

## The effect of wordwall-based interactive learning media on students' academic achievement in akidah akhlak: a study at madrasah tsanawiyah 6 sragen

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### ABSTRACT

The digital transformation in education demands teachers to innovate by utilizing learning media that are not only engaging but also capable of enhancing students' academic performance. One such emerging medium is Wordwall—an interactive, game-based educational platform that is easily accessible. This study aims to examine the effect of using Wordwall-based interactive learning media on students' learning achievement in the Akidah Akhlak subject at MTs Negeri 6 Sragen. The research employed a quantitative method with a quasi-experimental design using a Nonequivalent Control Group Design approach. The sample consisted of 50 students divided into experimental and control groups. Data were collected through pretests, posttests, observation, and documentation. The findings revealed a significant difference in posttest scores between the experimental group (mean = 84.64) and the control group (mean = 73.20). The experimental group also showed higher improvements in affective and psychomotor domains. These results indicate that Wordwall is not only effective in enhancing cognitive learning outcomes but also encourages active participation, positive attitudes, and skill development among students. The implication of this study is the necessity for structured training and integration of interactive digital media into Islamic religious education to improve its effectiveness and appeal.

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## Introduction

The advancement of information and communication technology in the digital era has significantly impacted the field of education. One of the positive effects is the emergence of innovative learning media that no longer rely solely on textbooks or lectures, but have transformed into various forms of visual, audio, interactive, and game-based educational technology (Sufiana, Abbas, Fathurohman, Pangesti, & Robbani, 2025). Engaging and interactive learning media are crucial in enhancing students' motivation and participation in the learning process, which directly affects their academic achievement (Putri, 2023).

However, in practice, many teachers have not yet fully optimized the use of innovative learning media. Observations conducted at MTs Negeri 6 Sragen revealed that most teachers

still predominantly use conventional methods, such as lectures, video screenings, or presentations with LCD projectors. In fact, the potential of using interactive, technology-based media is substantial. One promising solution that can be implemented is the use of Wordwall, a web-based platform offering various educational games such as quizzes, crosswords, and other interactive formats tailored to the subject matter (Hadi, Sari, & Pasha, 2024).

Wordwall enables teachers to create an enjoyable and challenging learning atmosphere through gamification elements such as scores, rankings, and rewards. This approach can significantly boost students' learning motivation. The platform is also accessible through various devices—laptops, tablets, or smartphones—and can be applied to multiple subjects, including Islamic religious education such as Akidah Akhlak (Nurhayati, 2024).

Akidah Akhlak is a subject that plays a vital role in shaping students' spiritual and moral character. The content is not only theoretical but also applicable in everyday life. Therefore, the learning of Akidah Akhlak should be delivered using engaging and contextual methods so that students not only understand the concepts but also internalize Islamic values in their daily behavior (Ahmad, Ehwanudin, & Anwar, 2025). The interactive nature of Wordwall-based media holds strong potential to enhance students' understanding across cognitive, affective, and psychomotor domains, as emphasized in the religious education curriculum (Nurfadillah, 2024).

Unfortunately, most existing studies on Wordwall are still limited to exact sciences such as mathematics or economics and tend to focus only on cognitive learning outcomes. Research that specifically examines the impact of Wordwall in Akidah Akhlak and includes comprehensive aspects of learning achievement—cognitive, affective, and psychomotor—is still scarce. This indicates a significant research gap that needs to be addressed so that Wordwall can also be recognized as an effective instructional tool in the context of Islamic character education.

The concept of interactive learning media itself refers to educational tools that provide immediate feedback and enable two-way interaction between students and learning materials. According to (Kusum, Akbar, & Fitrah, 2023), interactive media allows students to take a more active role in learning, rather than remaining passive recipients. This is reinforced by (Oktavia & Khotimah, 2023), who state that technology-based interactive media provides opportunities for students to control their learning pace through visual, auditory, and kinesthetic stimuli.

Furthermore, based on constructivist learning theory, meaningful learning occurs when students actively construct their own understanding through interactive and reflective activities. Therefore, media such as Wordwall, which can adapt to students' learning styles and promote active engagement, aligns well with the modern educational paradigm (Rahman, Rusdi, & Al-Anshori, 2024).

