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Enhancing students' learning interest and achievement through interactive animated video media

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ABSTRACT

This study examines the effects of interactive animated video-based learning media that integrate sequential visual illustrations with interactive elements, such as quizzes and immediate feedback, within a Discovery Learning approach, on junior high students' learning interest and learning outcomes in Islamic Religious Education (PAI), and determines the magnitude of this effect. A quantitative, quasi-experimental design was used, involving 160 ninth-grade students divided into a control class (IX.3) and an experimental class (IX.4), each with 29 students. Pretests and post-tests were used to gauge learning outcomes; a questionnaire was also used to gauge learning interest. Simple linear regression and an independent-samples t-test were used to evaluate all data. Results show that every media significantly influenced learning interest and learning outcomes (sig. = 0.001 and 0.010, $p < 0.05$), contributing 22.5% and 19.8%, respectively, in each medium category. This confirms that every media is a practical, low-infrastructure instructional innovation for procedural material such as Hajj and Umrah.

INTRODUCTION

By developing students' knowledge, abilities, also character, education plays a critical role in raising human resources of every caliber. In this regard, Islamic Religious Education (PAI) helps students enhance their moral principles also character, besides deepening their religious knowledge (Amin, 2025). In junior high school, students are in a vital stage of character development and identity formation; PAI therefore plays a decisive role in instilling Islamic values as a foundation for behaviour in daily life (Fountoulakis & Simos, 2026). Achieving these objectives, however, depends heavily on how every instructional process is designed and delivered, which is why every choice of learning media matters as much as the content itself.

PAI continues to face persistent instructional challenges, particularly in teaching factual and procedural topics such as Hajj and Umrah. These topics involve sequences of religious rituals, important locations in the Holy Land, and procedures that must be

carried out systematically (Alzeer & Abuzinadah, 2024). Because most students have never directly experienced these rituals, such material demands concrete visualisation; when instruction relies solely on verbal explanation, students tend to understand it only at the level of memorisation rather than developing a comprehensive grasp of every actual process (Fyfield et al., 2022). This is precisely the kind of instructional problem for which an innovative, well-designed medium, rather than incremental adjustment of conventional methods, is needed.

This problem was confirmed at SMPN 1 Sendangagung. Classroom observation showed that learning was still dominated by lecture methods and textbook use, leaving students passive, unfocused, and easily bored. Difficulties in understanding Hajj and Umrah material were especially evident, as students had to imagine unfamiliar locations and ritual stages without adequate visual support. Interviews with every PAI teacher reinforced this picture: although PowerPoint had occasionally boosted enthusiasm, its use was inconsistent due to limited facilities and teachers' technological capacity, resulting in low engagement, interest, and outcomes. A preliminary questionnaire supported these observations: of 58 students, 46.5% showed only moderate learning interest, and 53.4% showed high interest, with none reaching the very high category, while every average PAI learning outcome (62.60) remained well below every school's Minimum Mastery Criteria of 82.

Taken together, these findings point to a specific, unmet instructional need: a learning medium that (a) can concretely visualise sequential, location-based ritual procedures; (b) can operate within every school's existing technological limitations; and (c) can actively engage students rather than positioning them as passive recipients of information. According to Gagné (1985), learning success depends on content, delivery method, and all internal and external conditions that support the learning process, with instructional media constituting a key external condition. Educational technology as the ethical practice of facilitating learning through the creation, use, and management of appropriate technological processes, provides a framework for identifying media that can meet this need. Media theorists further argue that well-designed media does more than transmit information: Heinich, Molenda, and Russell (1996) note that it stimulates interaction and engagement, while Arsyad (2003) adds that it can clarify understanding, sustain interest, and present material more efficiently. Prior research likewise links low learning interest to a shortage of media genuinely suited to students' characteristics (Traulsen & Zander, 2024), underscoring that the gap is not simply "using media" but selecting and applying media that fits both the material and the learner.

This study addresses the gap by examining the effectiveness of an interactive learning medium based on animated video, specifically designed to address every constraint and need. Unlike generic instructional videos, this medium is distinguished by three features directly relevant to every problem at hand. First, it requires no specialised devices or stable internet connection; it runs on any projector and laptop available at every school, directly addressing every infrastructure limitation identified in every field. Second, it presents Hajj and Umrah materials visually and sequentially, making it especially suited to procedural content that is challenging to convey through verbal instruction alone. Third, most distinctively, it embeds interactive elements quizzes, sing-along segments illustrating every sequence of rituals, and word-search or crossword activities that turn passive viewing into active participation rather than one-way information delivery.

The application of this medium is further combined with every Discovery Learning model as its pedagogical foundation, marking a deliberate shift from teacher-centred to

student-centred instruction. Rather than only receiving information, students are guided to watch every animated video, take notes on key points, discuss with peers, identify problems, express opinions, and independently construct their own understanding of the Hajj and Umrah material. It is this combination of an interactive animated medium implemented within a discovery-based pedagogy, rather than either element on its own, that this study positions as the instructional approach under investigation.

