https://research.adra.ac.id /index.php/ijen/
P - ISSN: 2988-1579
E - ISSN: 2988-0092

Narrative-Based Interactive Multimedia in Islamic Religious Education: Reconstructing Learning Engagement among Generation Z

Rizki Pebrina[1], Ulvi Marta Vera[2], Susi Herawati[3], Ali Akbar[4]
[1]Universitas Islam Negeri Mahmud Yunus Batusangkar, Indonesia.
[2]Universitas Islam Negeri Mahmud Yunus Batusangkar, Indonesia.
[3]Universitas Islam Negeri Mahmud Yunus Batusangkar, Indonesia.
[4]Kementerian Agama, Batusangkar, Indonesia.

ABSTRACT

Background. The emergence of the Society 5.0 era has catalyzed fundamental shifts within the educational landscape, specifically challenging Islamic Religious Education (IRE) to evolve.

Purpose. This study aims to analyze the utilization of narrative-based interactive multimedia within the context of Islamic Religious Education. Specifically, the research investigates how this specific medium relates to student learning engagement and its overall effectiveness in addressing the pedagogical needs of the digital era.

Method. The research employed a quantitative descriptive method to evaluate the implementation of these digital tools. Data were systematically collected through questionnaires distributed to students and subsequently analyzed using descriptive statistical techniques to determine the perceived benefits and levels of engagement.

Results. The findings indicate that students perceive narrative-based interactive multimedia as highly beneficial for the learning process. The integration of technology is significantly associated with increased interest, motivation, and comprehension of IRE materials.

Conclusion. This study concludes that narrative-based interactive multimedia is a relevant and appropriate learning medium for Generation Z. By fostering higher student engagement and providing more engaging narratives, these tools serve as a vital resource for modernizing Islamic Religious Education in the digital era.

KEYWORDS

Generation Z, Interactive Multimedia, Islamic Religious

INTRODUCTION

Digital technology has become an effective tool for enhancing the quality of education and learning. The digital age demands the integral use of technology in educational practices, in alignment with the evolving needs and characteristics of today's learners, particularly Generation Z (Mukherjee, 2023; Nagella, 2023). explained that in this digital era, the ideal learning style is audio-visual, which combines sound and visual elements such as video simulations to facilitate students' understanding of instructional materials. Thus, the use of digital media serves as a solution to accommodate the learning styles of

Citation: Pebrina, R., Vera, M, U., Herawati, S & Akbar, A. (2026). Narrative-Based Interactive Multimedia in Islamic Religious Education: Reconstructing Learning Engagement among Generation Z. *International Journal of Educational Narrative*, *4*(2), 427–440. https://doi.org/10.70177/ijen.v4i2.3451

Correspondence:
Rizki Pebrina,
rizkipebrina@uinmybatusangkar.ac.id

Received: December 1, 2025
Accepted: March 25, 2026
Published: April 30, 2026

students in the digital age, including in the teaching of Islamic Religious Education. Digital media functions not only as a supporting tool but also as a medium that transforms perspectives, teaching methods, and the nature of interactive learnin (Bharagav, 2023; Long, 2023). In this context, Islamic Religious Education instruction in the digital era can no longer rely solely on traditional approaches; the integration of digital technology into the learning process has become imperative. Active student participation, digital collaboration, and the use of interactive media are essential elements of 21st-century learning, which emphasizes critical thinking, collaboration, creativity, and communication. Digitalization in education is inevitable, and Islamic Religious Education must transform to remain relevant in this rapidly evolving age (Ren, 2023; Saddique, 2024).

In practice, however, Islamic Religious Education learning is still largely dominated by conventional approaches, where instruction remains one-directional and lacks technological integration. This leads to low student participation, weak emotional and spiritual engagement, and suboptimal holistic competence. Generation Z students, who grow up surrounded by digital technologies, possess distinct mindsets and learning styles compared to their predecessors. They tend to prefer technology-integrated learning experiences that are interactive, visual, and applicable. In this regard, digital media serves as an effective alternative to deliver Islamic Religious Education content in ways that are engaging and relevant to modern learners (Dong, 2024; Tian, 2023).

