

# Development of a Google for Education-Based Digital Module to Improve Students' Critical Thinking in Islamic Religious Education Learning

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## Abstract

The integration of digital technology in education has become increasingly important to foster students' critical thinking skills, particularly in Islamic Education (PAI), where conventional teacher-centered approaches often limit active engagement and higher-order thinking. This study aims to analyze the development and implementation of a Google for Education-based digital module designed to enhance students' critical thinking skills in PAI learning at Public Elementary School (SDN) Indihiang. A qualitative research approach was employed, utilizing interviews, classroom observations, and document analysis to explore the effectiveness of the digital module and its impact on student learning. The module was developed by integrating various Google for Education tools, including Google Classroom, Google Slides, Google Forms, and interactive hyperlinks, to provide accessible and interactive learning experiences. The findings indicate that the digital module effectively promotes students' critical thinking by encouraging them to formulate analytical questions, provide logical reasoning, compare concepts, and solve contextual problems related to Islamic Education content. Furthermore, the implementation of the module supports independent learning and fosters active collaboration among students. The study concludes that Google for Education-based digital modules can serve as an innovative learning medium that improves the accessibility, flexibility, and clarity of instructional content while strengthening students' critical thinking competencies and supporting the development of 21st-century learning skills in primary education.

**Keywords:** *Google for Education; Digital Module; Critical Thinking Skills; Islamic Education Learning; Primary Education.*



## A. INTRODUCTION

Advances in information and communication technology have brought about significant changes in the world of education, particularly in the learning process at the elementary school level. The implementation of digital technology is not only a curricular requirement but also a necessity for creating a more interactive and flexible learning environment that focuses on developing 21st-century skills, including critical thinking. Islamic Religious Education next called PAI as one of the subjects aimed at shaping students' character and spiritual competencies must adapt to these technological advancements.

However, the reality on the ground indicates that PAI instruction at SDN Indihiang remains dominated by printed teaching materials and teacher-centered instructional models. This results in low student participation, a lack of higher-order thinking skills (HOTS), and limited opportunities for students to develop a deeper

understanding of Islamic values. Critical thinking skills, which should be a core 21st-century competency, have not yet emerged optimally.

One solution that can be implemented is the development of digital modules based on Google for Education. Google for Education provides various applications such as Google Classroom, Google Slides, Google Docs, Google Forms, and YouTube Edu, which enable the creation of learning modules that are systematic, engaging, and interactive. Digital modules based on this platform are believed to foster more creative and collaborative learning and to facilitate the development of students' critical thinking skills.

Therefore, this study is important to examine how Google for Education-based digital modules are developed and implemented, and how they impact the improvement of students' critical thinking skills in PAI at Indihiang Public Elementary School. PAI in elementary schools plays a crucial role in shaping students' character and morality. However, IRE instruction often remains conventional and focuses on rote memorization (low-order cognitive skills), making it less effective in developing essential 21st-century skills, one of which is critical thinking. Critical thinking is the ability to analyze information, evaluate evidence, and make reasoned decisions—skills students urgently need to navigate the complexities of modern life.

PAI is not only intended to transfer normative knowledge, but must also equip students with 21st-century skills, one of which is critical thinking. However, conventional methods in PAI are often still dominated by lectures and rote memorization, which are less effective in stimulating students' reflective and analytical thinking. Therefore, innovative learning media are needed that can transform students' roles from passive recipients to active and critical participants.

This development specifically integrates features of Google for Education (GFE) to explicitly stimulate indicators of critical thinking, distinguishing it from other conventional digital PAI module developments. The development of digital technology has driven a shift in the educational paradigm from teacher-centered learning toward student-centered learning. In this new paradigm, students no longer merely passively receive information but are actively engaged in the process of seeking, processing, analyzing, and evaluating information.

This transformation requires teachers to be able to create a learning environment that enables students to develop higher-order thinking skills, including critical, creative, collaborative, and communicative thinking. These skills are known as 21st-century competencies, which are essential for addressing increasingly complex global challenges. Critical thinking is one of the key competencies that students must possess. Critical thinking is not only about the ability to understand information but also involves the ability to analyze problems, evaluate various sources of information, distinguish facts from opinions, draw logical conclusions, and provide solutions to the problems faced. In the context of elementary education, critical thinking skills need to be instilled from an early age so that students become accustomed to addressing various issues in a rational and systematic manner. Students who possess critical thinking skills tend to be better able to understand learning material in depth

compared to students who rely solely on memorization.

