

Enhancing Learning Motivation in Islamic Education through Quizizz: Evidence from a Quasi-Experimental Study

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ABSTRACT

Research on gamified learning in Islamic education remains limited, particularly studies examining the effect of digital learning media on students' learning motivation. This study investigated whether Quizizz improves students' motivation in Islamic Education compared with conventional instruction. A quantitative quasi-experimental design with a nonequivalent control group was employed. The participants were 69 tenth-grade students at SMKN 2 Bondowoso, Indonesia, consisting of 34 students in the experimental group and 35 students in the control group. The experimental group learned Islamic Education using Quizizz, while the control group received conventional instruction. Students' learning motivation was measured using a validated and reliable 20-item questionnaire based on Keller's ARCS motivation model. Data were analyzed using descriptive statistics, prerequisite tests, an independent-samples t-test, simple linear regression, and Cohen's d effect size. The experimental group achieved a higher posttest mean score than the control group ($M = 83.09$, $SD = 8.17$ vs. $M = 64.29$, $SD = 8.33$). The difference was statistically significant, $t(67) = -9.47$, $p < .001$, with a very large effect size. Regression analysis also showed that Quizizz had a positive and significant effect on students' learning motivation, explaining 12.4% of the variance. The findings suggest that Quizizz can enhance students' learning motivation by creating a more interactive, engaging, and feedback-rich learning environment. Integrating gamified digital media into Islamic Education may support more active and student-centered learning, although further studies with stronger experimental controls and longer intervention periods are recommended.

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1. INTRODUCTION

Vocational education is crucial in preparing young people to face the challenges of the digital workplace, where success depends on technical skills and innovation (Contreras et al., 2023). Islamic vocational education in Indonesia has grown rapidly, combining religious values and practical learning

(Pazoki et al., 2022). However, it faces major problems, such as a lack of motivation and active involvement of students in the learning process (Oktania et al., 2025).

Student motivation can be stimulated in different ways, due to the diverse characteristics of students. Recently, there have been many reports on the impact of gamified assignments and exercises (Lavoué et al., 2021). In one study, students' acceptance of gamification was reported to be more influenced by their performance expectations than by other factors, such as effort expectations, social influence, and facilitating conditions (Chung et al., 2019). Therefore, the appropriate gamification platform must be carefully selected to meet students' expectations (Pham et al., 2025).

The rapid development of digital technology has influenced many aspects of life, including education. Interactive digital educational games incorporated into the learning process are one of the important innovations in the field of education (Kale et al., 2021). Current technological advances have resulted in various new innovations that have led to the emergence of many educational games. One of the most well-known is Quizizz, which was founded by Ankit and Deepak in 2015 in Bangalore, India (Hafiyah & Hadi, 2023). Quizizz is a web tool or smartphone-based application that can create interactive quizzes in the form of games (Rizqi & Syahri, 2021).

In today's digital age, education increasingly demands the integration of technology to improve the quality of the teaching and learning process (Gupta & Candidate, 2023). Quizizz is one of the learning media in the form of a quiz and is based on 4.0 (Solikah, 2020). Digital tools such as Quizizz can also serve as an alternative assessment method that meets current learning needs (Julia Ika Pratiwi, 2025). Therefore, the Quizizz game medium can be categorized as a superior learning medium (Sahra et al., 2020).

The relationship between the phenomenon of education 4.0, also known as digital education, and Islamic Religious Education learning seems to raise new issues and new efforts to change or redesign the Islamic Religious Education learning framework in accordance with education 4.0 theories (Abas & Susetiyono, 2022). One common problem that often arises in learning, especially in Islamic Religious Education, is that students feel sleepy, bored, and uninterested in what they are learning (Muhammad Yusuf Salam, 2022). Therefore, uninteresting teaching materials will cause boredom, which will lead to a decrease in students' motivation to learn (Agustina et al., 2024).

Various studies show that Quizizz can increase learning motivation by providing an effective platform for students to explore material, make decisions, and receive immediate feedback, all of which contribute to deeper understanding among students (Ine Kamala Sari & Al Ikhlas, 2025; Rizkiawati et al., 2024). According to the ARCS motivation model, which consists of Attention, Relevance, Confidence, and Satisfaction, sustaining student motivation requires efforts to attract attention, ensure relevance of material, build confidence, and foster a sense of achievement (Chang, 2021). Therefore, the Quizizz application can be used as a solution. By using Quizizz, the conventional learning process can be transformed into a more interactive, enjoyable, and healthy competitive environment (Ulum & Jasiyah, 2025).