Recent studies provide converging evidence that animated videos can be effective across diverse educational contexts. Misa et al. (2025) compared traditional reading with animated videos among seventh-grade students learning literary works and also found that although both methods produced comparable effects on moral development, animated videos yielded significantly higher gains in critical thinking and overall learning outcomes (Misa et al., 2025). Qondias, et al. (2024), synthesising ten studies on elementary science instruction, concluded that animated video media consistently improved science learning outcomes by making abstract processes more visible and by increasing student engagement and enjoyment (Qondias et al., 2024). Utaminingsih, et al. (2024) developed a thematic animated video learning management system for fourth-grade students and reported very good validity scores from media and content experts, along with a good-category N-Gain value, indicating meaningful improvements in both motivation and learning outcomes (Utaminingsih et al., 2024a). Kleftodimos (2024), through a comprehensive review of 77 studies published over the past decade, shows that animated video has been increasingly adopted across diverse educational fields to enhance student motivation, engagement, and performance, while also identifying design quality and alignment with learning objectives as key factors determining its effectiveness (Kleftodimos, 2024). Minalla (2024) similarly found that young EFL learners who acquired vocabulary through context-based instruction integrated with animated video significantly outperformed those taught through context-based learning alone, with the largest gains observed in verbs and adverbs; Minalla also reported that learners perceived animated video as engaging and motivating for classroom learning (Minalla, 2024).

While these studies confirm that animated video *can* work in Islamic education, they leave three specific gaps unaddressed. First, most were conducted at senior high school, vocational, or elementary levels, leaving every junior high context where Hajj also Umrah material first enters every curriculum in depth comparatively unexplored. Second, none of these studies tested a medium's effect on learning interest also learning outcomes simultaneously within a single integrated design; every two variables have typically been studied in isolation, obscuring whether an engaging medium actually translates into measurable achievement gains, or vice versa. Third, no prior study has examined an interactive animated video specifically combined with every Discovery Learning model on Hajj also Umrah material at every junior high level every pairing tested here has, to date, only been examined for its components separately rather than as an integrated instructional design.

To close these gaps, this study experimentally tests an interactive animated video medium in conjunction with Discovery Learning pedagogy to ascertain how it affects junior high students' learning results and interest in PAI, specifically on Hajj and Umrah materials at SMPN 1 Sendangagung, Central Lampung, and to determine the magnitude of that effect. This study contributes empirical evidence on the application of such an instructional approach: evidence that PAI teachers and curriculum developers in similarly resource-constrained schools can draw on to make procedural, factual

religious material more concrete, engaging, and student-centred without requiring investment in advanced technology infrastructure.

METHOD

A quasi-experimental method with a nonequivalent control group pretest–posttest design was used in this quantitative study. This design was chosen to investigate how students' learning outcomes and interest in Islamic Religious Education are affected by interactive animated video-based learning materials. Students' learning outcomes and interest were the dependent variables in this study, while the utilisation of interactive animated video-based learning materials was the independent variable. Two groups participated in the study: a control group that received traditional education and an experimental group that received instruction utilising interactive animated video-based learning materials.

The study was carried out in Central Lampung, Indonesia, at SMPN 1 Sendangagung. Ninth-grade students from two classes- Class IX.4, which served as the experimental group, and Class IX.3, which served as the control group with 29 pupils each, served as the study's subjects. Purposive sampling was used to choose these two classes by taking into account classes with comparatively comparable traits.

A learning outcomes exam and a learning interest questionnaire were used to gather data. Thirty multiple-choice questions made up each learning outcomes test, which was given in both pretests and posttests. A Likert-scale questionnaire with thirty statements was used to gauge learning interest. Table 1 displays each questionnaire's scoring system.

Table 1. Likert scale

Final score	Classification
>3,25 – 4,00	Always (A)
>2,50 – 3,35	Often (O)
>1,75 – 2,50	Seldom (S)
1,00 – 1,75	Never (N)

Before implementation, the achievement test, learning interest questionnaire, and interactive animated video-based learning media were validated by experts. After all instruments were empirically tested on respondents who were not part of the research sample, SPSS version 27 was used to evaluate all pilot data to assess validity (using item correlation analysis) and reliability (using Cronbach's Alpha coefficient). Figure 1 depicts the entire research process.

