



## Boosting Islamic history learning through Digital Storytelling (DST) at MI Ziyadatul Ahsan Bekasi

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### ABSTRACT

This study was motivated by the limitations of conventional teacher-centered methods, which often lead to low student engagement and achievement in Islamic Cultural History (Sejarah Kebudayaan Islam or SKI) learning. The main objective was to compare the effectiveness of Digital Storytelling (DST) and conventional methods, examine the main effect of learning interest, and analyze their interaction in improving learning outcomes that encompass both cognitive and affective dimensions. This study employed a factorial experimental design with a pretest-posttest control group, involving forty-seven fourth-grade students who were divided into experimental and control groups. Data were collected through validated learning achievement tests and learning interest questionnaires, and analyzed using Two-Way ANOVA. The findings indicate that DST is significantly more effective in enhancing learning outcomes compared to conventional methods. Learning interest also showed a significant effect, with students demonstrating high interest achieving better results. Furthermore, a significant interaction was identified between instructional models and learning interest, suggesting that DST is most effective when combined with high learning interest, while still providing benefits for students with lower interest. These results highlight the role of DST as an innovative and inclusive pedagogical approach to strengthening SKI learning in the digital era.

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### ABSTRAK

Penelitian ini dilatarbelakangi oleh keterbatasan metode konvensional yang berpusat pada guru, yang sering kali mengakibatkan rendahnya keterlibatan dan capaian belajar siswa dalam mata pelajaran Sejarah Kebudayaan Islam. Tujuan utama penelitian ini adalah membandingkan efektivitas metode Digital Storytelling (DST) dengan metode konvensional, menguji pengaruh utama minat belajar, serta menganalisis interaksi keduanya dalam meningkatkan hasil belajar yang mencakup aspek kognitif dan afektif. Penelitian ini menggunakan desain eksperimen faktorial dengan model pretest-posttest control group, yang melibatkan empat puluh tujuh siswa kelas IV yang terbagi ke dalam kelompok eksperimen dan kelompok kontrol. Data dikumpulkan melalui tes hasil belajar yang telah divalidasi serta kuesioner minat belajar, kemudian dianalisis menggunakan Two-Way ANOVA. Hasil penelitian menunjukkan bahwa metode DST secara signifikan lebih efektif dalam meningkatkan hasil belajar dibandingkan metode konvensional. Minat belajar juga terbukti memberikan pengaruh signifikan, di mana siswa dengan minat tinggi memperoleh capaian yang lebih baik. Selain itu, ditemukan adanya interaksi signifikan antara model pembelajaran dan minat belajar, yang menunjukkan bahwa DST paling optimal ketika dipadukan dengan minat belajar tinggi, namun tetap memberikan manfaat bagi siswa dengan minat rendah. Temuan ini menegaskan peran DST sebagai pendekatan pedagogis inovatif dan inklusif dalam memperkuat pembelajaran Sejarah Kebudayaan Islam di era digital.

**Kata Kunci:** digital storytelling; hasil belajar; minat belajar; sejarah kebudayaan Islam

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## INTRODUCTION

The rapid advancement of digital technology has fundamentally reshaped the global education landscape, including in Indonesia. Information and communication technology is no longer merely a supporting tool. Still, it has become an integral part of modern learning systems that demand openness, flexibility, and meaningfulness tailored to students' needs (Puteri et al., 2025). Alpha Generation learners, who have been immersed in the digital environment since birth, are highly familiar with the internet, social media, and smart devices, thus preferring interactive, experiential, and contextual learning approaches (Nasution et al., 2025). Nevertheless, teaching practices in many Madrasah Ibtidaiyah (MI) remain dominated by traditional teacher-centered methods that often lead to passive engagement and low achievement (Murti et al., 2022). Islamic Cultural History (Sejarah Kebudayaan Islam or SKI), while rich in values, role models, and inspiring narratives, is often taught through rote memorization of historical facts. This approach limits students' ability to understand historical significance deeply and reduces the relevance of moral values embedded in the subject (Wicaksono et al., 2020; Susanti et al., 2024). Preliminary observations at MI Ziyadatul Ahsan, Bekasi, revealed that SKI learning outcomes for Grade IV consistently fall below the *Kriteria Ketuntasan Minimal* (KKM). Over the past three academic years, average scores have remained below the expected standard. Teacher interviews highlighted students' boredom due to monotonous teaching methods, while initial surveys indicated that more than 60% of students found SKI uninteresting (Puspitaningrum & Purnomo, 2025). These findings suggest low achievement is closely linked to students' lack of interest.

