

## ENHANCING STUDENTS' LEARNING INTEREST THROUGH GAMESHOW-BASED QUIZ MEDIA IN QUR'ANIC LEARNING CENTERS

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**Abstract:** This study aimed to compare students' learning interest before and after the use of Wordwall (Gameshow Quiz) and to examine its effectiveness in enhancing learning interest in non-formal Qur'anic education. A quantitative approach was employed using a pre-experimental design with a one-group pretest-posttest model. Data were analyzed using a paired sample t-test and n-gain analysis. The results revealed a statistically significant difference between pretest and posttest scores, with a p-value of  $0.000 < 0.05$ , indicating an increase in students' learning interest after the intervention. The average n-gain score was 0.43, which falls within the moderate effectiveness category. These findings suggested that interactive digital media such as Wordwall can meaningfully enhance students' learning interest in Qur'anic instruction. The study implied that integrating technology-based learning media in QLCs might serve as an effective pedagogical strategy to improve student engagement in non-formal Islamic education settings.

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## INTRODUCTION

Education occupies a central position in Islam, as all knowledge acquired through educational processes must be pursued, disseminated, and preserved in accordance with the principles articulated in the Qur'an (Lampropoulos & Kinshuk, 2024; Manzano-León et al., 2021; Oliveira et al., 2023). Consequently, Islamic educational institutions function as organized systems responsible for delivering structured and value-oriented religious education (Andayanie et al., 2025; Feriyanto & Anjariyah, 2024; Siu- et al., 2022). Despite this normative ideal, empirical evidence indicated that Qur'anic literacy among Indonesian learners remained a significant concern. Data from the Agency for Research and Development showed that 39% of learners still require intervention to strengthen Qur'anic reading literacy, while 47% need special attention in developing

writing literacy skills. These findings underscored the urgency of improving the quality of Qur'anic education through collaborative efforts involving government, educational institutions, and local communities (Latipah, 2022; Shariq, 2020).

In Indonesia, Qur'anic education was primarily delivered through non-formal institutions regulated under Government Regulation No. 55 of 2007, Article 24, which stated that Qur'anic education aims to improve learners' ability to read, write, understand, and practice the teachings of the Qur'an. Such education was implemented through various forms, including Qur'anic Learning Centers (QLCs) (Harfiani, 2021). Among these, QLCs played a strategic role as accessible non-formal learning environments that foster Qur'anic literacy while simultaneously nurturing students' moral values and character development. One crucial determinant of learning success in QLCs was students' learning interest (Harefa et al., 2023; Rizqiyah et al., 2024b; Teppo et al., 2021). Learning interest significantly influenced students' motivation, engagement, and persistence in participating in learning activities. A high level of interest in learning tended to result in high academic achievement, whereas a low level of interest in learning will result in low achievement (Fu, 2023; Krawitz et al., 2024).

However, several critical challenges persisted in QLCs that hindered the development of students' learning interest. Based on interviews with teachers at QLCs, classical instructional methods dominate Qur'anic learning activities, including prayer practice, ablution, classical *Iqra'* and Qur'an instruction, as well as lessons on manners, daily prayers, short surahs, and prophetic history. Nevertheless, students demonstrated low enthusiasm during classical *Iqra'* lessons, reluctance to write learning materials, and limited attention to teachers' explanations. Furthermore, ICT-based learning games have never been implemented in this institution. These conditions reflected a broader problem in Qur'anic education. Therefore, fostering interest in learning was the key to optimizing learning, so educators needed to reconstruct teaching materials that are contextual, flexible, and adaptive to global developments and the needs of students. Interest in the learning process was one of the psychological aspects that plays an important role in influencing individuals in learning, because a person's interest can foster a sense of enjoyment and attachment to an object or activity voluntarily without coercion. Moreover, rapid technological advancement has triggered a paradigm shift in education, transforming the traditional role of teachers from sole knowledge transmitters to learning facilitators.