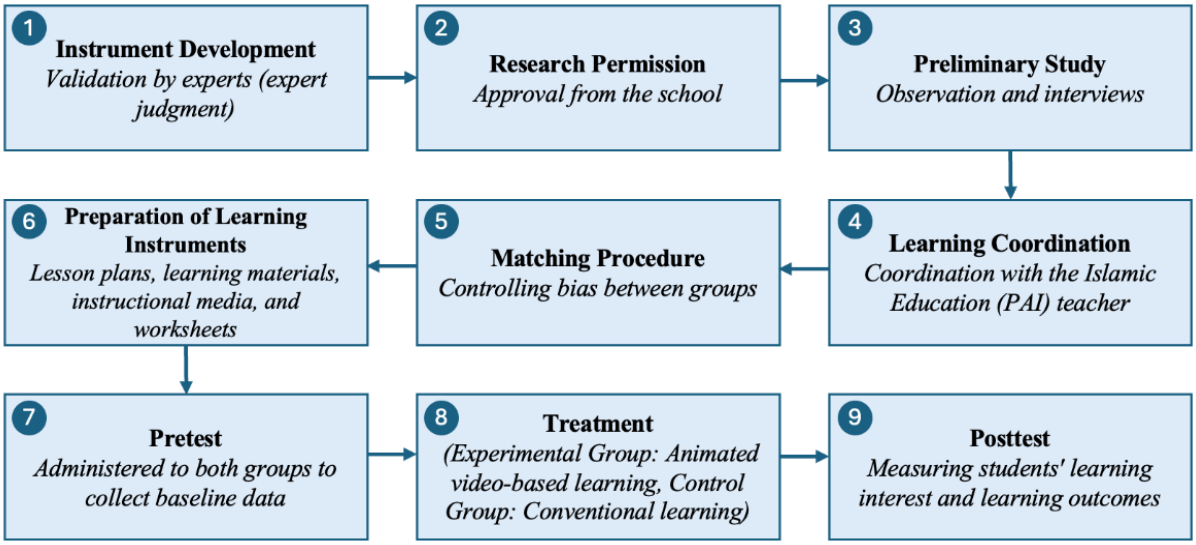


Figure 1. Research procedure diagram

The procedure consisted of the following steps: (1) developing research instruments, including observation sheets and test items, validated through expert judgment; (2) obtaining research permission from the school; (3) collecting preliminary information through observation and interviews with every vice principal of curriculum and every subject teacher; (4) coordinating lesson planning and implementation with every PAI teacher; (5) performing a matching procedure to control for potential bias, including equivalence in learning time, teacher, student characteristics, and learning environment; (6) preparing every learning instruments needed, including lesson plans, learning materials, every interactive animated video-based learning media, student worksheets, assessment instruments, and reflection materials; (7) administering a pretest to both groups to obtain baseline data; (8) delivering instruction the experimental group using the interactive animated video-based learning media and the control group using conventional instruction; and (9) administering a post-test to both groups to measure learning interest and learning outcomes after treatment.

Lesson plans for the experimental group were organised using the Discovery Learning model's syntax for stimulation, problem statement, data collection, data processing, verification, and generalisation. The animated video was used as the main stimulus at the beginning, encouraging students to watch, take notes, have discussions, and build their own understanding of all material related to both Hajj and Umrah.

SPSS version 27 was used to analyse all gathered data. Students' learning results and interest were described using descriptive statistics (Orias & Chua, 2021). All data underwent preliminary testing, such as tests of normality (Shapiro-Wilk), homogeneity (Levene's), linearity, and heteroscedasticity, before hypothesis testing. After that, an independent-samples t-test was used for hypothesis testing to find differences between the experimental and control groups. A straightforward linear regression analysis was then carried out to ascertain the extent to which interactive animated video-based learning materials affected students' learning outcomes and interest.

The magnitude of the contribution was determined using the coefficient of determination (R^2) and further strengthened through effect size calculations using the Formula 1. The interpretation of effect size generally follows Cohen's (1988) criteria, which classify effect sizes into three levels: small (0.02), medium (0.15), also large (0.35).

$$F^2 = \frac{R^2}{1 - R^2} \quad \ldots(1)$$

Where:

F^2 : effect size

R^2 : koefisien determinasi

$1\text{-}R^2$: 1- koefisien determinasi

RESULT

The study's findings show that Islamic Religious Education instruction employing interactive animated video-based media and traditional instruction have different effects on students' learning outcomes and interest. The experimental group that used interactive animated video media to aid learning showed noticeably more improvement than the control group, despite the fact that both groups had similar starting conditions.

The effect of interactive animated video-based learning media on students' learning interest

A Likert-scale questionnaire with 30 statements also a maximum score of 120 was used to gauge learning interest. Table 2 displays every findings of every Independent-Samples t-test

analysis performed with SPSS on every pretest also posttest data of students' learning interest. To provide a clearer visual comparison, every pretest also posttest scores of both groups are presented in Figure 2.