To address this challenge, innovative pedagogical approaches aligned with the digital learning style of Alpha Generation students are urgently necessary. Digital Storytelling (DST) has become a promising alternative by integrating narrative, text, visuals, audio, and video into the learning process (Najla et al., 2022). Beyond presenting historical facts, DST allows students to emotionally connect with historical narratives and internalize moral values (Ratri, 2018). DST boosts motivation, creativity, and active participation, making it highly relevant for 21st-century learning skills. Theoretically, DST is supported as an effective method because it aligns with the constructivist approach, where students build knowledge and meaning through immersive, multi-sensory experiences. This synthesis of theories confirms that DST is not just a technological tool, but a comprehensive pedagogical strategy designed to engage the modern learner on both a cognitive and affective level.

Another crucial factor in shaping learning achievement is learner interest, which reflects an innate tendency to enjoy, focus on, and actively participate in learning activities without coercion (Alim et al., 2024). Students with high interest tend to show greater persistence and higher achievement, while those with low interest are often passive and unmotivated (Sinaga et al., 2024; Aprijal et al., 2020). A preliminary survey at MI Ziyadatul Ahsan revealed that only 35% of students expressed a strong interest in SKI. This condition highlights the importance of implementing learning innovations that utilize digital technology and promote intrinsic engagement.

Based on the above rationale, this study focuses on examining the effectiveness of DST in improving SKI learning outcomes by considering learner interest as a critical variable. Specifically, the study aims to: 1) Analyze the differences in learning outcomes between students taught using DST and those taught using conventional methods; 2) Examine the interaction between the use of DST and learner interest in influencing learning outcomes; 3) Compare the learning outcomes of students with high interest who are taught using DST and those taught using conventional methods; 4) Compare the learning outcomes of students with low interest who are taught using DST and those taught using conventional methods.

This study is expected to contribute theoretically by enriching the discourse on technology-based learning grounded in constructivism and the Theory of Reasoned Action (TRA), while also providing practical

benefits in the form of alternative strategies for MI teachers to develop SKI learning that is more interactive, meaningful, and student-centered.

Accordingly, the research hypotheses are formulated as follows: 1) Students taught using DST achieve significantly higher learning outcomes compared to those taught using conventional methods; 2) There is a significant interaction between the use of DST and learner interest in influencing learning outcomes; 3) Students with high interest taught using DST achieve better learning outcomes than those taught using conventional methods; 4) Students with low interest taught using DST achieve better learning outcomes than those taught using conventional methods.

This study aims to contribute theoretically to integrating constructivist learning theory and Thinking Action theory into technology-supported pedagogy while providing practical insights for MI teachers in designing interactive, contextual, and meaningful SKI learning experiences.

## **LITERATURE REVIEW**

### **Learning Outcomes in Islamic Cultural History (Sejarah Kebudayaan Islam or SKI)**

Learning outcomes are the key indicators of educational success that reflect students' mastery of knowledge, attitudes, and skills after participating in the learning process (Reinita, 2020). Within Bloom's taxonomy, learning outcomes encompass cognitive, affective, and psychomotor domains, collectively forming a comprehensive profile of learners (Pratama, 2024; Setiawan et al., 2022). This multidimensional theoretical framework ensures that education is not solely focused on academic knowledge, but also on character and skill development, providing a comprehensive picture of student achievement. In the context of SKI, learning outcomes are about memorizing historical events and internalizing Islamic values and understanding the figures who exemplify religious character, shaping students' religious and historical insight (Zalsabella et al., 2023). Consequently, the theoretical review confirms that successful SKI learning is measured by a student's ability to connect historical knowledge with spiritual and moral development, aiming to create a knowledgeable and devout generation.

SKI learning in madrasahs has a strategic objective, namely to foster students' understanding of Islamic civilization while instilling an appreciative attitude towards the struggles of historical figures and noble values (Munawir et al., 2023). However, the dominant conventional method of memorization is considered incapable of developing affective and applicative aspects. Therefore, an innovative approach such as DST is needed to increase relevance, motivation, and active student involvement so that SKI learning outcomes can be achieved more holistically.

### **Digital Storytelling (DST) in Education**

Digital storytelling (DST) is a learning approach that integrates narratives with multimedia technologies such as text, images, audio, and video to present material in an engaging, interactive, and meaningful way (Rosadi et al., 2023). With its multimodal characteristics, DST can connect the cognitive and affective aspects of students, improve memory, and encourage active involvement in the learning process (Ratih et al., 2024). In essence, the theoretical foundation positions DST not merely as a tool for delivering information but as a holistic learning strategy that optimizes student understanding and engagement.