The integration of digital technology in education has emerged as a promising solution to address these challenges. Recent studies suggested that digital game-based learning media can effectively enhance students' learning interest by providing enjoyable, interactive, and meaningful learning experiences (Ashari et al., 2023; Degirmenci, 2021). The use of fun and interactive learning media in learning was one of the triggers that makes students interested in learning (Parker & Krieg, 2022; Stimpson & Calvert, 2021). Among various digital platforms, Wordwall has gained considerable attention in educational

settings as a virtual gamification-based learning tool, offering a user-friendly interface and diverse interactive templates that can be accessed without mandatory account registration (Aini et al., 2024; Volpe et al., 2025). The platform's Gameshow Quiz format specifically integrated images, audio, animations, time constraints, and scoring systems that promoted competition, emotional engagement, and active participation (Bilova & Oles, 2022; Fitria, 2021; Masrum et al., 2023).

Wordwall was a learning medium that can attract students' attention and has the potential to create an interactive and enjoyable learning environment (Bilova & Oles, 2022; Fitria, 2021). Students' interest in learning grew because they feel enthusiastic, actively participate, and enjoy using technology, whereas previously used conventional teaching media. The results of the study showed that the Wordwall function can be used by learners of all ages and levels (Capinding, 2022; Roslan et al., 2022). Another study showed that the increase in students' interest is due to the interaction between students, teachers, and technology in Wordwall games, which encouraged them to participate in answering questions in order to achieve the highest score. Positive results from the use of Wordwall were also shown in mathematics learning, which can improve academic achievement and increase student motivation to learn language and vocabulary (Holly et al., 2023; Rahmah et al., 2024; Rizqiyah et al., 2024a; Saleh, 2023; Yuliana et al., 2025).

This study offered novelty by empirically testing the effectiveness of a digital game show-based quiz medium, Wordwall, in enhancing students' learning interest in the context of non-formal Quranic education. Although previous research had extensively investigated game-based learning in formal and secular educational settings, empirical evidence regarding its application in Quick Learning Centers (QLCs) remains limited. Furthermore, theories of learning interest have largely been developed and tested in general education contexts, thus providing insufficient insight into how interactive digital media influenced affective engagement in religious learning environments. Identified the dimensions of learning interest as enjoyment/pleasure, stated preference, interest, awareness to learn without being prompted, participation in learning activities, and attention. Based on the indicators above, the four indicators that will be used by the researcher were expected to comprehensively represent the core elements in the process of forming and strengthening students' learning interest. This focus also integrated to establish indicators of learning interest with quiz-based digital media in QLC (Islamic non-formal education).

## **RESEARCH METHOD**

Based on the problem to be studied, the researcher used an experimental research design. Experimental research is quantitative research consisting of two tests, a prerequisite test and a hypothesis test (Libarkin & Kurdziel, 2022). This study applied a pre-experimental model with a one-group pretest-posttest design. Through this design, the effectiveness of the treatment can be analyzed

more accurately, as it allowed researchers to compare the conditions of the subjects before and after the intervention was given.

**Table 1 . One-group pretest-posttest design**

O1	X	O2
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Description:

O1 : pretest (before treatment)  
 X : treatment (Quiz Gameshow)  
 O2 : posttest (after treatment)

The study involved a total population of 80 students distributed across five classes: Ali (23 students), Usman (23 students), Umar (18 students), Abu Bakar (6 students), and TQA (10 students). A purposive sampling method was applied, with the selection criteria focusing on classes where students showed relatively low participation, poor concentration, and limited enthusiasm during lessons. Based on these considerations, Usman's class was chosen as the primary sample for the research.

Data were collected using questionnaires administered as both pretests and posttests, structured on a four-point Likert scale. This scale was designed to measure participants' attitudes, perceptions, and views regarding the specific social phenomenon under investigation, which in this case was students' interest in learning. The variables were operationalized into several indicators, serving as the foundation for developing questionnaire items. The key indicators included enjoyment, attention, interest, and involvement.

The instrument consisted of eight questionnaire items, comprising four positively worded statements (items 1, 3, 5, and 7) and four negatively worded statements (items 2, 4, 6, and 8). Responses were measured using a four-point Likert scale ranging from 1 (Never) to 4 (Always). Negative items were reverse-coded prior to data analysis.