This research presents important novelty. First, it focuses on the subject of Akidah Akhlak, which has not been extensively explored in studies utilizing Wordwall media. Second, it employs a comprehensive measurement of learning achievement, covering cognitive, affective, and psychomotor aspects, which are key indicators of success in Islamic education. Accordingly, this study is expected to offer both theoretical and practical contributions to the development of digital-based learning strategies in religious education.

Based on the above background and problem identification, the research questions addressed in this study are as follows: *First*, does the use of interactive learning media based on Wordwall affect the learning achievement of seventh-grade students in Akidah Akhlak at MTs Negeri 6 Sragen in the 2024/2025 academic year? *Second*, to what extent can the use of Wordwall-based learning media improve students' academic achievement in the cognitive, affective, and psychomotor domains?

## Method

This study employed a quantitative approach using a quasi-experimental research design (Agustianti et al., 2022). This approach was chosen as it allows the researcher to systematically measure the effect of a treatment on a particular variable through numerical data and statistical analysis. The specific type of quasi-experiment used was the Nonequivalent Control Group Design, in which two groups—an experimental group and a control group—were not randomly assigned, yet comparisons could still be made through the administration of a pre-test and a post-test.

The research was conducted at Madrasah Tsanawiyah Negeri 6 Sragen, located in Mondokan Subdistrict, Sragen Regency, Central Java. The study was carried out during the even semester of the 2023/2024 academic year, with the primary implementation scheduled between February and April 2024. This school was selected due to its supportive digital infrastructure and teachers' openness to adopting technology-based learning innovations.

The population of this study comprised all seventh-grade students at MTs Negeri 6 Sragen. The sample was selected using purposive sampling by considering the homogeneity of student characteristics, class size, and technical feasibility (Swarjana & Skm, 2022). Two classes were chosen, each consisting of 25 students. One class served as the experimental group, which received instruction using Wordwall-based interactive learning media, while the other class served as the control group, which received instruction through conventional teaching methods.

The variables in this study consisted of an independent variable, namely the use of Wordwall-based interactive learning media, and a dependent variable, which was students' academic achievement in the subject of Akidah Akhlak. Learning achievement was measured using the results of the pre-test and post-test, reflecting the students' abilities before and after the intervention (Makbul, 2021).

Data were collected using three main techniques: tests, observation, and documentation. The test was used to measure students' cognitive abilities and was in the form of multiple-choice questions that had been previously tested for validity and reliability. Observation was employed to assess the students' affective and psychomotor aspects during the learning process. Meanwhile, documentation was used to obtain supporting data from the school and the teaching process (Anam et al., 2023).

The collected data were analyzed using a two-tailed t-test with the help of the SPSS statistical software. Prior to hypothesis testing, the data were tested for normality and homogeneity to ensure that they met the assumptions required for parametric analysis. This analytical procedure allowed the research to objectively determine the effect of using Wordwall media on students' academic achievement in the subject of Akidah Akhlak.

## Result and Discussion

### A. Data Description

This study aimed to examine the effect of Wordwall-based interactive learning media on the academic achievement of seventh-grade students in the Akidah Akhlak subject at MTs Negeri 6 Sragen. Measurements were conducted on two groups: an experimental group that received learning using Wordwall media and a control group that was taught using conventional methods.

The data description includes the pretest and posttest results of each group. The test instrument consisted of 25 multiple-choice questions constructed based on learning indicators.

#### 1. Pretest Results

Before the learning intervention, both groups were given a pretest to assess their initial competencies.

Table 1. Descriptive Statistics of Pretest Results

Statistic	Experimental Group	Control Group
N	25	25
Highest Score	72	68
Lowest Score	40	36
Mean	55.28	52.32
Standard Deviation	8.134	7.219

The table shows that the average pretest score of the experimental group was 55.28, while that of the control group was 52.32. The slight difference indicates that both groups had relatively comparable prior knowledge, with a marginal advantage in the experimental group. The standard deviation indicates the score variation within each class.

