



Integration of the Human Nervous System and Missile Technology in Islamic Education Management

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Abstract

Integration of the Human Nervous System and Missile Technology in Islamic Education Management. The nervous system is capable of detecting and transmitting signals as well as providing automatic responses. It is analogous to a missile control system that detects threats and provides automatic responses. From an Islamic perspective, the majesty of human creation can inspire structured and effective education management. This study explores the integration of the nervous system and missile systems as a strategy for fostering adaptive, responsive, and spiritual learners. This study employs a qualitative descriptive approach with a case study design. The informants were the principal of SMP 1 Kencong, the vice principal of curriculum, the Islamic religious education teacher, and the ICT teacher. Data analysis used the Miles and Huberman model, including data reduction, presentation, and drawing conclusions. The results of the study indicate that integrating the principles of the nervous system and missile technology into education promotes adaptive, responsive, and precise learning through the use of Google Classroom, which facilitates quick feedback and personalized learning. This approach not only improves effectiveness but also shapes students' characters to be independent, responsible, and spiritually valuable.

Keywords: Nervous System, Missile Technology, Islamic Education Management

A. INTRODUCTION

Modern Islamic education must respond to the rapid development of digital technology. As Zahraini (2025) emphasized, "Rapid advances in digital technology have changed educational practices globally, presenting both challenges and opportunities for Islamic education." This means the Islamic curriculum must be reformulated to meet the demands of the digital age while upholding Islamic values (Samudra & Amin, 2025). While digitalization enhances access and innovative learning methods, it also has the potential to erode traditional values if not balanced with a holistic approach. Therefore, Islamic education reform in the digital age requires a modern curriculum framework balancing the integration of technology with spiritual and ethical teachings (Ndona, 2025). In the Indonesian context, the education paradigm continues to undergo reform. Mustaqimah (2023) emphasizes the need for innovations to meet the demands of the times and that educators must creatively integrate IT into learning.

The Islamic education system is still very traditional and must be modernized by combining classical models with contemporary knowledge (Ustianti, 2025). One of the latest attempts at integration combines Islamic education with neuroscience to establish a new foundation (Sabda, 2018). This innovation is driven by the desire to restore the glory of Islamic education through contemporary reconstruction. Researchers hope that integrating Islam and neuroscience will create more effective and relevant learning. Furthermore, Suryadi (2023) introduces Islamic educational neuroscience as a new interdisciplinary field. This field of study focuses on "optimizing brain potential in Islamic religious education." Teachers and educators who master this field can implement appropriate pedagogical interventions, making the process of learning religion more effective.

The above research results show that combining learning strategies and materials with neuroscience creates a new learning model that students find easier to understand. In other words, utilizing neuroscience findings can facilitate the understanding of Islamic concepts by providing more adaptive and personalized methods (Saifurrahman, 2019). Similarly, digital technology in schools can be viewed as a "nervous system" that quickly and adaptively connects learning elements (Kvello & Gericke, 2021). Digital platforms, for instance, enable real-time information delivery and personalized learning for each student. Conversely, the process of teacher feedback in correcting students can be analogized to a rocket's automatic guidance system that constantly adjusts its trajectory to reach its destination. In other words, teachers act as control computers that continuously monitor students' understanding, similar to the control function in advanced automation systems (Roschelle et al., 2000).

Although this analogy is conceptual, it illustrates how technology and personal guidance can work together to improve learning effectiveness. However, the integration of technology in Islamic education faces practical challenges (Mar, 2024). Infrastructure limitations, such as uneven internet coverage and a lack of ICT devices in some schools, are major obstacles. To address these issues, many schools provide Wi-Fi on campus and collaborate with committees to provide devices. Additionally, regular training for teachers is crucial to ensure they can utilize technology effectively. Technological advancements have driven the integration of biology and technology across various fields, including education (Carlson & Gadio, 2002). From a technological perspective, this development is more advanced and sophisticated than the most advanced missile systems currently available.

Every day, human activities involving the nervous system are generally considered unremarkable because they are normal. For example, when a person is bitten by a mosquito, the body parts capable of responding fight back. Similarly, modern missile systems like the Patriot Missile System use radar and advanced data processing algorithms to automatically detect and attack targets (Fontana & Di Lauro, 2022). Similarly, when a mosquito bites a human, the nervous system quickly and accurately sends real-time coordinates of the bite location. Even areas of the body that are not visible can be protected by other body parts (Camp et al., 2000).