There are seven important elements in the DST point of view: dramatic question, emotional content, voice, soundtrack, economy, and pacing that contribute to the effectiveness of message communication (Martarini et al., 2020). In SKI learning, these components can help students understand historical material through emotional narratives and concrete visualizations of events. DST types such as personal narratives, documentary stories, and fairy tales are also relevant for contextualizing Islamic history with

students' learning experiences (Fatmawati, 2017). Therefore, this theoretical framework underscores that the power of DST in learning SKI lies in its capacity to build emotional and narrative connections, making historical events more vivid and relevant for students.

The theoretical basis of DST is rooted in cybernetic theory, constructivism, and the Theory of Reasoned Action (TRA). Cybernetic theory emphasizes the importance of feedback systems in media-based learning interactions (Yunus, 2018; Fauziah et al., 2017). Piaget and Vygotsky's constructivist theory asserts that knowledge is actively constructed through contextual and collaborative learning experiences (Casfian et al., 2024; Julia et al., 2024). Meanwhile, TRA explains how positive attitudes and social support influence students' intentions to participate in technology-based learning innovations (Riswan et al., 2024). Thus, DST is not only a medium for delivering material but also a pedagogical strategy that fosters positive attitudes, digital skills, and learning motivation.

### **Learning Interest**

Learning interest is the tendency of students to pay attention, engage, and persevere in the learning process (Alim et al., 2024). Students with high learning interest generally show better intrinsic motivation, concentration, and persistence, significantly affecting learning outcomes (Aprijal et al., 2020). Therefore, learning interest serves as a critical determinant of students' academic achievement, as it not only drives motivation but also sustains consistent engagement in the learning process. Enhancing learning interest through appropriate pedagogical strategies is thus essential for optimizing students' overall learning outcomes.

Indicators of learning interest can be seen from the presence of enjoyment, voluntary involvement, full attention, and active participation in learning activities (Rozikin et al., 2018). Factors influencing learning interest include learning methods, teacher personality, social environment, and family encouragement. In the context of SKI, the use of conventional, monotonous methods tends to decrease student interest, whereas innovative technology-based approaches, such as DST, have been proven to increase student attention, motivation, and enthusiasm (Najla et al., 2022). The choice of instructional methods strongly influences students' learning interest, where conventional approaches tend to diminish engagement, while innovative strategies such as DST significantly enhance it. The implication is that transitioning from conventional to technology-based approaches constitutes an inevitable shift to foster more engaging and motivating learning experiences.

DST proves effective in enhancing students' engagement and learning outcomes by linking their interests with meaningful knowledge construction. This approach not only strengthens comprehension of Islamic history but also fosters critical and creative skills through interactive learning. Therefore, DST offers a relevant pedagogical shift toward more student-centered and technology-supported instruction.

### **Integration of Theory and Implications**

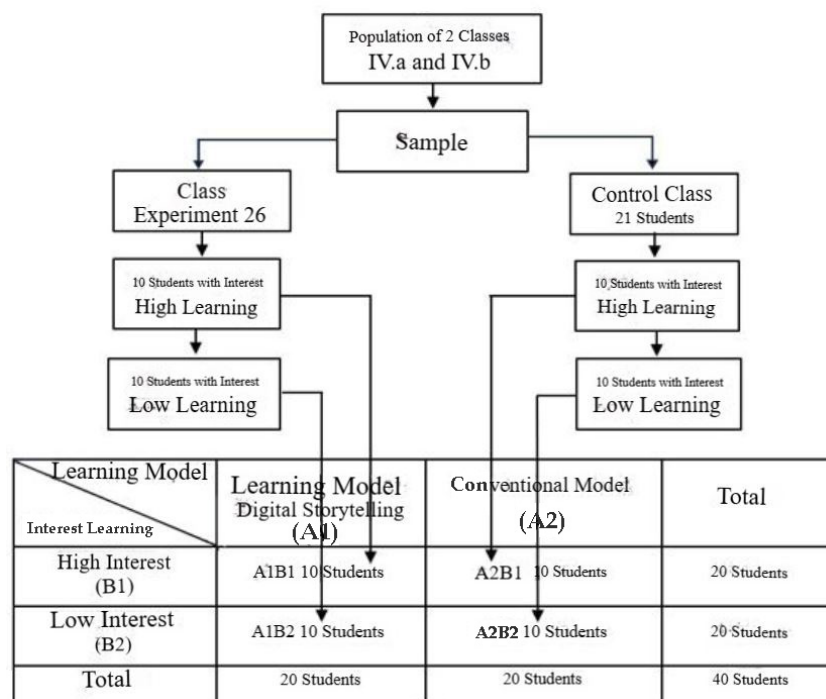
The literature shows that there is a close relationship between SKI learning outcomes, DST, and learning interest. David Ausubel's theory of meaningful learning asserts that the learning process takes place when individuals can relate new knowledge to the information already organized within their cognitive structure (Hamida et al., 2022). Within the TRA framework, a positive learning environment further strengthens students' intention to participate in DST, increasing interest and learning outcomes. Thus, DST can be positioned as a learning innovation that addresses the limitations of conventional methods while optimizing cognitive, affective, and psychomotor learning outcomes in SKI.

