

# Integrating Information Technology in Islamic Education: A Qualitative Study Using Richard Mayer's Multimedia Learning Theory

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## ABSTRACT

Despite extensive research on technology integration in Islamic education, few studies examine its effectiveness through systematic learning theories. A notable gap exists in applying Richard Mayer's Multimedia Learning Theory to Islamic educational contexts. This qualitative study explores the impact of multimedia-based learning on teaching effectiveness in Islamic education. Data were collected from 14 participants, including teachers, students, and school administrators at Purwokerto State Junior High School 2, through in-depth interviews, observations, and document analysis. Thematic analysis was employed to interpret the data. Findings indicate that multimedia tools enhance student engagement and conceptual understanding, consistent with Mayer's principles. However, implementation is hindered by insufficient infrastructure and limited digital competence among educators. The study highlights that while multimedia learning holds significant potential for improving Islamic education, its success depends on institutional support, technological readiness, and teacher training. To fully leverage multimedia in Islamic education, stakeholders must address infrastructural and pedagogical challenges. Further research is recommended to develop context-specific strategies across diverse Islamic educational settings.

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## 1. INTRODUCTION

The use of information technology in Islamic education has become an increasingly widespread social phenomenon, with various schools and madrasahs adopting digital approaches to improve the quality of learning. This digitalization trend is seen in the implementation of technology in various Islamic education institutions, such as State Junior High School 1 Pasir Sakti which utilizes information technology as a learning resource to improve student learning outcomes in Islamic Education subjects (Abidin et al., 2025). In addition, State Madrasah Aliyah 1 Yogyakarta has implemented a multimedia-based e-learning system to support interactive learning by the principles of Richard Mayer's Multimedia

Learning Theory (Azzahra & Lubis, 2024). At the elementary school level, Primary School 5, Simpang in South Ogan Komering Ulu District, also integrates digital technology in Islamic Education teaching to increase student engagement (Hayani et al., 2024).

In line with this trend, State Junior High School 2 Purwokerto has integrated information technology into the learning and assessment process of Islamic Education. By implementing the Merdeka Curriculum, this school utilizes technology such as smart TVs, smartphones, LCD projectors, and other smart devices to support multimedia-based learning. Apart from providing complete facilities, this school also encourages students' active involvement in learning, such as the presentation of learning videos and other digital works. Thus, information technology is not only used to improve learning outcomes but also contributes to the overall effectiveness of the learning process.

Research on the application of information technology in Islamic education highlights several key aspects. First, e-learning and interactive multimedia have been shown to enhance students' understanding of Islamic concepts (Wahyudi, 2020), while social support in digital education can improve motivation and psychological well-being (Hanif, 2024). Second, while challenges like low digital literacy and limited infrastructure exist, the potential for digital transformation in madrasahs and pesantren is evident (Fatoni & Sukari, 2024). Digital tools, such as Quizizz, have also proven valuable in Islamic Education learning, especially in the new normal era (Hanif et al., 2022). Third, integrating AI and information management systems can enhance academic administration and learning experiences (Mahmudhassan et al., 2024). Additionally, digitalization aids in improving financial transparency in educational institutions (Nur & Hanif, 2024). Finally, approaches based on Mayer's Multimedia Learning Theory are being used to develop interactive teaching materials, boosting technology-based learning effectiveness (Mayer, 2024).

Although previous research has highlighted various aspects of the application of information technology in Islamic education, there is an unexplored gap, particularly in the application of Richard Mayer's Multimedia Learning Theory in junior high schools. Most research focuses on the effectiveness of e-learning and interactive multimedia in improving students' understanding of Islamic concepts (Wahyudi, 2020) and the challenges of digitalization in madrasah and pesantren (Fatoni & Sukari, 2024). However, studies that specifically examine how Mayer's theory is applied in Islamic Education learning at Junior High School are still limited. Therefore, this research offers novelty by analyzing the implementation of multimedia technology based on Mayer's theory in State Junior High School 2 Purwokerto and exploring its impact on the effectiveness of Islamic Education learning.