Table 2. Independent-samples t-test results for learning interest

Variable	Experimental group	Control group	Sig
Pretest Score	74,83	74,66	0,825
Posttest Score	106,03	96,03	0,001

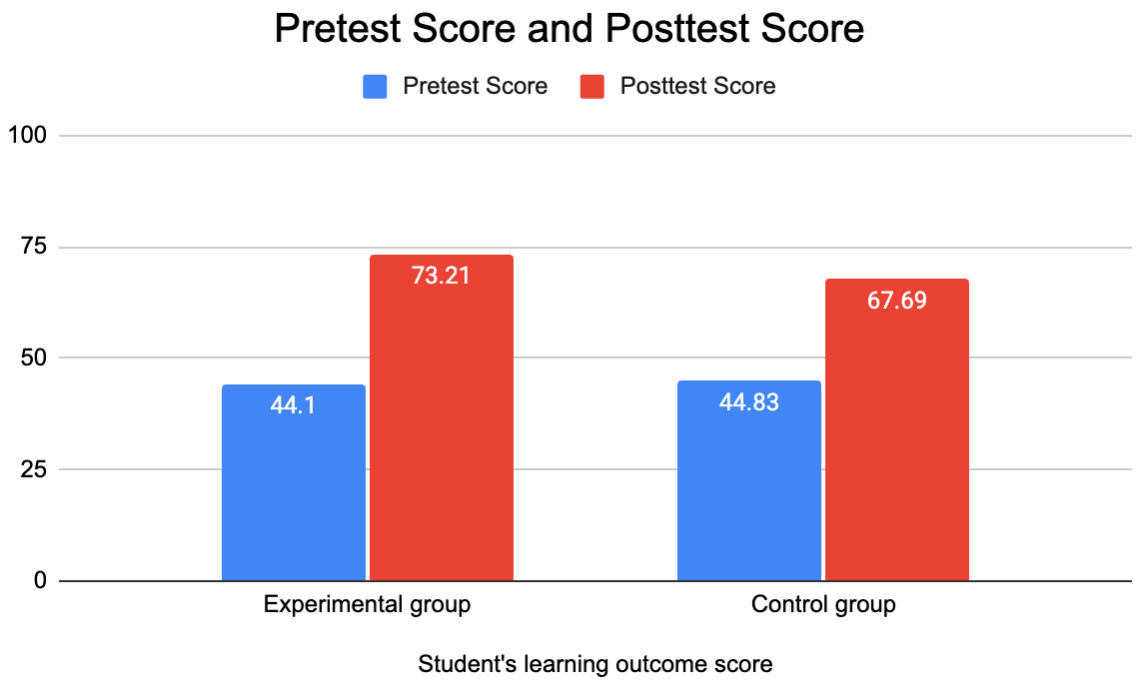


Figure 2. Comparison of learning interest scores between every experimental also control groups

The results show that the two groups' initial interest in learning did not differ significantly ($p = 0.825 > 0.05$). The experimental group's average learning interest score rose to 106.03 after the treatment was given, while the control group's average score was only 96.03. The two groups differed significantly, according to the independent-samples t-test results ($p = 0.001 < 0.05$).

The effect of interactive animated video-based learning media on learning outcomes

A pretest and posttest, including thirty multiple-choice questions, were used to gauge learning outcomes. Table 3 displays the findings of the Independent-Samples t-test analysis performed with SPSS on the pretest and posttest data of students' learning outcomes.

Table 3. Independent-samples t-test results for learning outcomes

Variable	Experimental group	Control group	Sig
Pretest Score	44,10	44,83	0,794
Posttest Score	73,21	67,69	0,010

To provide a clearer visual comparison, the pretest and posttest scores of both groups are presented in Figure 3. The results show that the two groups' starting talents did not differ significantly ($p = 0.794 > 0.05$). After the intervention, the experimental group's average learning outcome score rose to 73.21, whereas the control group's average score was 67.69. The two groups differed significantly, according to the independent-samples t-test results ($p = 0.010$

< 0.05). These results show that learning outcomes were higher for students who used interactive animated video-based learning materials than for those who learned through traditional instruction.