## METHODS

This study employed a quantitative approach with a proper experimental design using a 2×2 factorial framework. The purpose was to examine the effect of the DST model and learning interest on students' achievement in SKI. The independent variables consisted of instructional models (DST and conventional) and learning interest (high and low), while the dependent variable was student achievement in SKI, measured through objective tests.

The research was conducted at MI Ziyadatul Ahsan, Bekasi, during the 2024/2025 academic year. The population consisted of all 47 fourth-grade students divided into two classes. Cluster random sampling was applied by drawing lots to determine group assignment: Class IV A (26 students) was designated as the experimental group taught using DST. In comparison, Class IV B (21 students) served as the control group taught through conventional methods.

In addition, all students completed a learning interest questionnaire. Scores were ranked, and the median was used as a cut-off point to differentiate between high- and low-interest groups. This process resulted in four treatment groups, combining instructional models and levels of interest: 1) Students taught with DST and having high learning interest ( $A_1B_1$ ), 2) Students taught with DST but having low learning interest ( $A_1B_2$ ), 3) Students taught with conventional methods and having high learning interest ( $A_2B_1$ ), 4) Students taught with conventional methods but having low learning interest ( $A_2B_2$ ). To illustrate the factorial design, students were classified by instructional model and learning interest, resulting in four treatment groups as detailed below and shown in **Figure 1**.



**Figure 1.** Treatment Model Chart  
Source: Processed by researcher 2025

The research instruments consisted of a SKI achievement test and the learning interest questionnaire. The SKI test comprised 30 multiple-choice items developed according to curriculum specifications, covering topics such as Isra Mi'raj, the social conditions of Yathrib before the Hijrah, and the migration of the Prophet Muhammad (SAW). Expert validation was conducted by specialists in subject matter and educational evaluation, followed by empirical testing. Of the 30 items, 28 were deemed valid with point-

biserial correlation coefficients exceeding the critical r-value, and reliability analysis using Cronbach's Alpha yielded a coefficient of 0.856, categorized as very high.

The learning interest questionnaire was developed using a Likert scale with 30 items addressing four indicators: enjoyment of learning activities, interest in the subject matter, sustained attention, and classroom participation. Pilot testing confirmed that 28 items were valid, while reliability testing produced a Cronbach's Alpha of 0.897, indicating very high reliability and consistency.

The intervention was carried out over six sessions for each group. The experimental group was taught using DST, which involved stages of orientation, the presentation of digital narrative videos, classroom discussions, and mini digital projects. Meanwhile, the control group received conventional instruction, consisting of lectures, question and answer sessions, and written exercises. Both groups completed a pretest before the intervention to measure baseline knowledge, followed by a posttest using the same achievement test after the instructional treatment.

Data were analyzed using two-way Analysis of Variance (ANOVA) to examine the main effects of the instructional model, learning interest, and their interaction. Before ANOVA, normality was tested using the Kolmogorov-Smirnov test, while homogeneity of variance was verified using Levene's test. When significant differences were identified, Tukey's post-hoc test was conducted to specify between-group variations. All analyses were performed using SPSS version 22 for Windows.

## RESULTS AND DISCUSSION

This research has been carried out at MI Ziyadatul Ahsan, Rawalumbu District, Bekasi City. The results of this study present several groups of data, consisting of: 1) Data on the learning outcomes of SKI of students taught using the DST method ( $A_1$ ); 2) Data on the learning outcomes of students taught using conventional methods ( $A_2$ ); 3) Data of students with high learning interest ( $B_1$ ); 4) Data of students with low learning interest ( $B_2$ ); 5) Data of students taught using DST who have high learning interest ( $A_1B_1$ ); 6) Data of students taught conventionally who have high learning interest ( $A_2B_1$ ); 7) Data of students taught using DST but have low learning interest ( $A_1B_2$ ), as well as 8) Data of students taught conventionally with low learning interest ( $A_2B_2$ ). Descriptively, the research explains the general characteristics of the data, including: mean, median, mode, standard deviation, minimum, and maximum. The descriptive analysis of the learning outcomes of SKI students in the fourth grade of MI Ziyadatul Ahsan is displayed in the following **Table 1**.