Before determining whether to use parametric or non-parametric statistical tests, researchers test for prerequisites (normality and homogeneity). Because the data were normally distributed and homogeneous, researchers then test the hypothesis using a parametric test, namely the paired t-test. The purpose of the paired t-test is to determine whether there is a significant difference before and after treatment and n-gain to determine how effective the Quiz Gameshow was in increasing students' interest in learning. The formula and criteria for normalized gain (N-Gain) were as follows: (Pilcher & Cortazzi, 2024).

$$N \text{ Gain} = \frac{\text{Skor Posttest} - \text{Skor Pretest}}{\text{Skor Ideal} - \text{Skor Pretest}}$$

**Table 2. Category Interpretation Effectiveness N-Gain**

N-Gain Value	Interpretation
$0.70 \leq g \leq 100$	High
$0.30 \leq g < 0.70$	Currently
$0.00 < g < 0.30$	Low
$g = 0.00$	No increase
$-1.00 \leq g < 0.00$	Decrease

This criteria showed how much students are interested in learning after treatment with the maximum potential that can be learned, and was categorized as "high" (effective), "medium" or "low" (less effective).

## RESULT AND DISCUSSION

### Result

This study was an experiment that used a quiz show to stimulate students' interest in learning at the QLCs in Yogyakarta. The steps for developing Wordwall media with a quiz show were as follows: 1) Open a browser (Chrome, Firefox, etc.). Visit <https://wordwall.net/>. Click "Register" if you don't have an account, or "Log in" if you already have an account. 2) After logging in, click "Create Activity" and then select Gameshow Quiz. 3) Enter the questions and answers as needed. Arrange the layout and design of the game according to your preferences. Add images or sounds if needed. There are 25 questions, taking into account the learning materials at the QLCs. The questions were then revised by one of the Usman class teachers until they were suitable and in line with the materials at the TPQ. 4) Click "Save" when finished. Choose whether to make it public or private. It can be played immediately or shared with students. 5) Click "Share" to get the link. Students can access it via the link or code provided. It can be played on a PC, tablet, or smartphone.

### Normality Test

Normality tests were conducted after obtaining pretest and posttest data, with the aim of determining whether the data were normally distributed or not. In this study, normality tests were conducted using the Shapiro-Wilk method with the help of SPSS (Statistical Product and Service Solutions) software version 25. The normality test showed the following results:

Table 3. Normality Test

	Tests of Normality			Shapiro-Wilk			
	Kolmogorov-Smirnov	Statistic	Df	Sig.	Statistic	df	Sig.
Pretest	.199		15	.113	.944	15	.438
Posttest	.129		15	.200*	.940	15	.386

\*. This is a lower bound of the true significance.  
a. Lilliefors Significance Correction

The normality test was conducted using the Shapiro-Wilk test because the sample size was less than 50. The test results showed that the pretest data had a significance value of 0.438, while the posttest data had a significance value of 0.386. Both values were greater than the significance level of 0.05, so it can be concluded that the pretest and posttest data were normally distributed.

### Homogeneity Test

The homogeneity test was conducted to determine whether the sample groups originated from populations with equal or differing variances. This study employed Levene's test using SPSS (version 25) to assess variance equality. A significance value greater than 0.05 indicates that the data exhibit homogeneous variance across groups

**Table 4. Test of Homogeneity**

Test of Homogeneity of Variance					
		Levene Statistic	df1	df2	Sig.
Pre-test	Based on Mean	1.754	1	28	.196
Post-test	Based on Median	1,237	1	28	.276
Results	Based on Median and with adjusted df	1.237	1	22.809	.278
	Based on trimmed mean	1,679	1	28	.206

The homogeneity test results showed that the significance value based on the mean is 0.196. Since this value is greater than 0.05, it can be concluded that there was no significant difference in variance between the data groups analyzed. Thus, the questionnaire data had homogeneous variance, and the assumption of homogeneity has been fulfilled. Based on the prerequisite tests (normality and homogeneity tests), the results were normally distributed and homogeneous. Therefore, the next test can use a parametric test.