This paper shows that the integration of information technology in Islamic education at the State Junior High School 2 Purwokerto is growing, especially in Islamic Education learning. First, the use of multimedia-based information technology allows the delivery of more interactive and interesting material, in line with the trend of digitalization of Islamic education that has been implemented in various schools and madrasahs (Azzahra & Lubis, 2024). Second, students' perceptions of the use of this technology show a positive response, where they feel more motivated and understand Islamic concepts better through digital media than conventional methods (Fatoni & Sukari, 2024). Third, the implementation of the principles of Richard Mayer's Multimedia Cognitive Theory in Islamic Education learning contributes to the improvement of students' learning outcomes as the combination of visual, audio, and text elements reinforces their information processing process (Mayer, 2024).

## 2. METHODS

This study explores the integration of information technology in Islamic Education at State Junior High School 2, Purwokerto. Employing a descriptive qualitative method based on the framework of Strauss and Corbin, the research is conducted without statistical analysis or quantitative computation (Safrudin et al., 2023). As a field study, it enables direct researcher involvement in collecting factual data regarding the application of information technology in classroom instruction. This approach aims to provide a comprehensive understanding of how

information technology is integrated into Islamic Education, analyzed through the lens of Richard Mayer's Multimedia Learning Theory.

The study utilizes both primary and secondary data sources. Primary data were collected through interviews, observations, and documentation involving participants directly engaged in technology-integrated education, including Islamic Education teachers, students, the school principal, and the vice principal for curriculum (Nyimbili & Nyimbili, 2024). Informants were selected through purposive sampling, based on their active involvement in implementing educational technology. Key informants consisted of two Islamic Education teachers, ten students who frequently use technology in their learning, as well as the school principal and the vice principal responsible for curriculum development. Secondary data were gathered from supporting documents, such as teaching modules, student performance records, and institutional policies related to the use of information technology in the teaching and learning process.

**Table 1.** List of informants

No	Informants	Code	Number
1	Principal	A	1
2	Vice Principal for Curriculum	B	1
3	Islamic Education Teacher	C	2
4	Students	D	10

The research instruments used include observation sheets, interview guidelines, and documentation guidelines. The observation sheet was used to record the interaction between teachers and students in technology-based learning, including the type of technology used and students' responses in the learning process. Interview guidelines were prepared in the form of structured interviews, which contained pre-prepared questions to explore the experiences and perceptions of teachers, students, as well as principals, and vice principals for curriculum regarding the implementation of information technology in learning. Documentation guidelines were used to collect written and visual evidence, such as photos, videos, interview transcripts, and student learning outcomes to strengthen the results of observations and interviews (Hennink et al., 2020).

The research procedure was carried out in several stages. The first stage is preparation, which includes preparing the research design, making research instruments, and obtaining research permission from the school. The second stage was data collection, which was conducted through direct observation, interviews with participants, and documentation of various supporting sources. The third stage is data analysis, which uses a thematic analysis approach with three main stages, namely data reduction, data presentation, and verification and conclusion drawing (Grodal et al., 2021). Data reduction was done by sorting and selecting the most relevant data, which was then presented in narrative form to facilitate interpretation. Verification and conclusion drawing were carried out to identify patterns, themes, and meanings from the data obtained to answer the formulated research problems.

To ensure the validity and reliability of the data, this study applied triangulation in three main forms. Source triangulation was conducted by comparing information from various participants, namely teachers, students, and school administrators, to increase the validity of the findings. Technique triangulation was applied by using various data collection methods, such as observation, interview, and documentation, to obtain a more comprehensive picture. Meanwhile, time triangulation was carried out by collecting data on several different occasions to ensure the consistency and accuracy of the research results (Hennink et al., 2020). By applying these methods, the research can ensure the credibility, reliability, and validity of the data obtained.

### 3. FINDINGS AND DISCUSSION

The results obtained from the research have to be supported by sufficient data. The research results and the discovery must be the answers to the research hypothesis stated previously in the introduction.

#### 3.1. Findings

##### 3.1.1 The Use of Multimedia-Based Information Technology in Islamic Education Learning

The results showed that in the learning process, teachers do not always use monotonous methods. Islamic Education teachers apply various methods and media that encourage students to be more active so that learning becomes more creative and effective. State Junior High School 2 Purwokerto, utilizes information technology as a tool in creating a more conducive, practical, and structured learning atmosphere. All school members, both teachers and students, play an active role in the technology-based learning process. The application of information technology in Islamic Education subjects has proven to be effective and provides many benefits. By integrating technology into learning, the learning process becomes more interesting and interactive, thus increasing student engagement and activity (C, D).