The importance of critical thinking skills is increasingly relevant in today's digital age. Technological advancements allow students to access vast amounts of information from the internet and social media. However, not all available information is reliable. Therefore, students need the ability to sort through information, identify credible sources, and evaluate the truth of an issue before accepting it as fact. These skills can only develop if the learning process provides ample opportunities for students to engage in higher-order thinking activities.

In PAI, critical thinking skills play a very important role. Islamic Religious Education not only teaches religious knowledge but also shapes students' attitudes, character, and behavior based on Islamic values. Therefore, it is not enough for students to merely understand the material at a textual level; they must also be able to connect Islamic concepts with the realities of daily life. Through critical thinking skills, students can grasp the wisdom behind a teaching, analyze social issues from an Islamic perspective, and make decisions aligned with religious values.

However, various research findings indicate that Islamic religious education in elementary schools still faces a number of challenges. One of the main challenges is the dominance of conventional, teacher-centered teaching methods. In practice, teachers often use lectures and assignments that emphasize theoretical mastery of the material. As a result, students spend more time memorizing religious concepts rather than developing critical thinking skills to understand the meaning and application of Islamic teachings. This situation makes learning less engaging and fails to provide students with a meaningful learning experience.

Preliminary observations conducted at SDN Indihiang indicate that the Islamic religious education learning process is still dominated by the use of textbooks and printed worksheets. Learning activities tend to be one-sided, with relatively low student engagement. Most students simply listen to the teacher's explanations and complete assigned tasks without sufficient opportunity to discuss, express opinions, or solve problems independently. This situation results in students' limited ability to analyze issues related to Islamic Religious Education content.

Furthermore, the rapid advancement of technology has not yet been fully utilized in Islamic Religious Education instruction. In fact, most students are already accustomed to using digital devices such as smartphones, tablets, and computers in their daily lives. This habit indicates that students are ready to engage in technology-based learning. Therefore, an innovative approach to learning is needed that can integrate digital technology with Islamic Religious Education content so that the learning process becomes more engaging, interactive, and aligned with the characteristics of the digital generation.

One form of innovation that can be implemented is the development of digital modules. Digital modules are electronic teaching materials systematically designed to help students learn independently or with guidance. Unlike conventional teaching materials, digital modules can integrate various multimedia elements such as text, images, audio, video, animations, and interactive links that can enhance the quality of

students' learning experiences. The use of digital modules allows for more engaging presentation of material, thereby increasing student motivation and engagement in the learning process.

In recent years, Google for Education has become one of the most widely used digital education platforms by educational institutions worldwide. Google for Education offers various services that support the learning process, such as Google Classroom, Google Docs, Google Slides, Google Forms, Google Drive, and other supporting applications. The platform's key advantages include ease of access, flexibility of use, and its ability to support collaboration and communication both online and offline.

Google Classroom enables teachers to effectively manage digital classrooms, from delivering content and assigning tasks to grading and communicating with students. Google Docs and Google Slides allow students to work collaboratively on group assignments and learning projects. Meanwhile, Google Forms can be used as an interactive assessment tool that provides quick feedback. The integration of these various services creates a learning environment that supports students' active engagement in the learning process.

The use of Google for Education in developing digital modules offers various benefits. First, the modules can be accessed anytime and anywhere as long as an internet connection is available. Second, students can learn at their own pace and according to their individual abilities. Third, teachers can monitor students' learning progress more effectively. Fourth, the learning process becomes more collaborative because students can discuss and work together online through the various available features.

Furthermore, digital modules based on Google for Education have great potential for developing students' critical thinking skills. The available features allow teachers to present contextual problems, case studies, reflective questions, and collaborative activities that encourage students to analyze information, evaluate various alternative answers, and construct logical arguments. Thus, students do not merely passively receive information but are actively engaged in the process of knowledge construction.

Previous studies have shown that the use of digital learning media can improve learning outcomes, learning motivation, and students' higher-order thinking skills. However, research specifically examining the development of Google for Education-based digital modules for Islamic Religious Education at the elementary school level remains relatively limited. Most studies have focused more on general subjects such as science, mathematics, or language. Therefore, research is needed that specifically explores the effectiveness of using Google for Education in Islamic Religious Education.