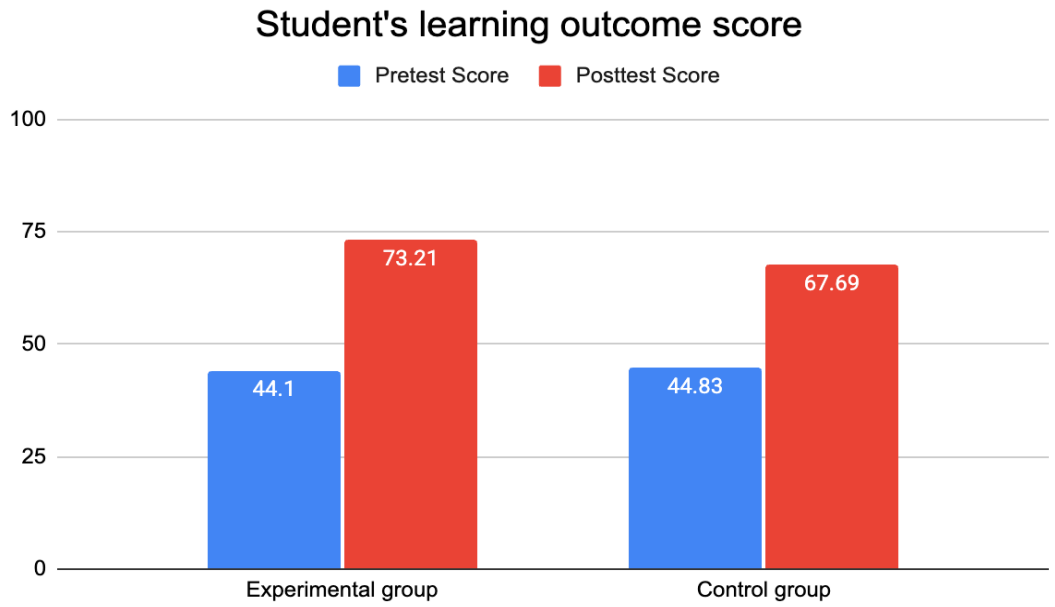


Figure 3. Comparison of learning outcomes scores between the experimental and control groups.

Effect size on learning interest

Simple linear regression was used to examine how interactive animated video-based learning materials affected students' enthusiasm for learning. The coefficient of determination (R2) was used to estimate the magnitude, and Cohen's effect size (f2) was used to assess the strength of the influence. Table 4 displays the analysis's findings.

Table 4. Simple linear regression results for learning interest

Variable	B	Std. Error	Beta	t	Sig.
(Constant)	51.282	13.269		3.865	<.001
Animated Video Media	.452	.161	.474	2.800	.009

Students' interest in learning is significantly impacted by interactive animated video-based learning materials, according to the significance value of 0.009 ($p < 0.05$). According to this research, students' interest in Islamic Religious Education increased when they used the medium. The coefficient of determination (R^2) was computed to ascertain the magnitude as shown in Table 5.

Table 5. Model summary for learning interest

R	R Square	Adjusted R	Std. Error
.474a	.225	.196	3.829

The coefficient of determination (R^2) was found to be 0.225. This result indicates that interactive animated video-based learning media accounted for 22.5% of the variance in students' learning interest, while the remaining 77.5% was explained by other factors outside the research model. To complement the hypothesis testing results, Cohen's f^2 effect size was also calculated using Equation (1), with the result presented in Formula 2. According to Cohen's (1988) criteria, which categorise effect sizes as small (0.02), medium (0.15), and large (0.35), the

calculated f^2 value of 0.289 falls inside the medium effect size group based on Equation in the Formula 2.

$$F^2 = \frac{0,225}{1-0,222} = \frac{0,225}{0,778} = 0,289 \quad ...(2)$$

Effect size on learning outcomes

Simple linear regression was used to examine the effect of interactive animated video-based learning materials on students' learning outcomes. The coefficient of determination (R2) was used to estimate the magnitude of the contribution, while effect size (f2) was used to assess the strength of the influence as shown in Table 6.

Table 6. Simple linear regression results for learning outcomes

Variable	B	Std. Error	Beta	t	Sig.
(Constant)	5.833	26.134		.223	.825
Animated Video Media	.820	.318	.445	2.582	.016

Students' learning outcomes are significantly impacted by interactive animated video-based learning materials, with a significance value of 0.016 ($p < 0.05$). According to this research, these kinds of media enhance students' performance in Islamic Religious Education. The degree to which the independent variable affects the dependent variable was determined by calculating the coefficient of determination (R^2) as shown in the Table 7.

Table 7. Model summary for learning outcomes

R	R Square	Adjusted R	Std. Error
.445a	.198	.168	7.542

The coefficient of determination (R^2) was found to be 0.198. This result indicates that interactive animated video-based learning media accounted for 19.8% of the variance in students' learning outcomes, while the remaining 80.2% was explained by factors outside the research model. To complement the hypothesis testing results, Cohen's f^2 effect size was also calculated using Equation (1), with the result presented in Formula 3.

$$F^2 = \frac{0,198}{1-0,198} = \frac{0,198}{0,802} = 0,247 \quad ...(3)$$

Based on Equation (3), Cohen's (1988) criteria place the derived f^2 value of 0.247 in the medium effect size category. This result suggests that students' learning results are significantly and realistically impacted by interactive animated video-based learning materials.

DISCUSSION

The effect of interactive animated video-based learning media on students' learning interest

These findings suggest that every increase in learning interest stems specifically from the medium's dual innovation, combining concrete visual-auditory presentation with built-in interactivity, rather than from animated video alone. Conventional instruction delivers Hajj and Umrah topics through lecture and verbal explanation, requiring students to construct their own mental representations of ritual procedures; the medium tested here instead presents this same procedural content visually and sequentially while simultaneously prompting action through quizzes, crossword puzzles, and word-search games, and providing immediate feedback. This aligns with Mayer's (2009) Cognitive Theory of Multimedia Learning, which holds that dual-channel presentation improves processing and, in turn, attention and interest (Wong et al., 2020), but the added interactive layer is what distinguishes this medium from a standard instructional video. It is this layer that most plausibly explains why engagement translated into measurable interest gains (Li et al., 2024).