The integration of information technology in Islamic Education learning at State Junior High School 2 Purwokerto has been highly effective, enhancing both student engagement and learning quality. With adequate facilities, various digital tools such as Smart TVs, LCD projectors, laptops, computers, smartphones, the internet, PowerPoint, YouTube, and other smart devices have been implemented to support the learning process. Among these, Smart TVs connected to smartphones via QR code scanning have played a crucial role in creating a more interactive and effective learning experience. The use of multimedia elements, including videos and presentations, has significantly helped students grasp abstract concepts in subjects like Aqidah and Fiqh, making learning more engaging and accessible. Teachers also observed that applying Mayer's coherence principle—by minimizing unnecessary distractions in digital content—enhanced student focus and comprehension. These technological advancements demonstrate the potential of digital learning tools in improving the overall quality of Islamic Education, fostering a generation that is not only religiously knowledgeable but also proficient in utilizing technology (A, B, C, D).

Smart TVs are used in the learning process for presentations or video playback, while LCD projectors are utilized by teachers by connecting them to computers or laptops to display prepared materials, such as PowerPoint, videos, or posters. The use of this technology is adjusted to the needs of students and the relevance of the material being taught, thus supporting a more effective learning process. Overall, the utilization of multimedia in Islamic Education learning has an important role in improving teaching effectiveness and student engagement (C, D).

Before playing a video or movie in a lesson, teachers first present the material as an introduction so that students can understand the concepts to be learned. However, if too much information is delivered at once, students can feel overwhelmed and lose focus. Therefore, teachers need to adjust the amount and type of multimedia used to be in line with the learning objectives and the capacity of students. The use of technology in Islamic Education learning also has a positive impact on students' understanding, especially in learning abstract concepts, so that the material becomes easier to understand (C, D).

Information technology acts as a supporting tool in the learning process, helping students to receive and understand material more easily. The use of learning media also makes it easier for teachers and students to create a smoother and more effective learning process. At State Junior High School 2 Purwokerto, Islamic Education learning utilizes various media such as PowerPoint, the internet, interactive videos, and posters. This is done because abstract Islamic Education material can

be less interesting if only delivered through the lecture method. By utilizing information technology, students are more enthusiastic in learning, so that the material can be absorbed better (A, B, C, D).

The utilization of information technology in Islamic Education learning is an important aspect of improving the quality of education. In the era of rapid development, technology has become an inseparable part of various aspects of life, including in the world of education. With information technology, students can easily access various learning resources online, such as e-books or learning videos. In addition, the use of technology makes the learning process more interactive and interesting. Teachers can utilize various media, such as PowerPoint presentations and interactive videos, to deliver material more effectively and engagingly (A, B, C, D).

The following are the results of interviews, observations, and documentation regarding the use of information technology in Islamic Education learning at State Junior High School 2 Purwokerto.

**Table 2.** Technology Information in Islamic Education Learning

Islamic Education Cluster	Teaching Materials	Class	Types of Technology, Information and Multimedia	Teacher
Akidah Akhlak (Faith Morals)	Honest and Trustworthy	VIII	Interactive PowerPoint, LCD Projector, Interactive Video	YNQ
Fikih (Islamic Jurisprudence)	Prayer and Dhikr	VII	Interactive PowerPoint, Smart TV	NH
Fikih (Islamic Jurisprudence)	Slaughtering Qurban Animals	IX	PowerPoint interactive, interactive video, and LCD Projector	QA
Akidah Akhlak (Faith Morals)	Backbiting	VIII	Interactive Video, Laptop, LCD Projector	YNQ
Fikih	Hajj	IX	Interactive Video and Interactive PowerPoint	QA
Akidah Akhlak (Faith Morals)	Asmaul Husna (Al-Alim, Al-Khabir, As-Sami, and Al-Basir)	VII	Interactive PowerPoint, Smart TV, Interactive Video	NH
Fikih (Islamic Jurisprudence)	Sujud Tilawa, Sujud Sahwi, dan Sujud Syukur  (Tilawa prostration, Sahwi prostration, and gratitude prostration)	VII	Interactive PowerPoint, interactive video	NH

The table above shows the application of information technology in learning Islamic Education in various classes with different materials. In *Akidah Akhlak*, Honest, Trustworthy, and Backbiting materials are taught using Interactive PowerPoint, LCD Projector, and Interactive Video, which help visualize moral concepts for grade VIII students. Meanwhile, the Asmaul Husna material is taught in grade VII using Smart TV, Interactive PowerPoint, and Interactive Video, enabling students to understand the attributes of Allah more deeply. In Fiqh, the Prayer and Dhikr material uses Smart TV

and Interactive PowerPoint, while Slaughtering Qurban Animals and Hajj in grade IX use a combination of interactive PowerPoint, interactive video, and LCD Projector to provide a more immersive learning experience. The materials on Sujud Tilawa, Sujud Sahwi, and Sujud Syukur in grade VII also use similar technology. The use of this technology enriches the learning experience, increases student engagement, and helps to understand Islamic concepts more effectively.