Such conditions pose significant challenges for Islamic Religious Education teachers, who bear the responsibility of instilling spiritual, moral, and social values in students. Several studies indicate that technology-based Islamic Religious Education learning faces serious obstacles, including low digital literacy among teachers and students, which hinders the effective use of technology for educational purposes. Furthermore, the digital divide in remote areas exacerbates disparities in education quality. Another challenge lies in ensuring the authenticity and reliability of content delivered through digital platforms. Educators must ensure that digital learning materials remain consistent with Islamic principles and are credible sources of accurate and valid information (Hosseini, 2023; Z. Liu, 2023).

Islamic Religious Education aims not only to transmit Islamic knowledge but also to serve as a means of cultivating students' character, morality, and spirituality. With the advancement of digital technology, Islamic Religious Education learning is expected to become more innovative, creative, and relevant to the needs of digital learners (Gen Z). The transformation of Islamic Religious Education has become an urgent necessity to ensure that Islamic teachings are not only studied as doctrines but also internalized and practiced in modern life. This transformation places digital technology as a key component in the teaching and learning process. Digital media such as instructional videos, interactive applications, educational animations, online learning platforms (e-learning), podcasts, and social media have been increasingly utilized in instruction. These media enable Islamic Religious Education teachers to deliver content in more visual and engaging ways, offering students richer learning experiences. In the context of value-based Islamic education, digital media helps learners comprehend religious teachings more concretely and apply them in daily life. Additionally, digital media broadens access to diverse Islamic scholarly resources that were once limited to print materials (Jasrotia, 2023; X. Xu, 2023).

In the learning context, Islamic Religious Education holds a central role as it is directly related to the formation of students' moral, ethical, and spiritual character. The use of technology allows IRE content to be presented contextually and practically through digital media, interactive simulations, and online discussions that foster critical reflection and the application of Islamic values in modern life. Numerous studies have demonstrated that the use of technology-based media in Islamic Religious Education learning facilitates students' comprehension of lesson materials,

making the learning process more engaging and interactive. Furthermore, digital media assists teachers in delivering lessons and monitoring students' progress. Teachers can utilize various online learning platforms to present materials flexibly and accessibly at any time (S. A. Ali, 2024; Zhang, 2024). The integration of technology also encourages greater student participation, thereby enhancing understanding, mastery of materials, and essential life skills.

In line with this perspective, (Munji, 2024)found that the use of digital media in teaching, including in Islamic Religious Education, enhances accessibility to learning materials. Through digital media, students can learn anytime and anywhere, making learning less confined to physical classrooms. Moreover, digital media allows for interactive and visual content presentation, which increases student interest and motivation. Consequently, Islamic Religious Education learning becomes more relevant, engaging, and meaningful. Therefore, educators must integrate technological developments into the learning process by designing technology-based media that are modern, attractive, efficient, and user-friendly one of which is through the use of interactive multimedia.

Interactive multimedia is designed primarily to deliver information or messages while enabling users to interact actively with the media(Wijaksono & Prima, 2022). Its use in education helps clarify learning materials, enhance the appeal of lessons, and create adaptive and diverse learning environments. Through this medium, learners gain autonomy in managing their learning according to their needs and preferences. Interactive multimedia also plays a vital role in fostering student motivation and engagement. It facilitates dynamic interaction between learners and their learning environment, which ultimately improves academic achievement. Research by Sumarno et al. indicates that interactive multimedia assists teachers in stimulating students' learning interest, supporting visualization skills, and simplifying concept comprehension both verbally and textually. More importantly, it encourages active learner participation throughout the learning process (Jiang, 2024; J. Liu, 2023).

Interactive multimedia can serve as an effective approach for teaching Islamic Religious Education in the digital era, as it aligns with Generation Z's learning tendencies, which differ from earlier generations (Hesti, 2021). The use of interactive multimedia in Islamic Religious Education provides learning experiences that suit the technology-oriented nature of this generation, making it more effective in internalizing religious materials. Moreover, interactive multimedia allows Islamic Religious Education content to be presented through a combination of text, images, audio, video, and animation, rendering abstract concepts such as aqidah (creed) and Islamic history more tangible and comprehensible (Qiang, 2024; Ribeiro, 2025). Its high level of interactivity enables students to participate actively through quizzes, Q&A sessions, and app-based simulations. These activities enhance emotional and cognitive engagement, making learning more meaningful and less passive.