Figure 1. Background of Neural Integration

Source: [Pngtree](#)

The human nervous system is capable of coordinating bodily responses with high accuracy and has inspired technological innovations, such as missile control systems (Yang et al., 2023). If managed well, this will be very meaningful and serve as a valuable lesson, especially in teaching us to always be grateful and aware of how Allah has given

us this privilege freely. From an Islamic perspective, humanity's complex and well-structured creation is a manifestation of Allah's greatness. Surah Al-Mu'minun (23:12-14) describes the stages of human creation. Research by Wulan (2023) confirms that the human nervous system is evidence of Allah's wisdom in creating His creatures. This underscores the importance of integrating scientific knowledge and Islamic values in educational development.

Neuromorphic technology mimics the human nervous system by using electronic neurons and synapses. This technology has led to the development of adaptive and responsive automation systems in various fields, including education. These systems enable real-time, energy-efficient learning and can adapt to students' needs independently (Huynh et al., 2022). It is capable of processing data efficiently and enabling real-time adaptation (Lee et al., 2022).

In the context of Islamic education, this concept is relevant for creating a learning environment that responds to students' needs (Abdan, Nurmala Sari, Sugiarti, & Syafarotun Najah, 2024). Junior High School (SMPN) 1 Kencong has begun implementing the integration of the human nervous system and missile technology in daily activities. Teachers use the Google Classroom monitoring app or a digital attendance application to monitor students' progress on tasks in real time. Students receive immediate feedback on their assignments or quizzes, enabling them to promptly correct mistakes, much like how the nervous system responds quickly and accurately to stimuli. This allows teachers to tailor instruction to individual needs, much like missile technology that targets specific objectives.

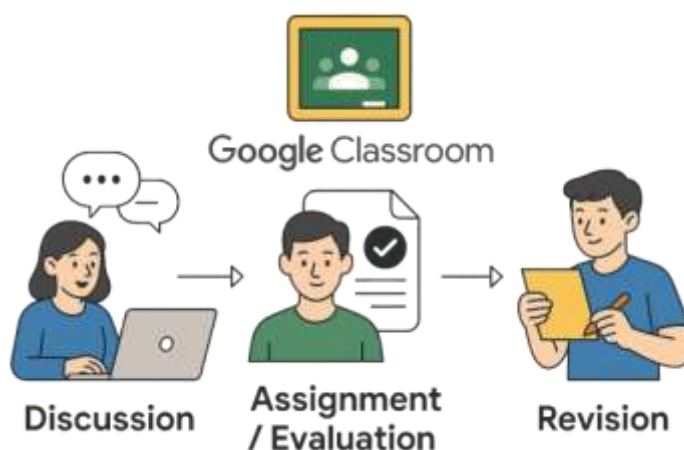


Figure 2. Google Classroom Monitoring Application

The image illustrates how Google Classroom is used in daily activities. Teachers use monitoring applications or digital attendance systems to track student progress in real

time. The process begins with a discussion, followed by an assignment, an evaluation, and a revision based on quick feedback. This system enables students to promptly correct mistakes, much like a nervous system that swiftly and accurately responds to stimuli. Meanwhile, teachers can personalize learning, much like missile technology that is aimed at specific targets. When designing adaptive and responsive learning systems, analogies with the human nervous system offer important insights. The nervous system automatically and swiftly responds to stimuli, inspiring many artificial intelligence-based technology designs.

The application of Artificial Neural Network (ANN) in missile defense systems shows how the principles of neural information transmission can be used for automated, high-precision decision-making in crisis situations (Qu et al., 2021). Additionally, this research explores Islamic values relevant to technology-based educational innovation. Several studies emphasize the importance of integrating modern science and Islamic values into educational development. Wulan (2023) notes that the human nervous system is a tangible example of Allah's wisdom in creating his creatures and offers valuable lessons for education. Neuromorphic technology mimics the human nervous system and has inspired adaptive automation systems in various fields, including education. Cartiglia (2022) shows that stochastic dendrites allow neuromorphic systems to efficiently perform online learning on hardware.

Meanwhile, Wenjie (2024) introduced an event-based learning strategy for spiking neural networks (SNNs) that reduces energy consumption by up to 30 times compared to conventional methods. Additionally, Mishra and Suri (2023) proposed a continual learning framework highly relevant to adaptive education, as it mimics the plasticity and gradual learning of the human brain. In the context of Islamic education, this approach is relevant to designing a learning management system responsive to learners' needs (Suwahyu & Rahman, 2022). To date, no research has examined the integration of the human nervous system and missile technology as a conceptual model for learners. However, the nervous system and missile technology share similarities in response speed, control accuracy, and adaptability to dynamic situations.