Quizizz is a platform that combines technology with game elements to attract students' interest and motivation to learn. Quizizz, a medium introduced by the Malaysian Ministry of Education and used in junior high schools in Nigeria, has been proven to improve student learning outcomes and support inclusive education. (Bokolo & Uwah, 2024; Mahmud & Law, 2022; Muchuwani et al., 2025). Based on data obtained from the official Quizizz website (<http://quizizz.com/>), this platform has been used by more than 10 million people in 100 countries, half of the schools in the United States utilize quizzes, and there are 500 million questions answered every month. Thus, the development of Quizizz across developed countries yields similar results: Quizizz can be used as an innovative learning medium to support active learning and increase student motivation in the digital era (Firdaus et al., 2022).

Supported by Burrhus Frederic Skinner's behaviorism theory, especially the concept of operant conditioning, it states that positive reinforcement, such as points and instant feedback from websites like Quizizz, can increase students' motivation to learn from external sources. This approach is also in

line with Islamic values such as discipline and effort, which encourage students to actively participate in the learning process (Semiun, 2020). This learning motivation theory supports other ideas, such as Self-Determination Theory (SDT) by Deci and Ryan, which distinguishes between intrinsic motivation (based on personal interest) and extrinsic motivation (based on external rewards), and the ARCS Model by John Keller, which emphasizes four main elements of learning motivation: attention, relevance, confidence, and satisfaction (Keller, 2012; Ryan & Deci, 2000). As a result, Quizizz, as a gamification tool, allows learning to be more active, practical, and meaningful in Islamic education. Additionally, through enjoyable experiences, it can transform external motivation into intrinsic motivation (Dewi & Safitri, 2024; Syahrin & Dewi, 2025).

Several of the above research results show that Quizizz is an excellent learning tool that can help increase student motivation. It has been proven to have a positive impact because its application is not boring and can stimulate students' interest in learning through games that remain educational in nature. This is especially true for Islamic Religious Education subjects, which most students dislike and consider boring due to the monotonous learning process (Rohmah, 2024).

Through the Quizizz application, it is hoped that students' motivation to learn Islamic Education will increase. Along with the development of educational technology, various game-based learning media have emerged and been used to increase learning motivation, among them Quizizz. Previous studies have shown that the use of Quizizz can increase students' motivation, participation, and learning outcomes (Orhan Göksün & Gürsoy, 2019).

Despite its great potential, several research gaps remain regarding the use of Quizizz in education. Most previous studies have focused on general subjects such as mathematics, language, and science, while research specifically examining Quizizz in Islamic Education is still limited, even though this subject emphasizes values, attitudes, and students' intrinsic motivation. Methodologically, many studies on Quizizz have used descriptive survey approaches, whereas quasi-experimental studies that compare experimental and control groups are still rare, making causal conclusions about its effectiveness on learning motivation less robust. In addition, research on the use of Quizizz at the vocational high school level, particularly in local contexts such as SMK 2 Bondowoso, remains limited, despite the unique motivation needs and learning dynamics of SMK students. Therefore, this study focuses on increasing tenth-grade students' learning motivation in Islamic Education through the use of Quizizz with a quasi-experimental design, guided by two research questions: whether there is a difference in learning motivation between students taught using Quizizz and those taught through conventional methods, and how much Quizizz influences the improvement of students' learning motivation in Islamic Education.

2. METHODS

This study uses a quantitative approach with a Quasi-Experimental Design, with a Nonequivalent Control Group design.

Table 1. Non-equivalent control

O ₁	X	O ₂
O ₃		O ₄

O1: Initial motivation of the experimental group

O2: Final motivation of the experimental group

O3: Initial motivation of the control group

O4: Final motivation of the control group

X : Treatment

This design involves two groups, namely the experimental group and the control group, which are not randomly selected, but both are given pre-tests and post-tests to determine the effect of the treatment (Sugiyono, 2013: 75). To prevent individual randomization, this design was chosen because class divisions in schools are fixed. However, this still allows for an objective comparison between the two groups.