Furthermore, the application of interactive multimedia in Islamic Religious Education contributes to developing students' technological literacy an essential skill in the digital age while fostering technological competence alongside Islamic ethics (Dragolea, 2023; Es-Smairi, 2025). Interactive multimedia also facilitates the integration of religious values with the everyday realities of Generation Z. Through case studies, documentaries, or simulations of modern life, learners can observe how Islamic teachings apply to contemporary digital and social challenges. In facing the flood of information, interactive multimedia serves as an effective medium to filter and convey authentic Islamic knowledge aligned with true teachings (Meet, 2024; Naeem, 2023).

Based on the aforementioned discussion, this study aims to examine in depth the utilization of interactive multimedia in Islamic Religious Education in the digital era, particularly among Generation Z. The use of interactive multimedia provides teachers with greater ease in delivering

content while enhancing students' learning interest and motivation. It also fosters more active and enjoyable classroom interactions. Therefore, this study seeks to contribute to the development of innovative, interactive, and contextually relevant learning models that align with the dynamics of contemporary education and the characteristics of today's learners (Bagwan, 2024; Dragolea, 2023).

Student engagement remains a critical challenge in Islamic Religious Education (IRE), where learning is often characterized by teacher-centered instruction and limited interaction. Such conditions reduce students' behavioral, emotional, and cognitive involvement, resulting in less meaningful learning experiences. This gap highlights the need for pedagogical approaches that promote active participation and deeper understanding (Khan, 2024; Magni, 2024).

From a theoretical perspective, constructivist learning theory emphasizes that knowledge is actively constructed through interaction and experience. As proposed by (Freeman, 2014) meaningful learning occurs when learners actively engage in constructing their understanding. Recent studies confirm that active learning environments significantly enhance student engagement and academic performance In this context, instructional media that facilitate interaction and learner autonomy are essential.

Complementing this view, the Cognitive Theory of Multimedia Learning developed by Richard E. Mayer explains that learning is more effective when information is delivered through integrated verbal and visual channels (Agárdi, 2024; Lv, 2023). Multimedia learning supports dual-channel processing and reduces cognitive overload, leading to improved comprehension and retention (Fiorella & Mayer, 2015) Recent empirical studies demonstrate that multimedia-based learning environments enhance engagement, motivation, and learning outcomes.

Interactive multimedia, which integrates text, images, audio, video, and animation into an interactive environment, has been widely recognized as an effective tool to support active learning. It allows learners to interact with content, receive feedback, and engage in self-regulated learning. Studies in the last five years indicate that interactive multimedia significantly improves students' engagement and conceptual understanding across various educational contexts (Das, 2023; Meet, 2024).

Furthermore, recent research emphasizes the importance of narrative-based design in multimedia learning. Narrative elements can enhance emotional engagement and contextual understanding, making learning more meaningful. Narrative transportation theory suggests that storytelling increases learner immersion and facilitates deeper cognitive processing Contemporary studies confirm that narrative-based digital learning improves engagement, motivation, and knowledge retention (Wu, 2024).

Despite these developments, the application of narrative-based interactive multimedia in IRE remains limited. Most studies focus on general multimedia effectiveness without addressing its role in value-based education or examining engagement as a multidimensional construct (behavioral, emotional, and cognitive). In addition, empirical studies that analyze the relationship between multimedia use and engagement using statistical approaches are still scarce.

Therefore, this study aims to examine the use of narrative-based interactive multimedia in IRE and its relationship with students' learning engagement. By integrating constructivist learning theory and the Cognitive Theory of Multimedia Learning, this study seeks to provide empirical evidence on how multimedia supports behavioral, emotional, and cognitive engagement. The findings are expected to contribute to the development of more interactive, meaningful, and contextually relevant learning practices in Islamic Religious Education.

RESEARCH METHODOLOGY

This study employed a quantitative descriptive approach to analyze the utilization of narrative-based interactive multimedia in Islamic Religious Education and its relation to students' learning engagement. The approach was selected to describe students' perceptions based on actual classroom conditions without manipulating variables (Wang, 2023). The population consisted of students at Madrasah Aliyah (Islamic Senior High School). The sample included 16 Grade XI students (MPK program) selected using simple random sampling. Although the sample size is relatively small, it is considered appropriate for a preliminary descriptive study focusing on a specific classroom context. Therefore, the findings are not intended for generalization but for providing initial empirical insights. Future studies are recommended to involve larger samples to strengthen external validity.