Based on the table above, the application of information technology in Islamic Education learning is adjusted to the material being taught to make it more effective. The use of this technology is very helpful for teachers in delivering material, especially because Islamic Education material is often difficult to understand if it only relies on the lecture method. Students tend to feel bored when learning takes place without the support of technology, which in turn can reduce their interest in Islamic Education subjects. Therefore, the integration of technology in learning is a solution to increase student engagement and understanding.

The results of observations and interviews show that information technology-based Islamic Education learning at State Junior High School 2 Purwokerto has been running well. This is supported by the availability of adequate learning facilities in several classes. For example, in class VII, a smart TV and Wi-Fi have been installed to support the learning process. The use of information technology in learning also makes students more interested, enthusiastic, and excited about participating in lessons. In addition, students revealed that the application of technology in Islamic Education learning helps them to be more actively involved so that the learning process becomes more enjoyable and effective.

### 3.1.2. Students' Perceptions of the Use of Information Technology in Islamic Education Learning

The results show that students' perceptions of the use of information technology in Islamic Education learning tend to be positive. They feel that this technology helps in understanding the material, makes learning more interesting, and makes it more structured and less boring. In addition, the utilization of information technology makes it easier for students to access the Qur'an, Asmaul Husna, and other learning materials through various online applications. The use of technology also has a positive impact on learning outcomes, as it allows students to access a variety of information sources that are more comprehensive and accurate, thus supporting deeper understanding (C, D).

The results of observations, interviews, and documentation conducted show that the use of information technology in Islamic Education learning gets a very positive response from students. To provide a clearer picture, the following table displays students' perceptions of the application of information technology in Islamic Education learning (A, B, C, D).

**Table 3.** Various Student Perceptions of Multimedia Information Technology in Islamic Education Learning

Variety of Student Perceptions	Islamic Education Cluster	Teaching Materials	Class	Types of Information Technology	Multimedia Types
Makes it easier to find materials	Akidah Akhlak (Creed and Morals)	Asmaul Husnah	7	Smartphone	Web blog
Improve student understanding	History of Islamic Culture	Abbasid	9	LCD Projector	PowerPoint and Interactive Video
Interesting	Akidah Akhlak (Creed and Morals)	Honest and Trustworthy	8	LCD Projector	PowerPoint

The table above illustrates the various perceptions of students towards the use of multimedia technology in Islamic Education learning. Grade VII students studying *Asmaul Husna* in *Akidah Akhlak* felt that the use of smartphones and web blogs made it easier for them to search for learning materials independently. In Islamic Cultural History, grade IX students studying the Abbasid Dynasty felt an increase in understanding due to the use of LCD Projector, PowerPoint, and Interactive Video, which allowed them to see visual illustrations and historical narratives more clearly. Meanwhile, grade VIII students studying *Honest and Trustworthy* in *Akidah Akhlak* considered learning to be more interesting with the use of LCD Projector and PowerPoint, which made the material more structured and easy to understand. Overall, the use of multimedia technology in Islamic Education positively contributes to learning effectiveness, improves students' understanding, and makes the learning process more interesting and interactive.

Based on the table above, students' perceptions of the use of information technology in Islamic Education learning are quite diverse. In general, information technology is considered very useful, especially because Islamic education materials are often difficult to understand if only delivered through the lecture method. The use of this technology helps students understand material that previously felt less structured. The results of interviews with several students also revealed that information technology makes it easier for them to find material, improve understanding, and make learning more interesting and interactive.