#### 2. Posttest Results

After the learning process, both groups were given the same posttest to measure the improvement in learning outcomes.

Table 2. Descriptive Statistics of Posttest Results

Statistic	Experimental Group	Control Group
N	25	25
Highest Score	96	84
Lowest Score	72	60
Mean	84.64	73.20
Standard Deviation	6.978	6.411

The table demonstrates that the experimental group's mean posttest score increased significantly to 84.64. The control group also improved, though to a lesser

extent, with a mean score of 73.20. The average posttest score difference between the experimental and control groups was 11.44 points.

## B. Normality Test

The normality test was conducted to determine whether the posttest score distribution in both groups followed a normal distribution.

Table 3. Normality Test Results (Kolmogorov-Smirnov)

Group	Kolmogorov-Smirnov	Sig. (p)
Experimental	0.143	0.200
Control	0.150	0.163

The significance values ( $p > 0.05$ ) indicate that the data from both groups are normally distributed and meet the assumptions for further parametric analysis.

## C. Homogeneity Test

The homogeneity test was performed to determine whether both groups had equal variances.

Table 4. Homogeneity Test Results (Levene's Test)

Variable	F	Sig. (p)
Posttest	0.542	0.466

Since the significance value is greater than 0.05, the data are considered homogenous. This indicates that the variance in both groups is comparable, making the dataset eligible for t-test analysis.

## D. Hypothesis Testing

The hypothesis test was conducted to determine whether there was a significant difference in the posttest scores between the experimental and control groups.

Table 5. Independent Sample t-Test Results

Variable	t-value	df	Sig. (2-tailed)
Posttest	5.812	48	0.000

The significance value of  $0.000 < 0.05$  leads to the rejection of the null hypothesis ( $H_0$ ) and acceptance of the alternative hypothesis ( $H_1$ ). This indicates a statistically significant difference in learning outcomes between students taught using Wordwall media and those taught with conventional methods.

## E. Learning Gain Analysis

To assess the magnitude of improvement in each group, a gain score (difference between pretest and posttest scores) was calculated.

Table 6. Average Gain Score

Group	Pretest	Posttest	Gain
Experimental	55.28	84.64	29.36
Control	52.32	73.20	20.88

The table illustrates that the learning improvement in the experimental group was higher than in the control group. This suggests that the use of Wordwall media was more effective in enhancing student learning achievement.

#### F. Affective and Psychomotor Observations

In addition to cognitive tests, the researcher conducted observations to assess students' affective and psychomotor development during the learning sessions.

Table 7. Average Observation Scores

Aspect	Experimental Group	Control Group
Affective	88.2	76.4
Psychomotor	90.0	78.0

Observation results indicate that students in the experimental group were more active, enthusiastic, and demonstrated better cooperation during learning. They also appeared more skillful and confident when completing tasks using the Wordwall game. This evidence supports the notion that interactive media positively impacts not only academic outcomes but also the development of students' attitudes and skills.

#### G. Interpretation and Implications

The results of this study demonstrate that the use of Wordwall-based interactive learning media has a significant impact on students' academic performance. Learning through interactive Wordwall games effectively enhances cognitive outcomes, motivates students affectively, and trains them psychomotorically. These findings align with constructivist learning theory, which emphasizes the importance of active student participation in knowledge construction.

Furthermore, these findings reinforce previous studies by (Nurhayati, 2024) and (Nurfadillah, 2024), which found that interactive media enhances student attention and engagement in learning. Wordwall's uniqueness lies in its ability to deliver enjoyable, immediate, and adaptive assessments tailored to various learning styles.

## Discussion

#### A. Enhancing Students' Academic Achievement through Wordwall Media

The results of this study demonstrate that the use of Wordwall-based interactive learning media significantly enhances students' academic achievement in the subject of Akidah Akhlak. The average posttest score of the experimental group (84.64) was notably higher than that of the control group (73.20). This difference suggests that Wordwall provides a more effective learning experience compared to conventional methods.