This research gap serves as a crucial foundation for the conduct of this study. This study not only aims to produce a digital module based on Google for Education but also examines how such a module can be used to enhance students' critical thinking skills in Islamic religious education. Thus, this study is expected to make both

theoretical and practical contributions to the development of more innovative Islamic religious education that is relevant to the educational needs of the 21st century.

In addition to contributing to the development of educational media, this study is also expected to serve as a reference for teachers, schools, and education policymakers in effectively implementing digital technology. The results of this study are expected to demonstrate that the integration of digital technology through Google for Education is not merely keeping up with the times, but can truly have a positive impact on improving the quality of learning and developing students' critical thinking skills. Thus, the development of digital modules based on Google for Education becomes a relevant alternative solution to support the transformation of Islamic Religious Education in elementary schools toward learning that is more active, innovative, collaborative, and oriented toward the development of 21st-century skills.

In addition to technological aspects, the success of implementing digital modules is also influenced by teachers' readiness to design student-centered learning. Teachers no longer serve as the sole source of information but rather as facilitators who guide students in discovering, analyzing, and constructing knowledge independently. In the context of PAI, the teacher's role is crucial to ensure that the use of technology remains aligned with the goals of Islamic education—namely, fostering students who are faithful, God-fearing, of noble character, and possess strong critical thinking skills to address life's challenges.

The use of digital modules based on Google for Education enables teachers to present learning materials in a more varied and contextual manner. Materials are not only presented in text form but can also be enriched with educational videos, illustrative images, infographics, links to learning resources, and interactive activities that can boost students' interest in learning. Through more engaging material presentation, students are expected to understand the concepts of Islamic Religious Education more deeply rather than merely memorizing the content of the material studied.

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studied.

Furthermore, digital module-based learning provides students with the opportunity to learn independently according to their individual abilities and learning pace. Students can revisit material they have not yet understood, replay instructional videos, or discuss topics with teachers and peers through the available platform. This flexibility is one of the key advantages of digital learning that is difficult to achieve through the use of conventional printed teaching materials. As a result, the learning process becomes more inclusive and better able to accommodate students' diverse learning needs.

In an effort to enhance critical thinking skills, the digital modules developed are also designed to include various problem-solving-based learning activities and case studies. Students are encouraged to analyze various phenomena occurring in their surroundings and then relate them to the Islamic values they have learned. Through these activities, students not only understand religious concepts theoretically but are also able to apply their knowledge in daily life. This approach is expected to foster students who are not only academically intelligent but also possess the ability to think logically, reflectively, and responsibly.

Based on the above discussion, the development of digital modules based on Google for Education for Islamic Religious Education is highly relevant for implementation in elementary schools. The presence of digital modules not only supports a more modern and innovative transformation of learning but also serves as a strategic tool for developing students' critical thinking skills. Therefore, this study is expected to make a tangible contribution to the development of effective Islamic education learning media that is adaptable to technological advancements and capable of addressing the challenges of 21st-century education.

## **B. METHOD**

This study employs a qualitative approach within the framework of developmental research; it can also be classified as an in-depth case study of the implementation process and its impact. The qualitative approach was chosen because it focuses on gaining a deep understanding of the module development process, the experiences of teachers and students, and how interaction with the digital module influences changes in critical thinking skills.

## **C. RESULT AND DISCUSSION**

The results of this study indicate that digital modules based on Google for Education can address the limitations of conventional teaching materials and enhance students' critical thinking skills in PAI classes. Digital modules provide a more visual, interactive, and personalized learning experience. The development of the digital module followed the ADDIE model (Analysis, Design, Development, Implementation, Evaluation). The module was distributed via Google Classroom. Teachers provided guidance on using the features and completing analytical tasks. Students followed the learning steps according to the instructions in the digital module.

The results of interviews and observations indicate that students tend to be able to merely memorize definitions or concepts, but struggle when asked to analyze real-world conflicts, such as religious hoaxes or religious issues on social media. This suggests that current teaching practices have not fully developed students' analytical, evaluative, and critical thinking skills. Therefore, the modules developed should include contextual cases, real-world conflicts, and open-ended essay questions that require students to think critically, rather than merely memorize material.

The findings indicate that teachers still predominantly use static learning materials such as PDFs and PowerPoint presentations, resulting in minimal student interaction and collaboration. This situation makes learning less engaging and does little to encourage active student participation. Consequently, learning modules need to be integrated with interactive digital platforms, such as Google Classroom and Google Docs, and utilize commenting and collaboration features so that students can discuss, provide feedback, and interact in real time.