**Table 1.** Recapitulation of Descriptive Statistics for SKI Learning Outcomes

| Description | $A_1$ | $A_2$ | $B_1$ | $B_2$ | $A_1B_1$ | $A_2B_1$ | $A_1B_2$ | $A_2B_2$ |
|-------------|-------|-------|-------|-------|----------|----------|----------|----------|
| N           | 20    | 20    | 20    | 20    | 10       | 10       | 10       | 10       |
| Mean        | 25.10 | 21.30 | 24.05 | 20.75 | 26.60    | 24.00    | 23.60    | 18.60    |
| Median      | 25.50 | 21.50 | 24.50 | 21.00 | 27.00    | 24.00    | 23.50    | 18.50    |
| Std. Dev.   | 2.32  | 3.16  | 2.65  | 3.18  | 1.35     | 1.49     | 2.12     | 1.65     |
| Minimum     | 20    | 16    | 20    | 15    | 24       | 22       | 20       | 16       |
| Maximum     | 28    | 26    | 28    | 26    | 28       | 26       | 27       | 21       |

*a. Multiple modes exist. The smallest value is shown*

Source: Research 2025

The data presented in **Table 1** shows that the DST group (Mean = 25.10, Std. Dev = 2.31) has a higher average learning outcome compared to the conventional group (Mean = 21.30, Std. Dev = 3.16). This difference indicates that the implementation of digital narrative-based media can enhance students' understanding of the SKI material. Additionally, the relatively small standard deviation in the DST group indicates a more homogeneous distribution of scores compared to the conventional group.

In terms of learning interest, students with high interest (Mean = 24.05, Std. Dev = 2.64) consistently perform better than those with low interest (Mean = 20.75, Std. Dev = 3.18). This emphasizes that interest plays an important role in academic success, as more engaged students tend to have better motivation and concentration in learning.

When analyzed based on the combination of the two variables, the results become more evident. The interaction between the learning model and learning interest shows more varied results. The DST group with high interest achieved the highest score, which is 26.60 (Std. Dev. = 1.35), while the conventional group with low interest recorded the lowest score, which is 18.60 (Std. Dev. = 1.64). This indicates that both the learning model and the level of learning interest contribute to students' learning outcomes.

The findings reveal a consistent pattern, indicating that DST consistently leads to higher learning outcomes compared to conventional methods, both among students with high and low levels of learning interest. This result underscores the superiority of DST as an instructional model that enhances academic achievement, highlighting the pivotal role of learning interest in strengthening students' performance.

### Assumption Test Results

Before conducting hypothesis testing with ANOVA, assumption tests consisting of normality and homogeneity checks were performed. These tests are essential to ensure that the requirements for parametric analysis are met.

### Normality Test

The normality test was carried out using the Kolmogorov-Smirnov and Shapiro-Wilk tests on each SKI learning outcome data group. The results **Table 2** showed that all groups obtained significance values greater than 0.05, indicating that the data in each group were usually distributed.

**Table 2.** Results of the Data Normality Test

| Group                                                                                                                                     | Kolmogorov-Smirnov Sig. | Shapiro-Wilk Sig. | Description |
|-------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-------------------|-------------|
| Digital Storytelling (DST)                                                                                                                | 0,200 > 0,05            | 0,153 > 0,05      | Normal      |
| Conventional                                                                                                                              | 0,200 > 0,05            | 0,341 > 0,05      | Normal      |
| High Interest                                                                                                                             | 0,200 > 0,05            | 0,163 > 0,05      | Normal      |
| Low Interest                                                                                                                              | 0,200 > 0,05            | 0,478 > 0,05      | Normal      |
| Combination A <sub>1</sub> B <sub>1</sub> , A <sub>1</sub> B <sub>2</sub> , A <sub>2</sub> B <sub>1</sub> , A <sub>2</sub> B <sub>2</sub> | 0,200 > 0,05            | 0.485 > 0,05      | Normal      |

Source: Research 2025

The DST group showed Kolmogorov-Smirnov significance of  $0.200 > 0.05$  and Shapiro-Wilk of  $0.153 > 0.05$ , confirming normal distribution. Similarly, in the conventional group, the Kolmogorov-Smirnov result was  $0.200 > 0.05$  and the Shapiro-Wilk  $0.341 > 0.05$ , indicating a normal distribution.

Kolmogorov-Smirnov yielded  $0.200 > 0.05$  for the high-interest category and Shapiro-Wilk  $0.163 > 0.05$ , confirming normality. Likewise, in the low-interest category, Kolmogorov-Smirnov showed  $0.200 > 0.05$  and Shapiro-Wilk  $0.478 > 0.05$ , indicating normality. In the combined group analysis (A<sub>1</sub>B<sub>1</sub>, A<sub>1</sub>B<sub>2</sub>, A<sub>2</sub>B<sub>1</sub>, A<sub>2</sub>B<sub>2</sub>), Kolmogorov-Smirnov obtained  $0.200 > 0.05$  and Shapiro-Wilk  $0.485 > 0.05$ , confirming that the data were normally distributed.