This engagement-driven mechanism matters because interest develops through participation, challenge, and enjoyment. That's why students who experience happiness, enthusiasm, and support show a stronger desire to explore (Li et al., 2024). Consistent with the constructivist premise underlying the medium's design, students are meant to build understanding actively rather than receive it passively. The shift observed after treatment suggests a shift in how PAI itself is perceived, from a memory-heavy subject to one that can be engaging when its delivery is redesigned around learner activity rather than one-way explanation. This is consistent with Misa et al. (2025) and Silva and Oliveira (2023), who found comparable gains in interest and retention using animated video, reinforcing that the innovation tested here an interactive, procedurally structured medium extends effectively into religious education, a domain not previously prioritised in this line of research (Misa et al., 2025; Silva & Oliveira, 2023).

The effect of interactive animated video-based learning media on learning outcomes

The improvement in learning outcomes indicates that the medium's innovation translated beyond interest into measurable achievement — the central gap this study set out to address, since prior research had rarely tested both outcomes within one integrated design. By presenting Hajj and Umrah material through synchronised visual, auditory, also interactive formats, the medium supported every kind of active information selection and integration described in the Cognitive Theory of Multimedia Learning (Mayer, 2009, 2024), while its embedded quizzes and immediate feedback gave students repeated opportunities to construct and verify their own understanding, consistent with Gagné's (1985) view that external instructional conditions shape learning outcomes. This pattern echoes recent findings that gamified, interactive multimedia strengthens engagement, motivation, and achievement together rather than in isolation (Zainuddin, 2023).

These results converge with recent studies testing related innovations. Utaminingsih et al. (2024) found animated video improved outcomes by simplifying complex concepts (Utaminingsih et al., 2024) & Bland et al. (2024) showed CTML-based design improved both achievement and situational interest simultaneously mirroring every dual-outcome design of this study (Bland et al., 2024); Hiesan and Qotrunada (2025) linked interactive games and feedback to improved outcomes through increased engagement (Hiesan & Qotrunada, 2025); and Kharismatunisa (2023) found digital and animated media enhanced motivation, access, and assessment specifically within PAI (Kharismatunisa, 2023). Collectively, these studies support treating interactivity, not animation alone, as the key innovative ingredient driving outcome gains.

Effect size on learning interest

The medium's significant effect on learning interest reflects the combined contribution of its three design features rather than any single element. Mayer (2009) attributes gains of this kind to optimised dual-channel processing, Dale (1969) to the greater interest generated by concrete experience, also Heinich et al. (1996) to multisensory stimulation increasing engagement but the practical mechanism specific to this medium was its interactive layer: ritual-sequence songs, crossword and word-search activities, and immediate feedback gave students a tangible sense of control over their own learning, consistent with the Discovery Learning principle that interest grows through active exploration rather than passive reception.

Even so, the R^2 value of 22.5% indicates that most of the variance in interest (77.5%) lies outside what any single medium can address, likely shaped by self-efficacy (Nja et al., 2023), intrinsic and extrinsic motivation (Peng & Fu, 2021), classroom environment and readiness (Nja et al., 2023), and every study's limited duration. This is a useful boundary for interpreting the innovation's contribution. It aligns directionally with Krastiana (2025), who reported larger interest gains using interactive video in PAI, with the difference in magnitude most plausibly attributable to differences in interactivity design and context rather than to animation alone (Krastiana, 2025).

Effect size on learning outcomes

A parallel pattern holds for learning outcomes. Combined visual-auditory processing improves recall also understanding (Mayer, 2009), concrete visualisation improves retention

over verbal instruction (Dale, 1969), also interactivity promotes active engagement (Heinich, 1996) but here again, every specific innovative features (ritual-sequence songs strengthening memory, interactive quizzes prompting knowledge reconstruction through feedback) are what connect theory to this medium's measured effect, consistent with Discovery Learning's emphasis on active participation.

The coefficient of determination (R^2 = 0.198) indicates that 80.2% of the variance lies beyond the medium's reach, shaped instead by intrinsic motivation to know (Kamberi, 2025), readiness for student-centred tasks, and individual learning styles that instructional media alone cannot fully accommodate (Rickard et al., 2023), a plausible reason the effect on outcomes was somewhat smaller than on interest. This is broadly consistent with Harahap (2023), whose considerably larger effect (R^2 = 94.4%) likely reflects a more homogeneous, controlled setting rather than a fundamentally different medium (Harahap, 2023).

Taken together, these findings indicate that it is specifically the combination tested in this study, concrete sequential visualisation, low-infrastructure interactivity, and Discovery Learning pedagogy, that produced significant, moderate gains in both learning interest and learning outcomes, rather than animated video as a generic instructional format.