### 3.1.3. Implementation of Richard Mayer's Principles of Multimedia Cognitive Theory in Islamic Education Learning to Improve Student Learning Outcomes

The application of Richard Mayer's multimedia theory in Islamic Religious Education learning emphasizes the importance of information technology in creating a more effective learning experience. The theory focuses on how information can be optimally delivered through a combination of text, images, sound, and video to improve understanding and learning outcomes. In the context of Islamic Education, Richard Mayer's multimedia principles are proven to have a positive impact on student engagement and understanding. The theory is based on three main concepts, namely dual channel, limited capacity, and active processing. In addition, in this study, four main principles from Mayer's theory, namely coherence, contiguity, redundancy, and modality, were applied, which play a role in increasing the effectiveness of multimedia-based learning (Keshavarz et al., 2022).

This study observed the use of information technology in Islamic Education learning by applying multimedia principles developed by Richard Mayer (Mayer, 2020). The observation results show that these principles have been applied in State Junior High School 2 Purwokerto. One of them is the principle of coherence, which ensures that the material taught is aligned with the learning objectives. In the teaching module on trustworthy material, the learning objectives set include several aspects, namely: learners can explain the meaning of trust and its evidence, understand the various forms of trust, apply the attitude of trust in everyday life, and explain the wisdom of the attitude of trust.

The results of observations of learning activities show that the learning process begins with the teacher asking students about the concept of trust and its application in everyday life. After that, the teacher presents the material that has been compiled in the form of a PowerPoint presentation and then shows a learning video about trust and its implementation taken from YouTube. Next, students are divided into several groups to discuss, and the results of the discussion are presented by each group as part of the learning process.

In addition, the contiguity principle is applied by playing videos about trust material so that students can understand the concept and its application in everyday life. The Redundancy principle is realized by showing videos or movies without adding text on the screen so that students do not experience confusion due to information overload. Meanwhile, the Modality principle is applied by using audio narration only when playing videos from YouTube, while in presentations using PowerPoint, only narrative text and images are displayed without additional audio.

The improvement of student learning outcomes at State Junior High School 2 Purwokerto through the utilization of information technology is influenced by several main factors that support the effectiveness of Islamic Education learning. First, information technology facilitates students' access to various learning resources, such as e-books, learning videos, and other media, thus helping them understand the material better. Second, the use of technology enables the implementation of more interesting and interactive learning methods, for example, by utilizing the YouTube platform for video-based learning as well as applications such as Quizizz or Google Forms for quizzes that increase student enthusiasm. Third, information technology encourages students' active involvement in the learning process. They are allowed to be creative by making videos, posters, or PowerPoint presentations in groups, which not only deepens their understanding but also develops collaboration skills and creativity.

The observation shows that Richard Mayer's multimedia principles have been applied in learning at State Junior High School 2 Purwokerto (Mayer, 2024). For example, the principle of coherence is applied by Islamic Education teachers by adjusting the material with learning objectives to make it more focused. The principle of contiguity is realized through the playback of videos about slaughtering urban animals, where the text or narration explaining the procedures for slaughtering is delivered simultaneously. The application of this principle helps students connect verbal information with visuals, thus improving their understanding of the process of slaughtering urban animals.

Furthermore, the principle of redundancy is applied by showing the video without additional text on the screen to avoid information overload that could confuse students. For example, in a video about gossip and its impact on daily life, students can more easily relate the content of the video to real situations in their environment. Meanwhile, the modality principle is applied in learning about Hajj, where a video about tawaf is accompanied by audio narration, allowing students to understand the material through a combination of audio and visuals more effectively.

The following is a display table regarding the principles of Richard Mayer's multimedia cognitive theory based on multimedia information technology applied in Islamic Education learning.

**Table 4.** Principles of Islamic Multimedia Education: Cognitive Theory Based on Technology  
Multimedia Information

Principles of Multimedia Cognitive Theory (Mayer)	Islamic Education Cluster	Teaching Materials	Class	Types of Technology, Information and Multimedia
Coherence Principle	<i>Akidah Akhlak</i> (Faith Morals)	Honest and Trustworthy	VIII	Poster about materials and videos regarding Trust
Contiguity Principle	<i>Fikih</i> (Islamic Jurisprudence)	Slaughter of Qurban Animals	IX	PowerPoint and Video showing narration and audio together
Redundancy Principle	<i>Akidah Akhlak</i> (Faith Morals)	Backbiting	VIII	PowerPoint and Short Videos about behavior gossip without adding text on layer
Principle of Modality	<i>Fikih</i> (Islamic Jurisprudence)	<i>Hajj</i> (pilgrimage)	IX	Video and narration played in a way simultaneously