This increase in scores reflects the ability of Wordwall to improve students' cognitive abilities. This finding aligns with (Kustandi & Darmawan, 2020), who argued that interactive learning media help optimize the internalization of information through visual stimuli and participatory activities. By integrating educational games, Wordwall makes the learning process more engaging, competitive, and non-monotonous. Students are no longer passive listeners; instead, they actively respond to questions, interact with the content, and receive immediate feedback.

Theoretically, this approach is consistent with Jean Piaget's constructivist learning theory, which emphasizes the importance of active student involvement in constructing meaning. When students interact with Wordwall, they construct new knowledge independently through real-time reinforcement (Pass, 2004; Piaget, 1976). This active engagement also strengthens long-term memory due to the enjoyable and applicable nature of the learning process.

### **B. Affective and Psychomotor Aspects in Learning**

In addition to the cognitive domain, the results of classroom observations indicated significant improvement in students' affective and psychomotor development. In the affective domain, students in the experimental group demonstrated greater enthusiasm for learning, actively participated in classroom discussions, and cooperated effectively with peers. The average affective score in the experimental group was 88.2, compared to 76.4 in the control group.

This increase suggests that Wordwall fosters a learning environment that encourages students to be more active, confident, and motivated. The game-based format creates a collaborative and healthy competitive atmosphere, reducing the stress and fear of failure often associated with traditional methods.

In the psychomotor domain, students in the experimental group also exhibited higher levels of technical proficiency. They operated devices efficiently, responded quickly to questions, and engaged actively with the challenges presented through Wordwall's game features. The psychomotor observation score in the experimental group reached 90.0, significantly higher than the control group's 78.0. These results suggest that digital learning media can integrate technological skills into religious education—an aspect often overlooked in conventional classroom settings.

### **C. Compatibility of Wordwall with Akidah Akhlak Content**

Wordwall has proven to be highly relevant for delivering Akidah Akhlak content. Although the platform is commonly associated with science or memorization subjects, this study reveals its effectiveness in teaching character education and spiritual values.

Topics such as belief in angels, commendable behavior (honesty, trustworthiness, patience), and avoiding immoral acts are well-suited to be delivered through quizzes, crosswords, or team-based competitions. These formats not only enhance memory retention and understanding but also reinforce values in both social and spiritual contexts. This finding confirms that digital learning media can support character education, not merely cognitive outcomes.

The results support (Nurhayati, 2024), who asserted that religious values can be reinforced using digital media, provided that participatory and value-based approaches

are employed. Wordwall is not merely a cognitive assessment tool but also a platform for instilling moral values in a contextual and enjoyable manner.

#### D. Comparison with Previous Studies

This study aligns with findings by (Nurfadillah, 2024), who showed that Wordwall improves learning outcomes in general subjects such as mathematics and language. However, the current research offers a novel contribution by exploring the use of Wordwall in Akidah Akhlak, a subject that is more abstract and affective in nature. The successful implementation of Wordwall in religious education suggests that technological innovation can be widely integrated into the Islamic education curriculum.

This study also differs from prior research in its evaluation approach. It does not only measure cognitive achievement but also includes affective and psychomotor domains, thus providing a more holistic view of the effectiveness of the learning media.

### Conclusion

Based on the analysis and discussion, it can be concluded that the use of Wordwall-based interactive learning media has a significant effect on improving the academic achievement of seventh-grade students in the Akidah Akhlak subject at MTs Negeri 6 Sragen. Wordwall was proven to enhance student performance across three domains: cognitive, affective, and psychomotor. The posttest scores, as well as observed attitudes and skills of students in the experimental group, were higher compared to those taught using conventional methods.

Wordwall offers a fun, communicative, and participatory learning model. This media not only enhances cognitive abilities but also shapes student character through values of collaboration, discipline, and honesty, which are evident during game-based learning activities. These findings confirm that digital media can serve as a strategic instrument in Islamic education, as long as it is applied appropriately and aligned with learning objectives.

