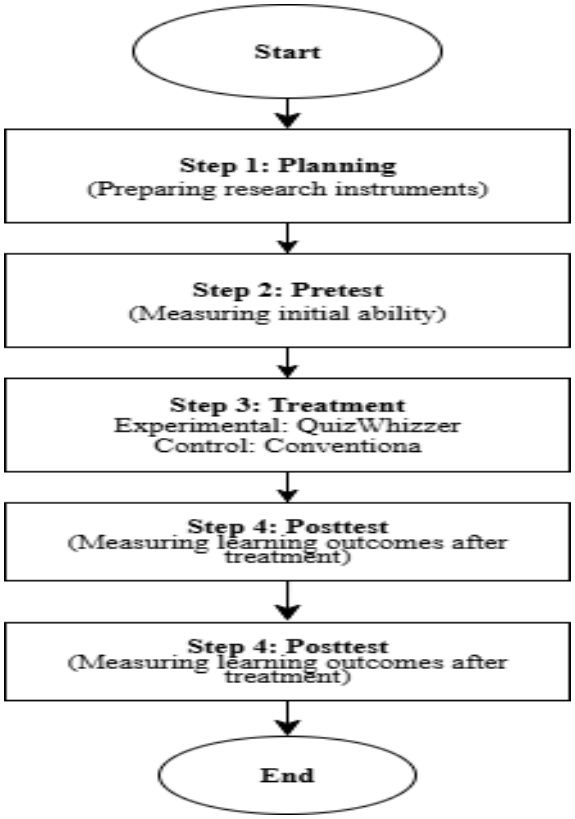

Figure 1. Flowchart of research activities

Data Collection Instruments

The instruments used in this study are:

1. The learning outcome test is in the form of multiple-choice questions given at the pretest and posttest stages.
2. Student response questionnaire to measure response and motivation to learn after using QuizWhizzer media.
3. Observation sheets to assess student involvement during the learning process.

Data Analysis Techniques

1. Quantitative Analysis

The learning outcome data was analyzed using an independent sample t-test to see significant differences between the experimental and control classes. Descriptive statistics (mean, standard deviation, and percentage) are used to describe the achievement of student learning outcomes.

2. Student Response Analysis

Data from the questionnaire was analyzed descriptively quantitatively in the form of percentages to determine the level of satisfaction, motivation, and activeness of students in learning.

3. Results and Discussion

Results

At the beginning of the research, both the experimental and control classes were composed of the same number of students, namely 19 students in each group, with a total of 38 participants. The composition of the students in the experimental class consisted of 10 male students and 9 female students, while the control class consisted of 9 male students and 10 female students. This balance in gender distribution was considered important to reduce bias and ensure comparability between groups. In terms of prior learning practices, students in both classes were accustomed to conventional evaluation methods such as written tests, teacher-prepared assignments, and oral questioning. These traditional approaches were generally used at the end of each unit and did not involve interactive or game-based activities.

During observations, it was also noted that students often showed a lack of enthusiasm when facing routine evaluations, which tended to focus more on measuring outcomes rather than stimulating engagement or motivation. This background condition provided the rationale for implementing an alternative evaluation medium that could increase student involvement in the learning process. In the experimental class, QuizWhizzer was introduced as a digital evaluation medium based on educational games. This application presents quizzes in the form of interactive board games, where students move across the board according to the correctness of their answers.

Through this approach, students were encouraged to engage in a competitive yet enjoyable atmosphere. The visual elements, game-like mechanics, and leaderboard features provided a strong motivational factor that distinguished this method from conventional tests. Meanwhile, the control class continued to use paper-based written evaluations as commonly practiced by teachers in the school. The stark difference between the two approaches lies in the degree of interactivity and engagement: the experimental class received dynamic, technology-assisted evaluations, while the control class followed traditional methods. This contrast became the foundation for analyzing the effectiveness of QuizWhizzer in fostering student participation, motivation, and improved learning outcomes compared to conventional evaluation strategies.