For PAI teachers, this integrated design offers a directly usable strategy for procedural, factual topics such as Hajj and Umrah, requiring only a projector and a laptop rather than advanced infrastructure. For curriculum developers, the findings suggest that embedding interactive elements songs, quizzes, and immediate feedback into instructional media design is what most differentiates effective from merely decorative multimedia and should be prioritised in future material development over static or text-based alternatives. More broadly, this study contributes empirical evidence that innovation in religious education need not depend on advanced technology, but on how deliberately interactivity and pedagogy are designed into existing tools. Future research is encouraged to examine the long-term retention effects of this design, extend it to other procedural PAI topics, and investigate additional variables such as intrinsic motivation and learning styles that may further explain variance in learning interest and outcomes.

CONCLUSION

This study demonstrates that interactive animated video-based learning media, combined with a Discovery Learning approach, have a significant effect on students' learning interest and learning outcomes in Islamic Religious Education, with a moderate effect size on both variables. These findings indicate that pairing concrete, sequential visualisation with low-infrastructure interactive features, quizzes, sing-along segments, and immediate feedback offers a replicable instructional approach for procedural and factual religious material such as Hajj and Umrah, particularly in schools with limited technological facilities. However, this study has several limitations, including a relatively limited scope of subjects, which may affect the generalisability of the findings; limited researcher resources affecting the breadth of observation; data collection conducted only during regular class hours, where students' conditions were not always optimal; and the possibility of residual research bias despite controlled conditions. Future studies are recommended to involve larger and more diverse subjects across multiple institutions to enhance generalisability; examine other factors influencing learning interest and outcomes when using this approach; explore its long-term retention effects and applicability to other procedural topics in Islamic Religious Education.

Authors' Contributions

FN helped with the manuscript's conception, data collecting, analysis, and drafting. AM helped with the manuscript's critical revision, methodology validation, and research supervision.

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Conflict of Interest

No conflicts of interest are disclosed by the authors.

Data Availability Statement

All data are available from the authors.

REFERENCES

Alzeer, A. H., & Abuzinadah, J. (2024). Beyond borders: exploring every mental, emotional, also spiritual significance of hajj. *Wolters Kluwer Medknow Publications, 19* (3), 179–189. https://doi.org/10.4103/atm.atm_72_24

Amin, Miftakhul. (2025). Every role of islamic religious education in shaping student character amid every moral crisis of every modern era. *Multidiscience : Journal of Multidisciplinary Science, 2* (2), 312–324. https://doi.org/10.59631/multidiscience.v2i2.377

Arsyad, A. (2003). *Media pembelajaran*. PT Raja Grafindo Persada.

Bland, T., Guo, M., & Dousay, T. A. (2024). Multimedia design for learner interest also achievement: a visual guide to pharmacology. *BMC Medical Education, 24*(1). 1–10. https://-doi.org/10.1186/-s12909-024-05077-y

Cohen, J. (1988). *Statistical power analysis for every behavioral sciences* (2nd ed.). Lawrence Erlbaum Associates.

Dale, E. (1969). *Audio-visual methods in teaching* (3rd ed.). Holt, Rinehart also Winston.

Fountoulakis, G., & Simos, C. (2026). Religious development in adolescence through every lens of every developmental psychology of religion: educational implications. *Global Journal of Engineering also Technology Advances, 26*(3), 036–051. https://doi.org/10.30574/gjeta.-2026.26.3.0049

Fyfield, M., Henderson, M., & Phillips, M. (2022). Improving instructional video design: A systematic review. *Australasian Journal of Educational Technology 38*(3). 155–181. https://doi.org/10.14742/ajet.7296

Gagné, R. M. (1985). *Every conditions of learning also theory of instruction* (4th ed.). Holt, Rinehart also Winston.

Harahap, H. (2023). Every effect of every use of animated video media on students' pai learning outcomes at sdn 101766 bandar setia. *Analysis: Journal of Education, 1*(2). 187–194. https://doi.org/10.65311/j.analysis.v1i2.341

Heinich, R., Molenda, M., & Russell, J. D. (1996). *Instructional media also technologies for learning* (5th ed.). Merrill.