### References

- Agustianti, R., Nussifera, L., Angelianawati, L., Meliana, I., Sidik, E. A., Nurlaila, Q., . . . Ikhrum, F. (2022). *Metode penelitian kuantitatif dan kualitatif*: Tohar Media.
- Ahmad, F., Ehwanudin, E., & Anwar, M. S. (2025). Integrasi Moral Agama Dalam Pendidikan Budi Pekerti Melalui Pembelajaran Akidah Akhlak. *Jurnal Keislaman*, 8(1), 99-106. doi:<https://doi.org/10.54298/jk.v8i1.367>
- Anam, S., Nashihin, H., Taufik, A., Sitompul, H. S., Manik, Y. M., Arsid, I., . . . Luturmas, Y. (2023). *Metode Penelitian (Kualitatif, Kuantitatif, Eksperimen, dan R&D)*: Global Eksekutif Teknologi.
- Hadi, W., Sari, Y., & Pasha, N. M. (2024). Analisis penggunaan media interaktif Wordwall terhadap peningkatan hasil belajar IPA di sekolah dasar. *Jurnal Pendidikan Mipa*, 14(2), 466-473. doi:<https://doi.org/10.37630/jpm.v14i2.1570>
- Kustandi, C., & Darmawan, D. (2020). *Pengembangan Media Pembelajaran: Konsep & Aplikasi Pengembangan Media Pembelajaran bagi Pendidik di Sekolah dan Masyarakat*: Prenada media.
- Kusum, J. W., Akbar, M. R., & Fitrah, M. (2023). *Dimensi Media Pembelajaran (Teori dan Penerapan Media Pembelajaran Pada Era Revolusi Industri 4.0 Menuju Era Society 5.0)*: PT. Sonpedia Publishing Indonesia.

- Makbul, M. (2021). Metode pengumpulan data dan instrumen penelitian.
- Nurfadillah, S. (2024). *Pengaruh media pembelajaran berbasis Wordwall terhadap hasil belajar Pendidikan Agama Islam dan Budi Pekerti: Penelitian pada siswa kelas VIII SMPN 2 Cileunyi Kabupaten Bandung*. UIN Sunan Gunung Djati Bandung,
- Nurhayati, D. (2024). *Efektivitas wordwall sebagai media pembelajaran berbasis game based learning terhadap hasil belajar siswa pada mata pelajaran akidah akhlak kelas XI MAN Kota Blitar*. Universitas Islam Negeri Maulana Malik Ibrahim, Retrieved from <http://etheses.uin-malang.ac.id/id/eprint/66804>
- Oktavia, P., & Khotimah, K. (2023). Pengembangan metode pembelajaran pendidikan agama islam di era digital. *An Najah (Jurnal Pendidikan Islam Dan Sosial Keagamaan)*, 2(5), 66-76.
- Pass, S. (2004). *Parallel paths to constructivism: Jean piaget and lev vygotsky*: IAP.
- Piaget, J. (1976). TEORI.
- Putri, R. A. (2023). Pengaruh teknologi dalam perubahan pembelajaran di era digital. *Journal of Computers and Digital Business*, 2(3), 105-111. doi:<https://doi.org/10.56427/jcbd.v2i3.233>
- Rahman, M. F., Rusdi, R., & Al-Anshori, H. A. (2024). Efektivitas Media Wordwall dalam Meningkatkan Motivasi Belajar Siswa pada Mata Pelajaran PAI dan Budi Pekerti. *Borneo Journal of Islamic Education*, 4(2), 147-162. doi:<https://doi.org/10.21093/bjie.v4i2.9222>
- Sufiana, I., Abbas, N., Fathurohman, A., Pangesti, Y. B., & Robbani, I. J. (2025). EFEKTIVITAS PENGGUNAAN CHROMEBOOK DALAM Mendukung Pembelajaran Digital Mata Pelajaran Pendidikan Agama Islam di Sekolah Menengah Pertama Baitul Qur'an Cendeikia. *Jurnal Manajemen Pendidikan*, 10(2), 384-396. doi:<https://doi.org/10.34125/jmp.v10i2.505>
- Swarjana, I. K., & Skm, M. (2022). *Populasi-sampel, teknik sampling & bias dalam penelitian*: Penerbit Andi.