The results of this study are presented in the form of a descriptive description equipped with pictures and tables to strengthen the findings obtained. The presentation of results includes the *display of QuizWhizzer media* as a means of learning evaluation, the results of material expert validation, student responses through questionnaires, and quantitatively analyzed learning outcome data. With

this presentation, it can be seen how the implementation *of QuizWhizzer* not only provides an interactive and fun evaluation experience, but also has a real impact on improving student learning outcomes. The appearance of the QuizWhizzer home page, which became the primary medium in this research, can be seen in Figure 2**.**

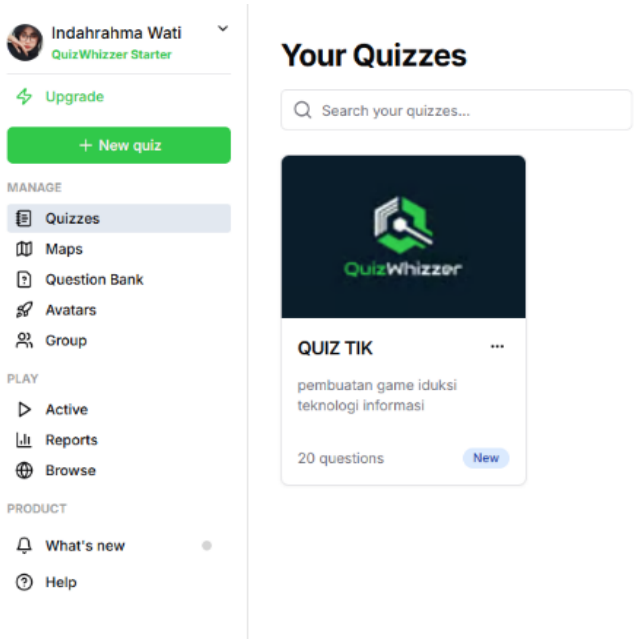

Figure 2. QuizWhizzer Home View

This image shows the home page of the *QuizWhizzer* application , which is the main medium in the research. On this page, users can access various menus such as creating new quizzes, managing questions, and setting up game boards. The simple and interactive home display makes it easy for teachers and students to get started with the app without requiring complicated technical skills. This supports the purpose of the research to present an evaluation media that is easy to use and interesting. To join the game-based evaluation, students were required to enter a unique access code, as displayed in Figure 3**.**

Figure 3. Quis Code Display

This image shows the quiz code that students must enter in order to participate in the evaluation game. The quiz code feature provides private access so that only participants with the correct code can log in. This mechanism improves data security and ensures only students in the research group participate. In addition, the use of codes makes the evaluation process more practical, especially when teachers want to limit participants to the class being taught. The ranking feature, which provides students with a leaderboard to foster motivation and competition, is presented in Figure 4**.**

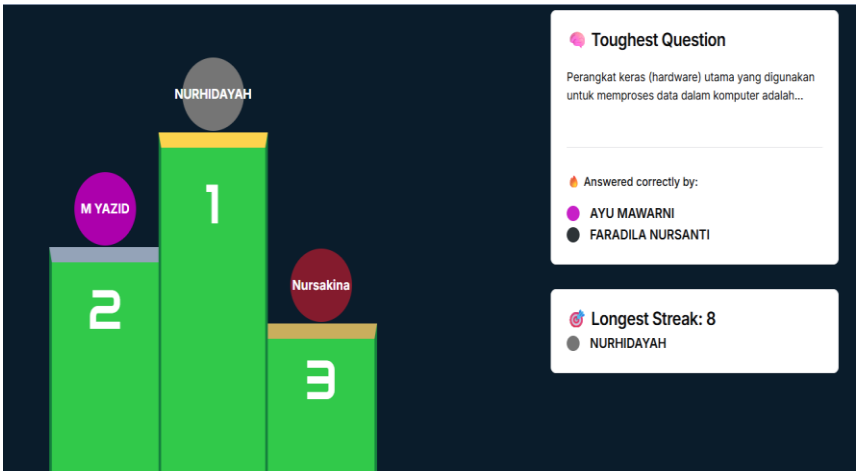

Figure 4. Quis Rating View

This image shows the student's ranking after completing the quiz on QuizWhizzer. The ranking feature provides a competitive atmosphere that can motivate students to strive for the best grades. This leaderboard is one of the gamification elements that is able to increase student enthusiasm, activeness, and involvement during the evaluation process. Thus, students not only answer questions but are also encouraged to compete in a healthy way. The summary of students' performance after completing the quiz is shown in Figure 5**,** which displays correct and incorrect responses.