2.1 Population and Sample

The population in this study was 222 students in grade X at SMKN 2 Bondowoso in the 2025/2026 academic year. The research sample included:

- 1) Experimental group in class X D1
- 2) Control groups in classes X A2 and X A3

In the sampling technique, the researcher used purposive sampling. Purposive sampling is a sampling method that involves selecting samples based on certain considerations (Setiawan, 2024). The sample used in this study consisted of 69 respondents in accordance with the existing classes.

2.2 Duration of Intervention and Learning Procedures

The intervention was conducted over 4 sessions, each lasting 60 minutes.

1) Experimental Group

The experimental group received Islamic education using Quizizz. The learning procedures included:

- a) A brief explanation of the material by the researcher.
- b) Completion of an interactive quiz using Quizizz.
- c) Providing immediate feedback based on quiz results.
- d) Reflection and reinforcement of material.

Quizizz was used as a formative evaluation and concept reinforcement medium.

2) Control Group

The control group participated in learning using conventional methods, namely lectures and discussions, without the use of digital media.

2.3 Research Instruments

The instruments in this study emphasize the measurement of learning motivation. The learning motivation used in this research instrument is based on John Keller's theory, which consists of four elements, namely attention, relevance, belief, and satisfaction (Keller, 2012). To ensure that each statement item has the ability to measure the intended construct consistently, the instrument was first tested for validity and accuracy. Before the instruments were used in the study, they were also validated by learning and statistics experts. This study used validity and reliability tests to examine the validity of the research instruments (Kusumastuti et al., 2020: 75). The instruments in this study were used for data collection purposes and consisted of 20 learning motivation statements using a 1–5 Likert scale.

2.4 Data Analysis Procedure

Data analysis was conducted in stages using SPSS version 25.

- 1) Descriptive statistical analysis was used to describe students' learning motivation based on the mean score, minimum score, maximum score, and standard deviation in the experimental and control groups (Kusumastuti et al., 2020: 75).

2) Prerequisite Tests

Normality tests were used to determine whether the data were normally distributed as a prerequisite for parametric analysis. The data were declared normal if the significance value was > 0.05 , and in this study, they were tested using the Kolmogorov–Smirnov because the sample size was > 50 . Furthermore, a linearity test was conducted to determine the linear

relationship between the independent and dependent variables, with a significance value criterion of Deviation from Linearity > 0.05 . (Purnomo et al., 2016; 83).

3) Hypothesis Testing

The independent-sample t-test was used to compare the N-gain learning motivation scores between the experimental and control groups. In addition, an effect size analysis was also conducted to determine the magnitude of the effect of using Quizizz on increasing student learning motivation. The effect size interpretation criteria refer to Cohen's criteria: small, medium, and large. Effect size analysis aims to provide information about the practical strength of influence to complement the results of significance tests. Then, a simple linear regression analysis was performed to determine the effect of independent variables on dependent variables and the magnitude of the contribution of these effects. The effect is considered significant if the significance value is < 0.05 (Fauziyah, 2018; 12-15).

3. FINDINGS AND DISCUSSION

3.1 Findings

This section presents the research results, which include the validation of the research instruments and the effect of using Quizizz on increasing student motivation in Islamic Education through a quasi-experimental study approach at SMKN 2 Bondowoso.

In this study, four sessions were conducted, namely two sessions in the experimental class and two sessions in the control class. The experimental class was treated with the Quizizz learning media, while the control class was not treated or used conventional methods. The results showed that there was a difference between the experimental and control classes, in which the Quizizz application had a significant effect on student learning motivation in Islamic Education at SMKN 2 Bondowoso. Based on the reliability test results conducted through Cronbach's alpha analysis with the help of IBM SPSS version 25, the Cronbach's alpha value of the independent variable was 0.721, and the dependent variable was 0.864, which is greater than 0.6. Therefore, it can be concluded that the two variables in this study are reliable.

Table 2. Descriptive statistical analysis

	Descriptive Statistics				
	N	Minimum	Maximum	Mean	Std. Deviation
experimental pretest	34	35	70	48.97	7.363
control pretest	35	30	70	47.29	9.952
Valid N (listwise)	34				

Source: SPSS version 25 data processing results

In Table 2, the descriptive statistics show that the pretest scores of the experimental group ($M = 48.97$; $SD = 7.363$; $N = 34$) and the control group ($M = 47.29$; $SD = 9.952$; $N = 35$) were in almost the same range. The average of the two groups differed by only 1.68 points, indicating that the participants' initial abilities were relatively equal. In addition, the similar minimum and maximum ranges and comparable standard deviations reinforce that there was no significant difference in initial abilities between the experimental and control groups before the treatment was given.