Thus, all groups in this study, both by learning model (DST vs. conventional) and by interest level (high vs. low), met the normality assumption, allowing the use of parametric inferential analysis (ANOVA).

## Homogeneity Test

The homogeneity of variance test was conducted using Levene's Test. The results **Table 3** indicated that all groups obtained significance values greater than 0.05, confirming that variances between groups were homogeneous.

**Table 3.** Results of the Data Homogeneity Test

| Tested Variables                                                                                                                          | Levene Statistic | Sig.         | Description |
|-------------------------------------------------------------------------------------------------------------------------------------------|------------------|--------------|-------------|
| Learning Model (Digital Storytelling (DST) vs Conventional)                                                                               | 3.286            | 0,078 > 0,05 | Homogeneous |
| Learning Interest (High vs Low)                                                                                                           | 0.191            | 0,665 > 0,05 | Homogeneous |
| Combination A <sub>1</sub> B <sub>1</sub> , A <sub>1</sub> B <sub>2</sub> , A <sub>2</sub> B <sub>1</sub> , A <sub>2</sub> B <sub>2</sub> | 3.286            | 0,078 > 0,05 | Homogeneous |

*Source: Research 2025*

In comparing learning models (DST vs. conventional), the Levene Statistic was 3.286 with a significance value of 0.078 > 0.05, indicating homogeneity. For the comparison of interest levels (high vs. low), the Levene Statistic was 0.191 with significance of 0.665 > 0.05, confirming homogeneity. Similarly, in the combined group analysis (A<sub>1</sub>B<sub>1</sub>, A<sub>1</sub>B<sub>2</sub>, A<sub>2</sub>B<sub>1</sub>, A<sub>2</sub>B<sub>2</sub>), a Levene Statistic of 3.286 with significance of 0.078 > 0.05 confirmed that the four treatment groups had equivalent variances.

Therefore, the homogeneity test results confirm that the study data exhibited homogeneous variance across groups. This condition is crucial, as it ensures that differences in learning outcomes tested with ANOVA are attributable to the treatment factors (instructional model and learning interest), rather than to unequal variance among groups.

## Hypothesis Test Results

After fulfilling the assumptions of normality and homogeneity, the analysis continued with Two-Way ANOVA to test the main effects of the learning model, interest in learning, and their interaction on the learning outcomes of SKI. The results of the analysis are presented in the **Table 4** below.

**Table 4.** Results of Two-Way ANOVA Analysis on SKI

| Source of Variation   | JK      | df | RJK     | F      | Sig.  |
|-----------------------|---------|----|---------|--------|-------|
| Learning Model (A)    | 176.400 | 1  | 176.400 | 62.751 | 0.000 |
| Learning Interest (B) | 144.400 | 1  | 144.400 | 51.368 | 0.000 |
| Interaction A × B     | 14.400  | 1  | 14.400  | 5.123  | 0.030 |
| Error                 | 101.200 | 36 | 2.811   |        |       |
| Total                 | 21966.0 | 40 |         |        |       |

$R^2 = 0.768$  (Adjusted  $R^2 = 0.749$ )

*Source: Research 2025*

The results of the Two-Way ANOVA analysis indicate that there is a significant effect of the learning model on the learning outcomes of SKI. The obtained F value is 62.751 with a significance of  $p < 0.001$ , which means that the difference in learning outcomes between students using DST and students using conventional learning is not coincidental, but is truly caused by the difference in learning models. In other words, consistently, the learning outcomes of students taught with DST are higher compared to those taught with conventional methods. This finding confirms that using digital narrative-based media can enhance students' concept understanding, engagement, and academic achievement in SKI learning.

In addition, the influence of learning interest has also been proven to be significant on learning outcomes, with an F value of 51.368 and a significance level of  $p < 0.001$ . This result shows that students with high

learning interest consistently achieve better scores than those with low learning interest. This fact reinforces the view that interest is an affective factor that plays an important role in influencing students' motivation, attention, and persistence in the learning process.

Furthermore, there is a significant interaction between the learning model and learning interest with an F value of 5.123 and p significance of 0.030. This indicates that the effectiveness of applying DST varies according to students' interest levels. The DST model is most optimal when applied to students with high learning interest, as they are better able to utilize interactive digital media to deepen their understanding of the material. Nevertheless, for students with low learning interest, the application of DST still provides a tangible advantage compared to conventional methods, even though the increase is not as significant as in the group of students with high interest. Thus, this interaction affirms that DST can be an inclusive learning strategy, as it can accommodate the needs of students with different interest characteristics.