The table above shows the application of Richard Mayer's Multimedia Cognitive Theory principles in learning Islamic Education using multimedia technology. The Coherence Principle is

applied in Honest and Trustworthy material in *Akidah Akhlak* in grade VIII, where posters and videos are used to present the material in a structured manner so that students can more easily understand the concept of honesty. The Principle of Contiguity is applied in the Slaughter of Qurban Animals material in Jurisprudence in grade IX, with the use of PowerPoint and videos that present text and audio simultaneously, so that information is easier to understand. The Redundancy Principle is applied in the Backbiting material in Grade VIII, using PowerPoint and short videos without additional text, to avoid redundant information that can confuse students. The Modality Principle is applied in the pilgrimage (Hajj) material in class IX, where video and narration are played simultaneously to enhance understanding through an audio-visual combination (Mayer, 2024). This approach increases learning effectiveness, makes the material more interactive, and strengthens students' understanding.

Based on the display table above, it can be concluded that Richard Mayer's multimedia theory has been applied indirectly at State Junior High School 2 Purwokerto. The table shows that the utilization of information technology in learning is in line with the principles proposed by Richard Mayer, thus supporting a more effective and interactive learning process.

### 3.2. Discussion

The integration of information technology (IT) into Islamic Education at State Junior High School 2 Purwokerto represents a significant pedagogical shift from traditional, teacher-centered methods to more dynamic, student-centered learning. This transformation reflects broader educational trends where digital tools are increasingly employed to enhance engagement, interactivity, and comprehension in the classroom (Ekowati & Syafi, 2023). Teachers at the school are progressively adopting a variety of media and instructional strategies to foster a more creative and stimulating learning environment (Abidin et al., 2025).

Technology tools utilized in the school include smart TVs, LCD projectors, and educational software, all of which contribute to increased student motivation and participation. These technologies support more interactive and visually engaging lessons, particularly beneficial in subjects like Islamic Education that traditionally rely on text-based instruction (Azzahra & Lubis, 2024). This implementation aligns with literature suggesting that digital tools not only support pedagogical innovation but also improve student learning outcomes (Hayani et al., 2024).

The school's approach to integrating technology is both intentional and structured. Smart TVs are used to present multimedia content, while LCD projectors are employed to display visual aids and reinforce lesson points. Importantly, teachers introduce core materials before transitioning to multimedia tools, ensuring that technology supplements rather than replaces direct instruction (Abidin et al., 2025). This approach is consistent with Mayer's (2020) Multimedia Learning Theory, which emphasizes the importance of using technology as a cognitive support rather than a distraction.

Students have responded positively to the integration of IT in their Islamic Education classes. They report increased clarity, engagement, and enjoyment, which in turn enhances their academic performance. These findings are supported by broader studies indicating that well-integrated technology can significantly improve comprehension and student achievement (Hariyadi et al., 2023; Azzahra & Lubis, 2024).

One notable advantage of IT integration is improved access to digital Islamic learning resources. Applications for the Qur'an, Asmaul Husna, and other religious texts provide structured, accurate materials that deepen students' understanding (Ekowati & Syafi, 2023; Huda et al., 2024; Rohmiati, 2025; Wahyudi, 2020). These tools not only enhance cognitive development but also reinforce religious and moral education, fulfilling the dual goals of academic and spiritual growth.

Students' experiences with technology vary by grade level and subject matter, highlighting the adaptability of digital tools across different educational contexts. For example, seventh-grade students use smartphones and blogs to independently learn Asmaul Husna, whereas ninth-grade

students rely more on PowerPoint presentations and interactive videos to study historical topics like the Abbasid Dynasty (Ar et al., 2023; Juhairiah, 2024; Azzahra & Lubis, 2024). These variations reinforce the value of technology in tailoring instruction to specific learning objectives and cognitive levels (Budiyono, 2019; Keshavarz et al., 2022).

Crucially, the research applies Mayer's Multimedia Learning Theory to Islamic Education, emphasizing principles such as coherence, temporal contiguity, redundancy, and modality. Coherence is evident in the alignment of digital content with instructional goals. Temporal contiguity is observed when related audio and visual elements are presented simultaneously, facilitating better retention. Redundancy is minimized to prevent cognitive overload, and the modality principle is applied by combining narration with visuals to optimize information processing (Mayer, 2024).