#### *Descriptive Statistic*

Descriptive statistics served to provide an overview of data characteristics, such as the minimum, maximum, total, and average values of the pretest and posttest results, thereby facilitating understanding of the data conditions before conducting further statistical analysis. Descriptive statistical tests have shown the following results:

**Table 5. Descriptive Test**

	Descriptive Statistics				
	N	Minimum	Maximum	Sum	Mean
pre-test learning interest	15	19	30	364	24.27
posttest learning interest	15	24	31	422	28.13
Valid N (listwise)	15				

The descriptive statistical analysis revealed that pretest scores ranged between 19 and 30, yielding a total of 364 points and an overall mean score of 24.27. Following the implementation of the Gameshow Quiz intervention, posttest scores improved, with the lowest score rising to 24 and the highest reaching 31. The total posttest score amounted to 422, resulting in an average of 28.13. These findings indicated a noticeable improvement in students' learning interest after exposure to the Quiz Gameshow activity. In addition, descriptive statistical tests showed bar charts as descriptions of pretest and posttest results.

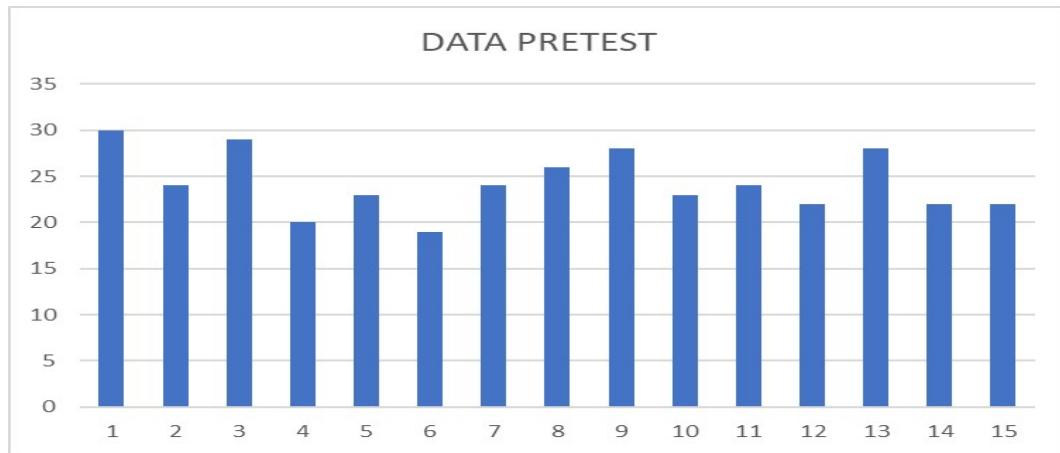


Figure 1. Description of Student Pretest Data

Based on the bar chart above, the pretest data showed that 15 respondents participated. Each bar represented the score obtained by one respondent before the treatment was given. The highest pretest score was 30, obtained by respondent 1. The lowest score was 19, obtained by respondent 6. Most of the respondents' scores ranged from 20 to 29, indicating that there was variation in their level of interest in learning before the intervention was given.