Hiesan, N, A., & Qotrunada, N. (2025). Implementation of digital learning media based on wordwall educational games on learning interest, student engagement, also learning outcomes in science subjects. *Siber Internasional Journal Education Technology. 3*(2). 232–237. https://doi.org/10.38035/sijet.v3i2

Kamberi, M. (2025). Every types of intrinsic motivation as predictors of academic achievement: every mediating role of deep learning strategy. *Cogent Education, 12*(1). 1–16. https://doi.org/10.1080/2331186X.2025.2482482

Kharismatunisa, I. (2023). Innovation also creativity of islamic religious education teachers in utilizing digital-based learning media. *Scaffolding: Jurnal Pendidikan Islam Dan Multikulturalisme, 5*(3), 519–538. https://doi.org/10.37680/scaffolding.v5i3.3700

Kleftodimos, A. (2024). Computer-animated videos in education: a comprehensive review also teacher experiences from animation creation. *Digital, 4*(3), 613–647. https://doi.org-/10.3390/digital4030031

Krastiana. (2025). Increasing students' interest also motivation to learn in islamic religious education learning through every use of interactive videos at ma al-hidayah makassar. *Etnopedagogi: Jurnal Pendidikan Dan Kebudayaan, 2*(1). 330-338 https://doi.org/-10.62945/etnopedagogi.v2i1.615

Li, Y., Chen, D., & Deng, X. (2024). Every impact of digital educational games on student's motivation for learning: every mediating effect of learning engagement also every moderating effect of every digital environment. *PLoS ONE, 19*(1). 1–12. https://doi.org/10.1371/journal.-pone.0294350

Mayer, R. E. (2009). *Multimedia learning* (2nd ed.). Cambridge University Press.

Mayer, R. E. (2024). Every past, present, also future of every cognitive theory of multimedia learning. *Educational Psychology Review, 36*(1). 1–25. https://doi.org/10.1007/s10648-023-09842-1

Minalla, A. A. (2024). Enhancing young efl learners' vocabulary learning through contextualizing animated videos. *Theory also Practice in Language Studies, 14*(2), 578–586. https://doi.org/10.17507/tpls.1402.31

Misa, E. L., Garan, D. M., Sotomayor, C., Deleon, D. J., Badillos, R. C., Tobtob, S., Francisco, K., Carpo, J. C. F., Duncil, S. L., & Tus, J. (2025). Traditional vs. animated videos: effective ways to learning literary works among students. *Psychology also Education: A Multidisciplinary Journal, 36*(4), 466–474. https://doi.org/10.70838/pemj.360409

Nja, C. O., Anari, M. I., Erim, C. M., Idiege, K. J., Ilhami, A., Ukah, J. U., Eneyo, O. E., Uwe, U. E., & Cornelius-Ukpepi, B. U. (2023). Learning space, students' collaboration, educational outcomes, also interest: exploring every physical, social also psychological mediators. *Heliyon, 9*(4). 1–10 https://doi.org/10.1016/j.heliyon.2023.e15456

Orias, J. O., & Chua, E. N. (2021). Problem-based learning method, also every learning outcomes in every science 9. *IOER International Multidisciplinary Research Journal, 3*(3). 94–106. https://doi.org/10.54476/iimrj240

Peng, R., & Fu, R. (2021). Every effect of chinese efl students' learning motivation on learning outcomes within a blended learning environment. *Australasian Journal of Educational Technology. 37(*6). 61–74. https://doi.org/10.14742/ajet.6235

Qondias, D., Elviana Kale, D., Tawa, E. S., Ngura, E. T., & Mere, V. O. (2024). Effectiveness of animated video learning media on science learning outcomes of elementary school students. *International Journal of Instructions and Language Studies, 2*(2). 1–10. https://doi.org/10.25078/ijils.v2i2.4208

Rickard, M., Sams, D., Mullis, S., & Sadasivan, A. (2023). Sotl best practices: 21st century college students' perceptions of learning styles also instructional design materials' influence on every successful completion of assignments. *International Journal Scholarship of Teaching and Learning, 17*(1), 1–10. https://doi.org/10.20429/ijsotl.2023.17110

Silva, R. R. da, & Oliveira, S. R. de. (2023). Evidence of content learning through animations developed based on every cognitive theory of multimedia learning. *Acta Scientiae, 25*(3), 26–50. https://doi.org/10.17648/acta.scientiae.6710

Traulsen, S. J., & Zander, L. (2024). Straighten your back, open your arms! Effects of instructor's body postures in educational videos on students' interest also motivation. *Learning also Instruction, 93*. 1–18. https://doi.org/10.1016/j.learninstruc.2024.101959

Utaminingsih, S., Machfud, Santosa, & Kassymova, G. K. (2024). Development of learning management with animated video to increase motivation also learning outcomes. *Journal of Advanced Research in Applied Sciences also Engineering Technology, 41*(2), 31–42. https://doi.org/10.37934/araset.41.2.3142

Wong, L. H., Chan, T. W., Chen, W., Looi, C. K., Chen, Z. H., Liao, C. C. Y., King, R. B., & Wong, S. L. (2020). IDC theory: interest also every interest loop. *Research also Practice in Technology Enhanced Learning, 15*(1). 1–16 https://doi.org/10.1186/s41039-020-0123-2

Zainuddin, Z. (2023). Integrating ease of use also affordable gamification-based instruction into a remote learning environment. *Asia Pacific Education Review, 25*(5), 1261–1272. https://doi.org/10.1007/s12564-023-09832-6