### Tukey's Post Hoc Test

The Tukey HSD post hoc test was conducted to determine more specific differences. The results of the analysis are displayed in the following **Table 5**.

**Table 5.** Results of Tukey's Post Hoc Test on SKI Learning Outcomes

| Group Comparison                   | Mean Difference | p     | Description |
|------------------------------------|-----------------|-------|-------------|
| DST - Conventional (High Interest) | 2.60            | 0.007 | Sig.        |
| DST - Conventional (Low Interest)  | 5.00            | 0.000 | Sig.        |

*Source: Research 2025*

In addition, more pronounced differences were observed in the group of students with low learning interest. The Tukey test showed that the DST + Low Interest group had a significantly higher average learning outcome compared to the Conventional + Low Interest group, with a score difference of 5.00 and a significance of  $p < 0.001$ . These results prove that implementing DST is very effective in assisting students with low learning interest. Digital story-based media, packaged with appealing visualizations, animations, and contextual narration, can focus students' attention, reduce boredom, and foster their interest in SKI material, which was previously considered difficult or less attractive.

Thus, the results of the Tukey post-hoc test reinforce the ANOVA findings that DST significantly outperforms conventional methods, both in groups with high and low interest. The most significant advantage is actually seen in the group of students with low interest, as DST successfully serves as a bridge to enhance their motivation and learning outcomes. This emphasizes that DST is effective as a strategy to optimize the potential of students who already have a high interest, and as a pedagogical solution that can address learning barriers for students with low motivation.

### Discussion

The improvement of the quality of SKI learning in MI requires innovations that can address the limitations of conventional methods. The integration of DST emerges as an approach that not only utilizes technology but also builds a more contextual, interactive, and meaningful learning experience. The results of this research emphasize that using the DST model not only has a significant impact on learning outcomes but also shows synergy with affective factors, such as students' interest in learning.

### **The Learning Outcomes of SKI for Fourth-Grade Students Using DST Media are Higher Compared To Conventional Learning**

Students from MI (MI) who are taught using DST achieve higher SKI learning outcomes compared to those taught through conventional learning models ( $F = 62.751$ ;  $p < 0.001$ ). This difference emphasizes that digital narratives can create immersive, interactive, and enjoyable learning experiences. Through a combination of text, visuals, and audio, DST provides a more effective learning process compared to traditional lectures, in line with Mayer's findings in the book entitled "*Cognitive Theory of Multimedia Learning*", which highlights the importance of processing information through both verbal and visual channels simultaneously. This is in line with the results of previous research which show that the use of animated videos and interactive applications based on DST increases interest, motivation, and participation among MI students (Musthofa et al., 2025). This consistency indicates that DST is not only relevant in the context of general learning but also has a significant impact on SKI learning, which requires conceptual mastery as well as value instillation.

### **There is an Interaction Between Conventional Learning Models and Learning Interest on Learning Outcomes**

ANOVA analysis shows a significant interaction between learning models and learning interest ( $F = 5.123$ ;  $p = 0.030$ ). The effectiveness of DST becomes increasingly optimal when students have a high learning interest, while students with low interest still achieve significant improvement compared to conventional learning. This aligns with previous research showing that learning interest is an internal factor that strengthens motivation, engagement, and academic achievement (Hendrawijaya, 2022). This pattern suggests that learning interest functions as a moderator that can strengthen or weaken the impact of digital media. Other studies emphasize the importance of storytelling methods in improving students' concentration and memory (Azizeh, 2021; Damanik et al., 2025). Multimodal DST presentations provide emotional and cognitive benefits for both high- and low-achieving students (Chen, 2024). This indicates that interactive digital media, such as educational applications and history learning videos, can enhance learning interest by presenting material visually and engagingly, thus encouraging understanding, appreciation of the subject matter, and active involvement in the learning process (Firmansyah, 2024).

Thus, this study emphasizes that the synergy between digital narratives and learning interest significantly contributes to improving the learning outcomes of SKI in MI and supports the effectiveness of DST as an inclusive pedagogical strategy. These findings not only enrich the literature on the use of digital media in learning but also provide an empirical foundation for teachers and policymakers to systematically integrate DST into educational practices, so that the quality of SKI learning can be sustainably improved.