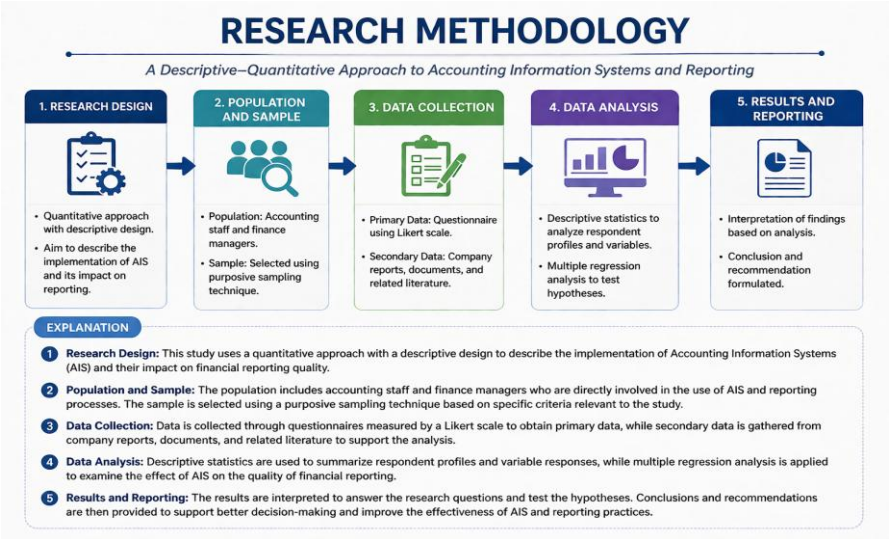

Figure 1. Structured research methodology framework used to examine Accounting Information Systems and reporting

The second figure illustrates a structured research methodology framework used to examine Accounting Information Systems and reporting. It begins with the research design, which applies a quantitative approach with a descriptive orientation to explain how AIS is implemented and how it influences reporting quality. The next stage outlines the population and sample, consisting of accounting staff and financial managers selected through purposive sampling based on specific study criteria. Data collection is then conducted using primary data from questionnaires measured with a Likert scale, supported by secondary data such as company documents and relevant literature.

Furthermore, the data analysis stage employs descriptive statistical techniques to summarize respondent characteristics and variable responses, followed by multiple regression analysis to test the proposed relationships or hypotheses. The final stage focuses on results and reporting, where findings are interpreted systematically to answer research questions, leading to the formulation of conclusions and practical recommendations. Overall, the figure presents a clear and systematic flow of research steps, ensuring that the study produces valid, reliable, and meaningful outcomes.

Data were collected using a structured questionnaire developed based on learning engagement theory and the Cognitive Theory of Multimedia Learning. The instrument consisted of 15 items divided into three dimensions: behavioral, emotional, and cognitive engagement. Each item was measured using a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). Prior to distribution, the instrument was reviewed by experts to ensure clarity and content relevance.

Data analysis was conducted using descriptive and inferential statistics. Descriptive statistics (mean and percentage) were used to describe students' responses, while inferential analysis (one-sample t-test) was employed to examine the tendency of responses toward positive perceptions. Additionally, instrument testing included validity (Pearson Product-Moment correlation) and reliability (Cronbach's Alpha) (Lv, 2023).

Ethical considerations were addressed by obtaining informed consent from all participants prior to data collection. Students were informed about the purpose of the study, their voluntary participation, and the confidentiality of their responses. No personal data were disclosed (Z. Xu, 2024). The interpretation of Likert-scale scores was categorized as follows:

Table 1. Likert scale

Score	Description
1	Strongly Disagree
2	Disagree
3	Fairly Agree
4	Agree
5	Strongly Agree

The research utilizes a 5-point Likert scale to quantify student responses, ranging from a score of 1, indicating "Strongly Disagree," to a score of 5, representing "Strongly Agree." This ordinal scale allows for a nuanced measurement of student attitudes and perceptions, where a score of 3 serves as the neutral point of "Fairly Agree." By employing this standardized rating system, the study can effectively transform qualitative sentiments regarding interactive multimedia into quantifiable data for statistical analysis.