Next, we conducted prerequisite tests, namely normality and linearity tests. In the normality test using the One-Sample Kolmogorov-Smirnov Test on the residuals, we obtained an Asymp.sig. 2-tailed value of 0.199. This value is > 0.05 , so we can conclude that the residual data in this study is normally distributed. Meanwhile, the linearity test results showed that the deviation from linearity value was 0.374. Therefore, it can be concluded that $0.374 > 0.05$ and it can be stated that the relationship between the Quizizz media variable and learning motivation is linear or straight. These interpretation results were obtained through SPSS version 25 data processing.

Table 3. Independent Samples t-test Posttest Scores

Group	N	M	SD	t	df	p	95% CI	d
Control Posttest	35	64.29	8.33					
Experimental Posttest	34	83.09	8.17	-9.47	67	<0.001	[-22.77; -14.84]	2.28

N=sampel; *M* = mean; *SD* = standard deviation; *t* = *t*-test value; *df* = degrees of freedom; *p* = significance level; *CI* = 95% confidence interval; *d* = Cohen's *d* (effect size).

Based on the results of the Independent Samples t-test in Table 2, there is a significant difference between the posttest scores of the control group and the experimental group. The experimental group had a higher mean score ($M = 83.09$; $SD = 8.17$) than the control group ($M = 64.29$; $SD = 8.33$), with the statistical test results showing a *t*-value (67) = -9.47 and a significance level of $p < 0.001$. The 95% confidence interval, which ranges from -22.77 to -14.84 and does not cross zero, confirms that the difference is real. Cohen's *d* value of 2.28 indicates a very large effect, suggesting that the treatment given had a strong influence on improving learning outcomes. This difference occurred because the experimental group received more structured, interactive, and learner-centered learning treatments, thereby increasing engagement, motivation, and understanding of the material more optimally than the conventional learning applied to the control group.

Table 4. Simple linear regression analysis test

Model Summary ^b				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.353 ^a	.124	.111	7.058

a. Predictors: (Constant), Quizizz

b. Dependent Variable: Learning Motivation

ANOVA ^a						
Model	Sum of Squares	df	Mean Square	F	Sig.	
Regression	474.422	1	474.422	9.523	.003 ^b	
Residual	3338.013	67	49.821			
Total	3812.435	68				

a. Dependent Variable: Learning Motivation

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	45.696	11.922		3.833	.000
	Quizizz	.542	.176	.353	3.086	.003

a. Dependent Variable: Motivation

Source: Results of data processing using SPSS version 25

In Table 3, the results of simple linear regression analysis show a correlation coefficient (*R*) value of 0.353, indicating a positive relationship between Quizizz and learning motivation. The *R* Square value of 0.124 shows that Quizizz contributes 12.4% to learning motivation. The remaining 87.6% is influenced by other factors outside the scope of this study. The *F* test shows a significance value of $0.003 < 0.05$, which means that the regression model is significant. In addition, the *t*-test results for Quizizz show a significance value of 0.003 with a regression coefficient of 0.542, so it can be concluded that the Quizizz media has a positive and significant effect on the learning motivation of students in Islamic religious education.

3.2 Discussion

The findings of this study indicate that the use of Quizizz as a gamification-based learning medium had a positive effect on students' learning motivation in Islamic Education. Students in the experimental group obtained a higher posttest motivation score than those in the control group, suggesting that digital game-based learning can create a more engaging learning experience than conventional instruction. This finding is consistent with previous studies showing that Quizizz can increase students' motivation, participation, and learning engagement by providing interactive activities, instant feedback, and a more enjoyable learning atmosphere (Firdaus et al., 2022; Handayani et al., 2022; Orhan Göksün & Gürsoy, 2019). In the context of Islamic Education, this result is important because the subject is often perceived as monotonous when delivered mainly through lectures, which may reduce students' interest and active participation (Agustina et al., 2024; Salam & A. M. A. A., 2022).