### **There is a Difference in Learning Outcomes of SKI Between Students with High Learning Interest Taught with DST, Who Performed Better Compared to Those Taught Conventionally**

The advantage of DST is also clearly seen in students with high learning interest, who achieved an average score of 26.60 compared to 24.00 in the conventional group ( $p = 0.007$ ). This condition indicates that DST significantly improves students' achievement in SKI compared to conventional teaching, especially among those with high learning interest (Sinaga et al., 2024). This approach engages learners more actively by combining narrative, visual, and interactive elements, which not only strengthens knowledge retention but also enhances critical and creative skills (Yang & Wu, 2012). Such evidence supports the need for a shift from teacher-centered instruction to student-oriented, technology-based learning that creates more meaningful and enjoyable classroom experiences (Hung et al., 2012).

## **There is a Difference in Learning Outcomes of SKI Among Students with Low Learning Interest Who are Taught Using DST, Compared to Those Taught with Conventional Learning**

Students with low interest also gain significant benefits from DST-based learning, with an average score of 23.60 compared to 18.60 in the conventional group ( $p < 0.001$ ). Multimodal digital narration has been shown to capture the attention of students who were initially less motivated and help them understand the material more contextually. DST not only improves academic achievement but also fosters moral thinking skills (Tamimi et al., 2024). Animation media increases attention, engagement, and students' feelings of enjoyment, especially for those who initially show low learning interest (Azzahra et al., 2025; Yani & Hadiyanti, 2025). Thus, DST serves as an inclusive pedagogical strategy that can reach all categories of students, including those who tend to be passive.

### **Theoretical and Practical Implications**

Theoretically, the results of this study support in the book entitled "*Cognitive Theory of Multimedia Learning*", which emphasizes the effectiveness of processing information through verbal and visual channels simultaneously. Furthermore, Vygotsky's constructivist theory is also confirmed, particularly the concept of the zone of proximal development, where digital narration serves as scaffolding that helps students, both with high and low interest, achieve a more complex historical understanding. The Islamic Studies curriculum, which integrates digital methods, promotes learner-centeredness and critical thinking skills, aligning with the findings of this research (Sokheh & Hendrawati, 2025). Practically, these results provide an empirical framework for Islamic Education teachers in MI to develop DST-based learning strategies. Combining digital narrative media with group work, case analysis, or collaborative projects can enhance student engagement across various learning interests. Thus, the learning of SKI is not only oriented towards knowledge transfer but also towards strengthening values, 21st-century skills, and student independence in learning.

The overall results of this study provide a new understanding that the effectiveness of DST does not stand alone, but rather synergizes with the affective factor of learning interest. This synergy indicates that the success of SKI learning based on DST is not only determined by the appeal of the media but also by instructional design that is multimodal, interactive, and contextual. The contribution of this research lies in emphasizing that learning interest plays a key moderating role that strengthens the effectiveness of digital media in improving the learning outcomes of MI students. This reflection underscores the need for a technology-based history learning transformation that is more student-oriented, while also opening up space for the development of a curriculum that is more responsive to the learning needs of the digital generation.

## **CONCLUSION**

Based on the results and discussion above, it can be concluded that DST is an effective instructional model for improving students' achievement in SKI at the MI level. Students who were taught using DST demonstrated significantly higher learning outcomes than those taught through conventional methods, underscoring the potential of digital narratives to foster meaningful engagement and deeper understanding. The study further reveals a significant interaction between the instructional model and students' level of learning interest, confirming that DST benefits learners across different motivational profiles. Students with high learning interest achieved superior results when taught with DST compared to those in the conventional group. At the same time, students with lower learning interest also outperformed their peers when learning through DST, illustrating its inclusive capacity to support both motivated and less motivated learners.

These findings validate all four hypotheses and highlight the theoretical significance of integrating constructivist learning principles with the Theory of Reasoned Action (TRA) to explain how digital-based, student-centered strategies influence educational outcomes. Practically, the study emphasizes the importance of adopting DST as a transformative pedagogical approach that not only improves achievement but also enhances learner interest, thereby making SKI instruction more interactive, meaningful, and relevant for 21st-century education.

Building on these findings, several recommendations can be offered. First, teachers in MI are encouraged to adopt DST as an alternative instructional strategy in SKI, as it can create more interactive and student-centered learning experiences. Second, curriculum developers and policymakers should consider integrating DST into Islamic education curricula to enrich historical and character-based learning with technology-supported pedagogies. Third, teacher training programs should prioritize digital literacy and storytelling skills, equipping educators with the competencies necessary to implement DST effectively. Finally, future research may extend this work by applying DST in different subject areas, examining its long-term impact on retention and character formation, or integrating it with emerging innovations such as gamification, augmented reality, and artificial intelligence to further enhance its pedagogical value.

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The authors declare that there is no conflict of interest concerning the publication of this article. The authors further affirm that the content and data presented are original and free from plagiarism.

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