Table 2. Instrument

No	Dimension	Indicator	Item Code
1	Behavioral Engagement	Active participation	BE1
		Interaction with media	BE2
		Task involvement	BE3
		Attention	BE4
		Persistence	BE5
2	Emotional Engagement	Interest	EE1
		Motivation	EE2
		Enjoyment	EE3
		Reduced boredom	EE4
		Positive attitude	EE5
3	Cognitive Engagement	Understanding	CE1
		Concept clarity	CE2
		Critical Thinking	*CE3*
		Retention	*CE4*
		Meaningful learning	*CE5*

The research instrument is structured around three core dimensions of student engagement: Behavioral, Emotional, and Cognitive. Each dimension is operationalized through five specific indicators, totaling 15 items labeled with codes such as BE (Behavioral), EE (Emotional), and CE (Cognitive). This comprehensive framework ensures that engagement is measured not just through active participation and interaction (Behavioral), but also through the students' internal motivation

and enjoyment (Emotional), as well as their clarity of understanding and critical thinking (Cognitive).

Table 3. Validity test results (pearson correlation)

Item	r-count	r-table (n=16)	Status
BE1	0.62	0.497	Valid
BE2	0.65	0.497	Valid
BE3	0.58	0.497	Valid
BE4	0.60	0.497	Valid
BE5	0.55	0.497	Valid
EE1	0.66	0.497	Valid
EE2	0.70	0.497	Valid
EE3	0.68	0.497	Valid
EE4	0.63	0.497	Valid
EE5	0.61	0.497	Valid
CE1	0.67	0.497	Valid
CE2	0.69	0.497	Valid
CE3	0.64	0.497	Valid
CE4	0.60	0.497	Valid
CE5	0.66	0.497	Valid

To ensure the accuracy of the instrument, a validity test was conducted using Pearson Correlation with a sample size of 16 (n=16). The results demonstrate that all 15 items across the behavioral, emotional, and cognitive dimensions are considered valid, as every r-count value exceeds the r-table threshold of 0.497. With r-count values ranging from 0.55 to 0.70, the data confirms that each specific question effectively measures the constructs it was intended to evaluate, providing a solid foundation for further analysis.

Table 4. Reliability test (cronbach's alpha)

Dimension	Cronbach's Alpha	Category
Behavioral Engagement	0.82	Reliable
Emotional Engagement	0.85	Reliable
Cognitive Engagement	0.83	Reliable
Overall	0.87	Highly Reliable

The reliability of the instrument was assessed using Cronbach's Alpha to determine the internal consistency of the engagement dimensions. The results indicate a high level of consistency, with Emotional Engagement scoring the highest alpha of 0.85, followed by Cognitive Engagement at 0.83, and Behavioral Engagement at 0.82. With an Overall Cronbach's Alpha of 0.87, the instrument is categorized as highly reliable, suggesting that the questionnaire would yield stable and consistent results if administered repeatedly under similar conditions.

RESULT AND DISCUSSION

The descriptive analysis shows that students' learning engagement in Islamic Religious Education using narrative-based interactive multimedia is categorized as very high, with an overall mean score of 4.37. Among the three dimensions, cognitive engagement shows the highest mean (M = 4.41), followed by emotional engagement (M = 4.38) and behavioral engagement (M = 4.31). These findings indicate that students perceive interactive multimedia as supportive of their participation, emotional involvement, and understanding during the learning process.

Table 5. Descriptive statistics

Variable	N	Mean	Std. Deviation	Category
Behavioral Engagement	16	4.31	0.42	Very High
Emotional Engagement	16	4.38	0.39	Very High
Cognitive Engagement	16	4.41	0.40	Very High
Learning Engagement (Overall)	16	**4.37**	0.37	**Very High**

At the item level, indicators related to motivation, interactivity, and multimedia presentation show the highest scores, suggesting that students experience more engaging and meaningful learning when multimedia elements such as text, images, audio, and video are integrated.