This study explores the integration of the nervous system and missiles as adaptive, responsive, and spiritual strategies for students. The results are expected to contribute to the development of science, technology, and biology when analyzed from the perspective of Islamic educational management science. This will make it easier to understand the perfection and greatness of Allah S.W.T. in creating His creatures.

B. RESEARCH METHODS

This study employs a qualitative descriptive approach with a case study design. This approach was chosen because it can record complex dynamics within the natural context of an educational institution without reducing them to mere quantitative variables. As Inoue (2022) emphasizes in Sukmara (2018), qualitative descriptive research enables researchers to “unravel the layers of personal, social, and policy factors” that prompt elementary school students to withdraw. These findings only emerge after conducting a series of in-depth interviews and longitudinal participatory observations. This narrative-rich, experience-centered approach is necessary to understand how pedagogical decisions are made in Islamic education classrooms.

According to Mtisi (2022), qualitative case studies excel at consolidating various data sources, such as program documents, interviews, and visual artifacts, to build a strong chain of evidence. This approach maintains the internal validity of the research while considering contextual nuances. Systematic triangulation allows researchers to capture the emergence of entrepreneurial initiatives in villages as an adaptive system that is constantly transforming. This analogy aligns with the objective of our study, which is to view learning management as a dynamic ecosystem rather than a mere collection of linear procedures. Priya (2021) emphasizes that qualitative case studies should be viewed as a holistic approach examining the interconnectedness of procedures, actors, and artifacts of practice simultaneously. This strategy allows researchers to describe complex processes, such as AI-based curriculum adaptation in madrasas, while maintaining awareness of the relationship between macro policies and micro responses from teachers in the classroom (Priya, 2021).

Thus, the case study serves as a “magnifying glass” that highlights real-time interactions between individuals and technology in contemporary Islamic learning environments. Through this methodological approach, the study aims to produce a comprehensive description of adaptive AI applications in Islamic education classrooms and provide a replicable and adaptable conceptual model. Using a rigorous qualitative case study emphasizes that this research is grounded in a strong methodological foundation. This approach aligns with the latest literature from the past five years on the strengths of this design in examining complex and evolving educational phenomena. Collecting primary data from research informants, including the principal of SMP 1 Kencong, the vice principal of curriculum, and the ICT teacher, as well as secondary sources such as scientific journals and books, enables the researcher to gain a broader understanding (Strauss & Corbin, 1990).

Research data was collected from various relevant secondary sources, including scientific journals, books, and official documents that discussed the human nervous system, missile technology, and the management of Islamic education for students. A literature analysis was conducted to identify patterns, relationships, and concepts that could be applied in a new context (Jogiyanto Hartono, 2019). This analysis involved comparing concepts from literature sources to identify patterns and principles applicable to Islamic education.

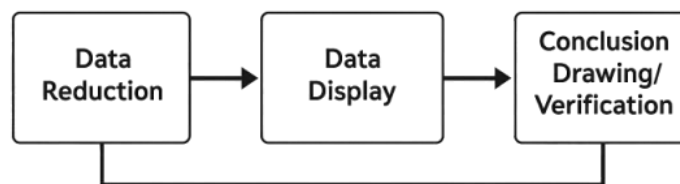


Figure 3. Research Steps

This study used the Miles and Huberman (2002) data analysis model. This model included data reduction, which involved the researcher filtering data from interviews with teachers, the vice principal of curriculum, and ICT teachers at SMPN 1 Kencong. It also involved filtering data from curriculum documents, student assessment results, and learning activity records. The data were presented to clarify patterns of relationships between the concepts of nervous system integration, missile technology, and curriculum management at SMPN 1 Kencong. Conclusions were drawn by applying the principles of the nervous system (response speed) and missile technology (target precision) to curriculum management based on student ability profiles (Creswell & Creswell, 2017).

C. RESULTS AND DISCUSSION

1. Integration of digital technology, Google Classroom

The integration of digital technology at SMPN 1 Kencong, including Google Classroom and digital attendance applications, is considered a positive and significant step toward supporting adaptive and responsive learning. These tools allow teachers to monitor student progress in real time, provide quick feedback, and adapt instruction to each student's needs. The following is an interview with the principal of SMPN 1 Kencong:

“The integration of digital technology, such as Google Classroom and attendance apps, is a positive and important step in supporting adaptive and responsive learning.” This technology allows teachers to monitor students' progress in real time and enables students to immediately see the results of their assignments and address their weaknesses. It is considered to be in line with the times and with

the profile of Pancasila students, who are responsive to technological developments.