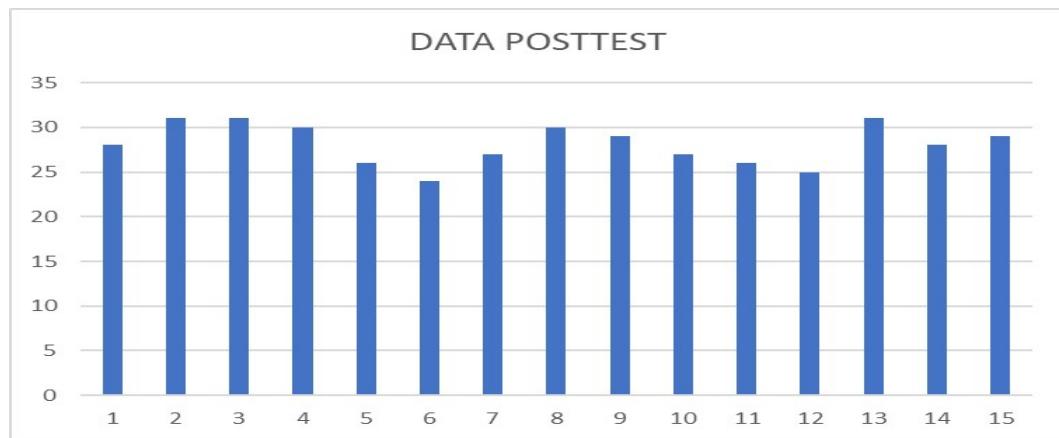


Figure 2. Description of Student Posttest Data

Based on the bar chart above, the posttest data showed that there were 15 respondents. Each bar represented the score obtained by one respondent before being given the treatment. The highest posttest score was 31, obtained by respondents 2, 3, and 13. The lowest score was 24, obtained by respondent 6. Most of the respondents' scores ranged from 25 to 30, indicating that there was variation in their level of interest in learning after the intervention.

#### **Paired T-Test**

The paired t-test essentially aimed to determine whether a specific value (provided as a comparison) differs significantly from the mean of a sample. This specific value is generally a parameter value used to measure the mean of a population. In this study, the pretest and posttest values are compared to determine whether the difference in the mean pretest and posttest values is significant.

**Table 6. Paired T-test**

Paired Samples Test						
Paired Differences						
	Mean	Std. Deviation	Std. Error	95% Confidence Interval of the Difference		Sig. (two-tailed)
				Lower	Upper	
Pre-test - Post-test	-3.867	2.875	.742	-5.459	-2.274	-5,209 14 .000

Based on the significance value (Sig. 2-tailed) of 0.000, which was smaller than 0.05, it can be concluded that there is a significant difference between the pretest and posttest results. This finding showed that the treatment in the form of using the Quiz Gameshow had a significant effect on increasing students' interest in learning. To determine the level of effectiveness of this improvement, the researcher then applied an analysis using the n-gain test.

### N-Gain Test

N-gain served to measure the level of increase in student learning interest by comparing pretest and posttest scores. So, that the effectiveness of the treatment before and after using the game show quiz media can be determined. Based on the n-gain test of the pretest and posttest results of the 15 students, the N-Gain scores and criteria were as follows:

**Table 7. N-Gain Test**

Student Data	Ngain Score	Criteria
Student 1	-1.00	Decrease occurred
Student 2	0.88	High
Student 3	0.67	Medium
Student 4	0.83	High
Student 5	0.33	Medium
Student 6	0.38	Moderate
Student 7	0.38	Moderate
Student 8	0.67	Moderate
Student 9	0.25	Low
Student 10	0.44	Medium
Student 11	0.25	Low
Student 12	0.30	Moderate
Student 13	0.75	High
Student 14	0.60	Medium
Student 15	0.70	High
<b>Average</b>	<b>0.43</b>	<b>Moderate</b>

Based on the scores above, it showed that the lowest score was obtained by student 1, who scored -1.00, indicating a decline. Meanwhile, the highest score was achieved by student number 2, who scored 0.88 in the high category. Thus, all 15 students who took the posttest and pretest achieved an average n-gain score of 0.43 in the moderate category. This meant that the Gameshow Quiz media had a moderate effect on learning interest.

## Discussion

The results showed that the use of digital game-based quizzes significantly increases student interest in learning. This was evidenced by a paired t-test that shows a significant difference between the pre-action score (Mean = 24.27) and post-action score (Mean = 28.13) with a p-value of  $0.000 < 0.05$ . The n-gain analysis showed a moderate level of effectiveness (Mean = 0.43), with 14 out of 15 students experiencing an increase in the four indicators measured, namely enjoyment, attention, interest, and involvement. The significant increased in student interest in learning in this study can be explained through several interrelated learning and psychological mechanisms in the Gameshow Quiz format. The combination of various multimedia elements such as images, audio, animation, time limits, and direct score feedback created a learning environment that stimulated both cognitive and emotional engagement in students. This overcame the limitations of classical *Iqra'* learning and religious materials that are only conducted conventionally. The game elements in the Wordwall design, particularly the competitive scoring system and timed challenges, appeared to have activated students' intrinsic motivation in accordance with Self-Determination Theory.