Figure 5. Answer Results Display

This image shows the results of the students' answers after completing the quiz. The information displayed includes the number of questions answered correctly or incorrectly, so that students can immediately know the level of understanding. For teachers, the results of this answer facilitate the process of analyzing student learning achievements individually and in groups. This feature supports the principle of formative evaluation, because the results can be used for further learning improvement. The validation results from two subject matter experts regarding QuizWhizzer are presented in Table 1**.**

Table 1. Validation of Subject Matter Experts

Aspects of Discrimination	Validator I	Validator II
Content/Material Eligibility	25	24
Language	14	15
Compatibility with Students	14	14
Aspects of Evaluation via QuizWhizzer	19	20
Sum	**72**	**73**
Percentage	**96%**	**97%**

This table presents the results of the validation of two subject matter experts on the QuizWhizzer media. The assessment results showed high scores in the aspects of content/material feasibility, language, suitability with students, and evaluation aspects. Validator I scored a total of 72 with a percentage of 96%, while Validator II gave a total score of 73 with a percentage of 97%. This high percentage shows that the media is considered feasible and relevant to be used as an instrument for evaluating informatics learning. Students' responses toward the use of QuizWhizzer, collected through a Likert-scale questionnaire, are summarized in Table 2.

Table 2. Student Response Questionnaire to Media

Respondent	**Statement**												**Total**	**Average score**
	P1	**P2**	**P3**	**P4**	**P5**	**P6**	**P7**	**P8**	**P9**	**P10**	**P11**	**P12**		
R1	4	4	5	4	5	4	4	5	4	5	4	5	53	4,42
R2	3	4	4	3	4	4	3	4	4	3	4	3	47	3,92
R3	4	4	4	5	4	5	4	5	4	4	5	4	52	4,33
R4	4	5	4	5	4	5	4	5	4	5	4	5	54	4,50
R5	5	4	5	4	5	4	5	4	5	4	5	4	54	4,50
R6	3	3	4	3	4	3	3	4	3	3	4	3	40	3,33
R7	4	5	5	4	5	5	4	5	5	4	5	5	56	4,67
R8	3	4	3	4	3	4	3	4	3	4	3	4	46	3,83
R9	5	5	4	5	5	4	5	5	4	5	5	4	56	4,67
R10	4	4	4	4	4	4	4	4	4	4	4	4	48	4,00
R11	3	3	3	3	4	3	3	3	3	4	3	3	39	3,25
R12	4	5	4	5	4	5	4	5	4	5	4	5	54	4,50
R13	5	5	5	5	4	5	5	4	5	5	5	4	58	4,83
R14	3	4	3	4	3	4	3	4	3	4	3	4	46	3,83
R15	4	4	5	4	4	5	4	4	5	4	5	4	52	4,33
R16	2	3	3	3	3	3	2	3	3	3	3	3	34	2,83
R17	4	5	4	5	4	5	4	5	4	5	4	5	54	4,50
R18	3	4	4	3	4	4	3	4	4	3	4	3	47	3,92
R19	4	4	4	4	5	4	4	5	4	4	5	4	51	4,25
					Sum								**881**	**81,41**
					Percentage								**77%**	
					Category								**Proper**	

This table shows students' responses to QuizWhizzer's use through 12 statements on a Likert scale. The results showed that most students gave scores of 4 (agree) and 5 (strongly agree), with a total average score of 81.41 and a percentage of 77% that fell into the *feasible category*. This shows that students respond positively to the use of this media because it is considered fun, motivating, and helps to understand the material. A comparison of student learning outcomes between the experimental class using QuizWhizzer and the control class with conventional evaluation can be seen in Table 3**.**

Table 3. Student Learning Outcomes of Experiment and Control Class

Group	Average Pretest	Posttest Average	N-Gain (average)	Information
Experiments (n=19)	67,11	87,37	0.63 (Medium category)	Using QuizWhizzer
Control (n=19)	66,32	78,16	0.41 (Medium category)	Conventional Evaluation