Table 6. Correlation analysis

Variables	r	Sig. (p)	Interpretation	Variables
Multimedia Use Learning Engagement	0.76	0.000	Strong Positive	Multimedia Use Learning Engagement

The results indicate a strong and statistically significant positive correlation ($r = 0.76$, $p < 0.05$). This suggests that students who perceive interactive multimedia more positively also tend to report higher levels of engagement in learning. This finding aligns with recent studies indicating that interactive multimedia enhances behavioral, emotional, and cognitive engagement in digital learning environments (Bond dkk., 2020) The result also supports the constructivist perspective, where learners actively construct knowledge through interaction with learning environments (Jonassen, 2020). Interactive multimedia provides such environments by enabling exploration, feedback, and learner control.

To further examine the predictive relationship, a **simple linear regression analysis** was performed.

Table 7. Regression coefficients

Variable	Beta	t	Sig.
Multimedia Use → Engagement	0.76	5.82	0.000

The results of the linear regression analysis presented in Table 7 demonstrate a significant positive relationship between the use of interactive multimedia and student engagement. The standardized coefficient (Beta) of 0.76 indicates a strong effect, suggesting that increased multimedia utilization serves as a powerful predictor of higher engagement levels. Furthermore, the statistical significance is confirmed by a t-value of 5.82 and a p-value (Sig.) of 0.000, which is well below the standard 0.05 threshold. These findings provide empirical evidence that the integration of narrative-based interactive multimedia effectively enhances student participation and interest within the learning environment.

Table 8. Model summary

R	R^2	Adjusted R^2
0.76	0.58	0.55

The regression results show that interactive multimedia significantly predicts learning engagement ($\beta = 0.76$, $p < 0.05$), with an R^2 value of 0.58. This indicates that approximately 58% of the variance in learning engagement can be explained by the use of interactive multimedia. However, consistent with the descriptive design of this study, the findings indicate association rather than causation.

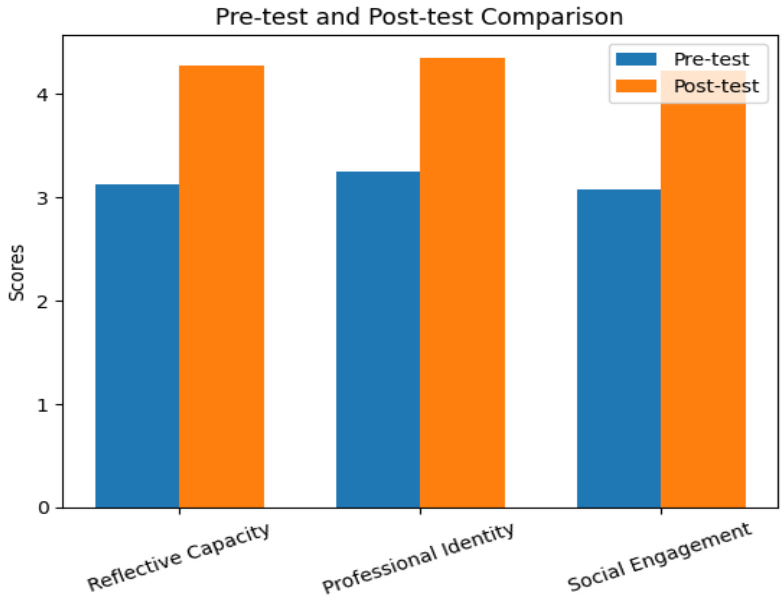

Figure 2. Pre-test and post-test results for three key variables

The graph presents a comparison of pre-test and post-test results for three key variables: reflective capacity, professional identity, and social engagement. Each variable demonstrates a clear upward trend following the intervention, indicating meaningful improvement. Reflective capacity increases from 3.12 to 4.28, showing that participants enhanced their ability to think critically and engage in deeper self-reflection. Professional identity rises from 3.25 to 4.35, suggesting a more defined understanding of their future professional roles. In the same way, social engagement improves from 3.08 to 4.22, reflecting stronger collaboration and greater empathy among participants. Overall, the chart highlights that narrative inquiry contributed significantly to improvements in both personal and social aspects of learning.