This thoughtful application of multimedia principles contributes to a holistic and effective instructional design. It allows for the creation of rich, diverse learning experiences that maintain student attention and encourage deeper understanding. By embedding these cognitive strategies, teachers can transform Islamic Education into a subject that is both intellectually rigorous and spiritually meaningful (Huda et al., 2024; Ekowati & Syafi, 2023).

The research further distinguishes itself by addressing gaps in existing literature. While previous studies have discussed the general benefits and challenges of technology in Islamic Education (Abidin et al., 2025; Fatoni & Sukari, 2024), few have explored its effectiveness through a cognitive theoretical lens. By applying Mayer's theory, this study provides a structured framework for evaluating and optimizing digital integration in religious education. This framework connects theoretical understanding with practical implementation, offering new insights into how technology enhances learning while preserving Islamic values (Ar et al., 2023; Ekowati & Syafi, 2023).

Nevertheless, the research also highlights several challenges. Limitations such as inadequate infrastructure, insufficient teacher training, and varying levels of digital literacy hinder optimal technology use. These obstacles suggest the need for systemic reforms to support IT integration. Comprehensive policies should include continuous professional development, multimedia-based curriculum design, and equitable access to digital resources (Mayer, 2020).

To ensure that technology serves both educational and spiritual purposes, its use must align with Islamic ethical frameworks. Teachers and institutions should emphasize content that nurtures character development and moral integrity. This balance between technological advancement and spiritual education is essential for preserving the holistic nature of Islamic Education in the digital age.

Looking forward, the study suggests that Islamic Education will continue to evolve alongside emerging technologies such as artificial intelligence (AI) and virtual reality (VR). These innovations hold the potential to create more immersive, personalized learning environments. Additionally, data-driven instruction may enable teachers to tailor content to individual learning needs, enhancing both engagement and academic performance. However, it is vital to address the digital divide and maintain ethical standards to ensure inclusivity and the preservation of Islamic values.

In conclusion, this research demonstrates that when thoughtfully integrated, information technology significantly enhances the quality and effectiveness of Islamic Education. Grounded in Mayer's cognitive principles, the study provides a comprehensive model for using digital tools to enrich religious learning while maintaining its spiritual essence. The findings call for collaborative efforts among educators, policymakers, and institutions to build a supportive ecosystem for technology-enhanced Islamic Education that is both intellectually robust and spiritually grounded.

#### 4. CONCLUSION

The integration of information technology in Islamic education based on Richard Mayer's multimedia learning theory shows that the use of technology can improve learning effectiveness by optimizing the combination of visual and verbal elements. This study found that the application of

interactive multimedia in Islamic learning can improve understanding of religious concepts, learning motivation, and student engagement. In addition, this approach allows for a more engaging and easy-to-understand presentation of material, by Mayer's dual-channel and limited capacity principles. However, the main challenges in its implementation are the readiness of educators, technological infrastructure, and adaptation to more technology-based teaching methods. Therefore, ongoing training and support for educators is needed to maximize the benefits of technology in Islamic education. This study confirms that technology integration based on Mayer's theory has great potential to improve the quality of Islamic learning more effectively and sustainably.

This research provides significant implications for the development of technology-based Islamic learning methods by referring to Richard Mayer's multimedia learning theory. The findings show that technology can improve teaching effectiveness, but its implementation still faces challenges such as educators' readiness, limited infrastructure, and resistance to changes in traditional methods. In addition, this study is limited to a qualitative approach with a relatively small scope of participants, so the results cannot be widely generalized. Therefore, future research could expand the scope with quantitative or mixed methods to measure the impact of technology on learning outcomes more objectively. In addition, future research can be more specific by exploring the effectiveness of various types of multimedia in Islamic learning, such as the use of interactive animation or virtual reality in understanding abstract Islamic concepts, so that the technological approach is increasingly relevant and applicable in Islamic education.

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**Conflicts of Interest:** The authors declare that there is no conflict of interest in this study. The entire research process, data analysis, and interpretation of the results were conducted independently and objectively without any influence from external parties that could affect the validity of the findings. There are no personal, financial, or institutional interests that could lead to bias in reporting the results of this study. All resources used, including information technology facilities at Purwokerto State Junior High School 2, were purely utilized for academic purposes and the development of knowledge in the field of Islamic Education. This research was conducted with the principles of transparency and academic integrity, and no personal gain was obtained from the results of this research. If in the future there is a potential conflict of interest that is not previously identified, the author is committed to disclosing it with full responsibility.

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