The effectiveness of Quizizz can be explained through Keller's ARCS motivation model, which consists of attention, relevance, confidence, and satisfaction (Keller, 2012). Quizizz attracts students' attention through game-like features such as points, rankings, timers, music, and visual displays. These features help transform the classroom atmosphere into a more dynamic learning environment. The use of Quizizz also increases relevance because students engage with Islamic Education materials through a digital platform that is familiar to their daily lives. For vocational high school students, who are increasingly exposed to technology-based learning, this approach makes religious learning more contextual and aligned with the demands of digital education (Abas & Susetiyo, 2022; Gupta & Candidate, 2023).

Quizizz may also strengthen students' confidence because it provides immediate feedback after each response. This feedback helps students identify errors, correct misunderstandings, and monitor their learning progress during the activity. Such feedback is pedagogically meaningful because students do not merely receive scores at the end of learning but are guided to recognize their level of understanding throughout the process. In addition, students' satisfaction may increase when they experience achievement through scores, rankings, and successful completion of quizzes. This supports previous findings that gamification can improve motivation by creating enjoyable, challenging, and feedback-rich learning experiences (Lavoué et al., 2021; Pham et al., 2025).

The results are also in line with behaviorist learning theory, especially the principle of reinforcement. In Quizizz-based learning, scores, rankings, and direct confirmation of correct or incorrect answers function as positive reinforcement that encourages students to remain active in learning. This external reinforcement may initially stimulate extrinsic motivation, but repeated enjoyable learning experiences can gradually support students' intrinsic motivation (Ryan & Deci, 2000; Semiu, 2020). In Islamic Education, this is particularly relevant because motivation is not only related to academic achievement but also to students' willingness to understand, appreciate, and internalize religious values.

Compared with the control group, students who learned using Quizizz experienced a more active and student-centered learning process. Conventional instruction tends to position students as passive recipients of information, while Quizizz requires students to respond, compete constructively, and reflect on their understanding. The automatic ranking feature can encourage healthy competition, while the quiz format can improve concentration and participation. These findings support earlier studies reporting that Quizizz can make learning more enjoyable, reduce anxiety during evaluation, and increase students' enthusiasm for participating in classroom activities (Citra & Rosy, 2020; Rosiyanti et al., 2020; Wijayanti & Hermanto, 2021).

Nevertheless, the pedagogical value of Quizizz depends on how teachers design and implement it. The use of technology alone does not guarantee meaningful learning. In Islamic Education, Quizizz should not only measure factual recall but also include questions that encourage reflection, moral reasoning, and contextual application of Islamic values. Therefore, teachers need to integrate religious content, ethical messages, and reflective discussion into Quizizz-based activities. When designed

appropriately, Quizizz can function not only as an assessment tool but also as a medium for reinforcing values and improving students' engagement with Islamic teachings.

This study has practical implications for Islamic Education teachers and school administrators. Teachers may use Quizizz as a formative assessment tool, a medium for concept reinforcement, or an interactive strategy to increase students' motivation. However, successful implementation requires adequate infrastructure, including internet access, student devices, and teacher competence in designing digital learning activities. Schools should therefore provide pedagogical training and technological support so that the benefits of gamification can be experienced more equally by students (Azizah et al., 2023).

Despite the positive findings, this study has several limitations. The intervention was conducted within a relatively short period and involved students from only one school, which limits the generalizability of the results. The quasi-experimental design also did not involve random assignment, so potential differences between classes may not have been fully controlled. In addition, the study focused primarily on learning motivation and did not examine the long-term effects of Quizizz on religious understanding, attitudes, or the internalization of Islamic values. Future research should involve larger samples, longer intervention periods, stronger experimental controls, and broader outcome variables to provide a more comprehensive understanding of gamification in Islamic Education.

4. CONCLUSION

In conclusion, this study found that the use of Quizizz had a positive influence on students' learning motivation in Islamic Education, as students who learned through Quizizz showed higher motivation than those taught using conventional methods. This finding indicates that game-based digital learning media can create a more engaging, interactive, and enjoyable learning atmosphere for tenth-grade students. However, this research was limited to one school, one grade level, and one subject, so the results cannot be generalized to all educational contexts. Therefore, future researchers are suggested to conduct similar studies with larger samples, different school levels, various subjects, and longer research periods to obtain more comprehensive results regarding the effectiveness of Quizizz in improving students' learning motivation.

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