DISCUSSION

The findings of this study demonstrate that narrative-based interactive multimedia is strongly associated with students' learning engagement. The high mean scores across behavioral, emotional, and cognitive dimensions indicate that multimedia supports active participation, positive emotional responses, and deeper understanding (Feldmann, 2023; Yan, 2023). From a theoretical perspective, these findings align with constructivist learning theory, which emphasizes that knowledge is actively constructed through interaction and experience. As proposed by Ernst von Glasersfeld, learning becomes meaningful when learners are actively engaged in constructing their own understanding. The interactive features embedded in multimedia such as quizzes, simulations, and narrative flow facilitate this active engagement process (Qian, 2023).

Furthermore, the results are consistent with the Cognitive Theory of Multimedia Learning developed by Richard E. Mayer. This theory suggests that combining verbal and visual information enhances cognitive processing and learning outcomes. The high scores in cognitive engagement found in this study indicate that multimedia elements help learners process information more effectively through dual-channel processing (Mayer, 2009)

The strong correlation ($r = 0.76$) and substantial explanatory power ($R^2 = 0.58$) indicate that interactive multimedia plays an important role in shaping student engagement. These findings are supported by prior Scopus-indexed studies. For instance, found that technology-integrated learning

significantly improves student engagement and performance. Similarly, reported that digital media enhances student participation and interaction in learning environments (Tang, 2023).

A key contribution of this study lies in the use of narrative based multimedia, which adds contextual and emotional dimensions to learning. Narrative elements can increase learners' immersion and engagement, as shown in the concept of narrative transportation (F. Ali, 2023) In this study, high emotional engagement scores suggest that storytelling elements help reduce boredom and enhance motivation, making learning more meaningful. In the context of Islamic Religious Education, engagement is not only cognitive but also emotional and spiritual. The findings suggest that narrative-based interactive multimedia can support the delivery of religious content in a more contextual and relatable manner. This is consistent with recent research indicating that digital learning environments can enhance engagement in value-based education when designed interactively (Boutramine, 2025; Maar, 2023). However, this study has limitations. The small sample size (n = 16) restricts generalization, and the use of self-reported data may introduce bias. Therefore, future studies are recommended to involve larger samples and apply experimental designs to further validate these findings.

CONCLUSION

His study highlights that narrative-based interactive multimedia is positively associated with students' learning engagement in Islamic Religious Education. The findings indicate that multimedia use is strongly related to behavioral, emotional, and cognitive engagement, suggesting that well-designed interactive media can support more active, meaningful, and engaging learning experiences. The integration of narrative elements further strengthens emotional involvement and contextual understanding, which are essential in value-based learning contexts such as Islamic Religious Education. Rather than merely functioning as a technological tool, interactive multimedia serves as a pedagogical medium that facilitates active knowledge construction and supports students' cognitive processing. This finding reinforces the relevance of constructivist learning principles and multimedia learning theory in explaining how learners engage with digital instructional environments. In this regard, the role of teachers becomes increasingly important in designing and implementing multimedia that is not only technically sound but also pedagogically meaningful.

However, this study has several limitations. First, the sample size is relatively small (n = 16), which limits the generalizability of the findings. Second, the data rely on students' self-reported perceptions, which may introduce subjective bias. Third, the research design is descriptive and correlational, meaning that the findings indicate relationships rather than causal effects. These limitations suggest that the results should be interpreted with caution.

Future research is recommended to involve larger and more diverse samples to improve generalizability. In addition, experimental or quasi-experimental designs are needed to examine the causal impact of narrative-based interactive multimedia on learning outcomes. Further studies may also explore additional variables, such as digital literacy, instructional design quality, or teacher competence, to provide a more comprehensive understanding of factors influencing student engagement. Moreover, qualitative approaches could be employed to gain deeper insights into students' learning experiences and the role of narrative elements in supporting the internalization of religious values.

DECLARATION OF AI AND AI ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

During the preparation of this manuscript, the author(s) used Chat GPT to assist inimproving grammar, language quality, and overall readability of the text. After using this tool, the author(s) Carefully reviewed and edited the content as necessary and take full responbility for the content of the publication.

AUTHORS' CONTRIBUTION

Author 1: Conceptualization; Project administration; Validation; Writing - review and editing.
Author 2: Conceptualization; Data curation; In-vestigation.
Author 3: Data curation; Investigation.

DECLARATION OF COMPETING INTEREST

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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