The vice principal of curriculum and ICT teacher at SMPN 1 Kencong expressed a similar view, as follows:

The curriculum is designed to be flexible and support technology as the primary learning medium. It encourages rapid feedback and precision learning, similar to a nervous system or missile technology.

Applications such as Google Classroom facilitate rapid feedback and enable teachers to adapt learning to students' abilities.

The introduction of Google Classroom and digital attendance applications has encouraged schools to push teachers to provide quick feedback through supervision policies and digital applications. This allows for precision learning tailored to students' abilities. The principal explained:

The school has an unwritten policy and teacher forum recommendations that every assignment be accompanied by prompt feedback. Academic supervision reinforces this policy to ensure that teachers guide students in correcting their mistakes. The curriculum deputy added that teachers are encouraged to conduct diagnostic assessments and use the resulting data to design differentiated and personalized learning experiences.

Google Classroom is used to provide immediate feedback on student assignments, and the notification feature ensures that students promptly receive guidance for improvement. All informants agreed that this technology realizes the principles of precision (like a missile) and rapid response (like a nervous system).

The school instills spiritual values by encouraging students to use technology responsibly, honestly, and gratefully. The school also links material to moral values in every learning activity. This is based on the following statement from the principal:

Spiritual values are instilled by encouraging students to use technology in positive, faithful, and responsible ways. Teachers connect the material to moral values, such as being grateful for the blessings of technology.

Technology is merely a tool; character education remains the primary goal. Teachers are encouraged to instill values of honesty, responsibility, and gratitude. Computer science teachers emphasize the importance of using technology honestly and independently while reminding students of the importance of trustworthiness and gratitude for how technology makes learning easier.

The main challenges of using Google Classroom for digital attendance include internet connectivity issues and device limitations for some students. Schools can address these challenges by providing Wi-Fi access outside of school hours, seeking device assistance through committees, and offering regular training sessions for teachers to optimize technology use. As stated by the principal, the vice principal of curriculum, and the ICT teacher, as follows:

The main challenges are internet connectivity issues and limited access to devices at home for some students. Implemented solutions include:

Allowing students to use the school's Wi-Fi outside of class hours

Coordinating with the school committee to help students obtain devices

Enhancing teacher training to improve proficiency in using technology

Adjusting the curriculum to integrate technology as an integral part of learning

Providing an alternating assignment that can be completed offline if necessary

Meanwhile, technology, such as Google Classroom and digital attendance applications, offers several advantages. It makes it easier for teachers to monitor student progress in real time, provide quick feedback, and personalize learning according to students' needs. As stated by the principal, vice principal of curriculum, Islamic religious education teacher, and ICT teacher, as follows:

The main advantage of this technology is that it allows teachers to closely monitor students' progress, provide quick feedback, and personalize learning according to each student's needs. Students also become more independent and responsible in the learning process.

2. Digital technology mirrors the nervous system: fast, adaptive, and personal

The integration of digital technology at SMPN 1 Kencong, particularly Google Classroom and digital attendance applications, has positively impacted adaptive and responsive learning. These technologies facilitate real-time monitoring of student progress, speed up feedback, and encourage students to improve their learning immediately. This reflects an interactive, individualized approach to learning. According to the vice principal of curriculum and the ICT Teacher, the SMPN 1 Kencong curriculum is flexible and open to technology. Here is the process for using Google Classroom.

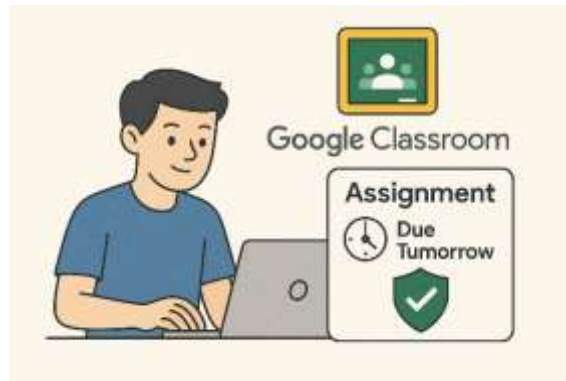


Figure 4. Illustration of a real-time assignment in Google Classroom on time



Figure 5. Illustration of students completing a real-time assignment in Google Classroom on time



Figure 6. Students receive immediate feedback on their work, and they can correct their mistakes right away