The findings of this study showed strong consistency with previous studies on the effectiveness of Wordwall in formal learning. Similar to previous studies that reported positive effects on learning interest at the elementary school level. This study confirmed that the impact of Wordwall can be extended from formal education to non-formal religious education contexts. The age of the QLCs students studied was equivalent to elementary school age, 7 to 8 years old (Badri & Malik, 2024). The moderate level of effectiveness found in this study is in line with increased student engagement and productivity, as Wordwall produces consistent improvements across various educational backgrounds and age groups -. Furthermore, this study reinforced that the interaction between students, teachers, and technology in the Wordwall game encourages active participation and competitive engagement (Kocabatmaz & Saracoğlu, 2024).

However, this study had several important differences from previous research that need to be discussed. First, unlike studies conducted in formal schools with standardized curricula and established technological infrastructure, this study was conducted in non-formal religious institutions that had never implemented information and communication technology-based learning. This contextual difference suggested that the novelty effect of introducing technology may partly explain the moderate level of effectiveness, as students were experiencing digital learning for the first time in their religious education (Nenohai et al., 2022). Second, while previous studies have mostly examined Wordwall in subjects such as mathematics, foreign languages, and general education. This study expanded the empirical evidence to Qur'anic literacy learning, a domain with a unique epistemological basis and learning objectives centered on understanding sacred texts and spiritual development. The successful application of game principles from the general education context to

religious education shows that this approach has a broader scope of application (Oviliiani & Susanto, 2023).

From a theoretical perspective, this study made several important contributions to the scientific literature. First, it empirically validated and contextualized the theory of learning interest in non-formal Islamic education, showing that the psychological constructs remained relevant in both religious and general education. This cross-context validation strengthens the theoretical generalizability of the learning interest framework while acknowledging the existence of context-specific factors that need to be further explored. Second, this study contributed to digital pedagogy theory by showing that the use of game elements can enhance the affective aspects of learning, such as interest and engagement, even in the context of religious education, which had different motivational and value characteristics from general learning. Third, this study showed that digital technology can be used as a means of supporting religious learning, not as a substitute for traditional learning. These findings confirmed that an integrative approach that combined traditional learning styles and pedagogical innovation was more appropriate than an approach that rigidly separates the two.

The implications of this study are not limited to the context of QLCs in Yogyakarta, but were also relevant to broader discussions about innovation in Islamic education. The successful use of digital games in Al-Qur'an learning challenged the views of some Islamic educators in Indonesia who believed that the integration of technology will reduce religious values or deviate from long-established learning traditions. On the contrary, the findings of this study showed that the use of appropriately designed technology can increase student engagement with religious material, while still respecting and even strengthening the spiritual and moral objectives that form the basis of Islamic education. This new perspective on the relationship between tradition and innovation was important for Islamic educational institutions in preparing students for modern life without abandoning religious values and heritage.

## CONCLUSION

This study showed that the use of Wordwall in the form of a Gameshow Quiz significantly increased students' learning interest in non-formal Qur'anic education. These findings suggested that interactive digital gamification can enhance students' enjoyment, attention, interest, and involvement in Qur'anic learning when instructional media are aligned with students' learning needs. Scientifically, this research contributes empirical evidence to the literature on digital game-based learning in non-formal Islamic education contexts. Practically, it offers QLCs an accessible and engaging instructional alternative that can support innovation in teaching practices. However, the study is limited by its pre-experimental design without a control group and its focus on a single game type and outcome variable. Future research is therefore encouraged to employ more rigorous experimental designs, explore other Wordwall game variations, and examine additional variables such as learning motivation,

achievement, and learning independence to strengthen and extend these findings.

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