This table compares the average student learning outcomes of experimental classes that use QuizWhizzer and control classes that use conventional evaluations. The average of the pretest for the two groups was almost the same, namely 67.11 (experimental) and 66.32 (control). However, the posttest results showed a higher improvement in the experimental class (87.37) than in the control (78.16). The *N-Gain value* was also greater in the experimental class (0.63 in the medium category) than in the control (0.41 in the medium category), which indicates that QuizWhizzer is more effective in improving learning outcomes. The results of the independent sample t-test analysis between the experimental and control groups are displayed in Table 4**.**

Table 4. Independent Sample T-Test Results

Variable	Stuttgart	ttable (α=0.05)	Sig. (2-tailed)	Information
Posttest Experiment vs Control	3,25	2,02	0,003	**Significant**

This table shows the results of the t-test analysis to compare the experimental and control class posttest values. The *tcal* value of 3.25 is greater than *the ttable* of 2.02 with a significance of 0.003 < 0.05. These results prove that there are significant differences between the two groups. Thus, the use of QuizWhizzer has been proven to have a real influence on improving student learning outcomes compared to conventional evaluations.

Discussion

The results of the study show that the implementation of QuizWhizzer as an educational game-based learning evaluation medium has a positive impact on student engagement and learning outcomes in Informatics subjects at Pondok Pesantren Al-Maliki Junior High School. Based on the validation of material experts, this media obtained a high feasibility score, namely 96% of validator I and 97% of validator II. This proves that QuizWhizzer meets the aspects of content/material, language, suitability with students, and feasibility in the

implementation of learning evaluation. Thus, this media is declared suitable for use in the context of formal education.

Student responses through the questionnaire showed a positive response with a feasibility percentage of 77%. Most students found the use of QuizWhizzer fun, motivating, and helped them understand the material better. Gamification elements such as leaderboards and competitions between students successfully increase active engagement in the learning process. This is in line with the findings (Rosalianisa et al., 2023) which emphasizes that game-based media is able to encourage participation and create an interactive learning atmosphere.

In terms of learning outcomes, the average posttest score of students in the experimental class that used QuizWhizzer was higher (87.37) than the control class (78.16). This increase was reflected in the N-Gain value of 0.63 in the experimental class (medium category) and 0.41 in the control class (medium category). The analysis of the t-test also corroborated these findings with a significance value of $0.003 < 0.05$, which means there was a significant difference between the two groups. This fact shows that QuizWhizzer is able to improve learning outcomes more effectively than conventional evaluation methods.

Thus, this study proves that QuizWhizzer not only functions as an evaluation tool, but also acts as an innovative learning medium that is able to motivate students. The use of competition elements and visualization of answer results makes students more enthusiastic and motivated to achieve the best results. These results are consistent with previous research (Andayani & Madani, 2023; Isnaini et al., 2025) which emphasizes the effectiveness of QuizWhizzer in increasing motivation and understanding of concepts through an educational game approach.

4. Conclusion

This study concludes that the implementation of QuizWhizzer as an educational game-based evaluation medium in Informatics subjects at Junior High School of Al-Maliki Islamic Boarding School has successfully increased student engagement, motivation, and learning outcomes. Expert validation confirmed that the media met the required standards of content, language, and suitability for students, indicating that it is feasible for use in formal educational contexts. Students also gave positive responses, reflecting that the application created a fun and competitive learning atmosphere which encouraged them to participate more actively in the evaluation process. The contrast between the experimental and control classes demonstrates that digital game-based evaluations can provide more meaningful learning experiences compared to conventional methods. QuizWhizzer not only functioned as an evaluation tool but also acted as an interactive medium that transformed assessments into enjoyable activities. This innovation aligns with the growing need for technology-based solutions that address challenges in motivating students, especially in subjects often perceived as difficult, such as Informatics. Overall, this research highlights the potential of QuizWhizzer to serve as an alternative modern evaluation medium in the digital era. Its use can be expanded to other subjects and

combined with different learning strategies, providing opportunities for teachers to create a more engaging and effective learning environment that supports students' academic growth and digital literacy skills.

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How to cite this article:

Wati, I. R., Taufik., & Hakim, A. R. (2025). Implementation of Quizwhizzer as A Teaching Evaluation Media Based on Educational Games in Informatics Subjects at Al-Maliki Islamic Boarding School. *Journal of Educational Sciences*, *9(5)*, 4645-4656.