Figure 7. Google Classroom development model

Research by Hidayat (2023) emphasizes the importance of speed and accuracy in nervous system communication as a basis for designing effective, AI-based systems that support decision-making processes. Google Classroom is used at SMPN 1 Kencong not only to manage materials, but also to allow teachers to provide instant feedback and guide learning improvements. Patel (2021) compares the nervous system to an automated, precise missile defense system. Technology-based learning must respond quickly to students' needs and dynamics, much like an intelligent, efficient automated system. The integration of digital technology at SMPN 1 Kencong is transforming 21st-century learning. Here, technology is the primary instrument in building a responsive, accurate, student-centered learning system, not merely an accessory.

a. Missile automation system, identical to teacher feedback

Google Classroom and the digital attendance application at SMPN 1 Kencong are driving a transformation toward precise and responsive learning management. The school encourages teachers to provide quick feedback through academic supervision and informal policies in teacher forums. This ensures that each student receives guidance tailored to their abilities. Google Classroom's comment and notification features enable teachers to provide formative assessments and immediate corrections, aligning with a differentiated, personalized learning approach.

In the Islamic perspective, the automation of the nervous system is not just a biological phenomenon; it is a sign of God's greatness (*ayat kauniyah*) that affirms the perfection of creation (*tadbir*). The Qur'an implicitly refers to this complexity in Surah Al-Infithaar: 6–8, which discusses "the gradual creation of humans until perfection," including the integration of the nervous system as the control center (T. Kumar et al., 2020). Furthermore, technology such as automatic control systems should be used to strengthen the epistemology of tawhid, where scientific progress becomes a means to deepen knowledge of Allah and ecological responsibility. This integration avoids the

dichotomy between secular and spiritual sciences by forming a framework of “adab-oriented technology” that aligns with the objectives of sharia (Fauzan & Asrori, 2025).

b. Google Classroom as a guidance system and control system

Integrating Google Classroom and digital attendance applications has positively impacted learning effectiveness. Teachers can now monitor student attendance and progress in real time, provide quick feedback, and design personalized learning plans tailored to each student’s needs. As a result, the learning process becomes more adaptive, responsive, and precise while encouraging student independence and responsibility. However, this implementation presents challenges, particularly regarding internet connectivity issues and device limitations among some students. Schools continue to strive to provide maximum Wi-Fi access, device assistance through committees, teacher training, curriculum adjustments, and alternative offline tasks as solutions to these challenges. These strategies reflect the education sector’s efforts to be flexible and inclusive while maximizing the advantages of digital technology.

Similar to automation systems in missile technology, where guidance and control systems work automatically and respond to field conditions (S. R. Kumar & Ghose, 2018). Similarly, modern missile systems automatically adjust their trajectory based on sensor feedback (closed-loop feedback). Google Classroom enables teachers to adjust their instruction in real time based on student progress and responses (Susanto et al., 2021). Google Classroom functions as a data-driven decision-making system, enabling teachers to swiftly take evidence-based instructional actions, similar to automated decision-making in missile technology (Endriyanto, 2023). Hidayat (2023) illustrates how the human nervous system, as a biological information system, teaches us about the importance of speed and accuracy in communication. This concept is highly relevant to the digital learning process based on Google Classroom (Zarchan, 2012).

According to Patel (2021), the principle of automation in the nervous system can serve as a foundation for student development in the technological era by emphasizing response speed and flexibility. At SMPN 1 Kencong, technology functions as an “educational nervous system” that captures and processes student data to produce customized learning responses. Wulan et al. (2023) confirm through their research that the nervous system, as a creation of God, reflects wisdom and sophistication that can serve as a model for designing technology-based educational systems. SMPN 1 Kencong’s efforts to integrate technology are also part of its monotheistic and holistic values. These values ensure that innovation in education contains spiritual values and social justice by providing access and solutions to all students.

D. CONCLUSION

Integrating human nervous system principles and missile technology into Islamic educational management significantly contributes to creating adaptive, responsive, and precise learning environments. With the help of Google Classroom and attendance apps, teachers can monitor students' progress in real time, provide prompt feedback, and adapt learning to each student's needs. This approach mirrors the nervous system's rapid response to stimuli and the way missiles adjust their trajectory based on feedback. In addition to promoting effective learning, this system fosters students' independence, responsibility, and gratitude. This study recommends strengthening teacher training and ensuring equitable access to technology. The study's novelty lies in integrating principles from the human nervous system and missile control into an adaptive, responsive Google Classroom application. However, this study is limited to one school, has not undergone quantitative testing, and still faces challenges related to devices and network infrastructure.

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