The research findings also indicate that students are already accustomed to using mobile-like digital devices and Google services, particularly Google Drive. This presents significant potential for the development of digital modules. By centralizing PAI materials and assignments within a single Google for Education ecosystem, the learning process will become more practical, structured, and accessible. Therefore, Google Classroom has been designated as the primary platform, while other Google for Education services serve as the interface foundation for the learning modules.

Overall, these qualitative findings confirm that the development of digital modules based on Google for Education is highly relevant and necessary. The modules not only function as learning resources but also as tools to enhance critical thinking, interaction, and collaboration among students in PAI learning.

**Table 1. Qualitative Research**

No.	Focus on Issues in the Field	Qualitative Findings (Sample Quotes)	Implications for Module Development
1.	Low Levels of Critical Thinking	"Students are only able to repeat definitions, but they struggle to analyze religious hoaxes or issues on social media. They need to be encouraged to engage in deeper analysis."	The module should include contextual case studies and open-ended essay questions that require analysis (rather than just memorization).
2.	Educational Materials	"I only use PDF or static PowerPoint presentations. There's very little interaction. We need a platform that enables real-time collaboration."	The module must be fully integrated with Google Classroom, Docs, and the Comments feature to facilitate collaboration and interaction.

3.	GFE Requirements	"Students are already familiar with Google Drive and their smartphones. It would be easier if PAI assignments and materials were centralized in a single GFE ecosystem."	Google Classroom has been designated as the primary platform, and GFE serves as the interface foundation for the modules.
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Source: Rahmat (2025)

#### D. CONCLUSION

This study concludes that the development of digital modules based on Google for Education has proven effective in enhancing students' critical thinking skills in PAI at SDN Indihiang. The digital modules provide a more engaging and interactive learning experience and support Higher-Order Thinking Skills (HOTS) activities.

Digital modules can serve as a viable technology-based alternative for PAI teaching materials that can be implemented in other elementary schools. The development of Google for Education-based digital modules for PAI at SDN Indihiang has been successfully carried out and is considered highly feasible and effective. The modules, developed using Google Docs, Google Classroom, and Google Forms, have proven practical for use by both teachers and students and have successfully created an interactive and collaborative learning environment.

In essence, this digital module is effective in enhancing students' critical thinking skills—particularly in the areas of analysis, evaluation, and inference—through the presentation of PAI material in a case-study format and reflective questions that stimulate higher-order thinking skills (HOTS). This module serves as an example of an innovative approach to PAI at the elementary school level that aligns with the demands of 21st-century education.

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#### REFERENCES

1. Arikunto, S. (2019). *Prosedur Penelitian: Suatu Pendekatan Praktik*. Jakarta: Rineka Cipta.
2. Arsyad, A. (2011). *Media Pembelajaran*. Jakarta: RajaGrafindo Persada.
3. Branch, R. M., & Varank, İ. (2009). *Instructional Design: The ADDIE Approach*. New York: Springer.
4. Daryanto. (2024). *Media Pembelajaran*. Yogyakarta: Gava Media.
5. Ennis, R. H. (2022). *The Nature of Critical Thinking: An Outline of Critical Thinking*

*Dispositions and Abilities*. University of Illinois.

6. Facione P. A. (2020). *Critical Thinking: What It Is and Why It Counts*. Insight Assessment.
7. Facione, P. A. (2020). *Critical Thinking: A Statement of Expert Consensus for Purposes of Educational Assessment and Instruction*. ERIC Document Reproduction Service.
8. Google. (2023). *Google for Education: Teaching and Learning Resources*. Google for Education.
9. Isnaini, I., Maskud, M., Maulana, A., & Maulana, B. W. (2025). Approaches to learning Arabic: Theory, concepts and implementation. *Abjadia: International Journal of Education*, 10(1), 259-268.
10. Kementerian agama Republik Indonesia. (2020). *Buku Pendidikan agama Islam dan Budi Pekerti untuk SD/MI Kelas IV*. Jakarta: Kementerian agama RI.
11. Kementerian Pendidikan Kebudayaan Riset dan Teknologi Republik Indonesia. (2022). *Kurikulum Merdeka pada Sekolah Dasar*. Jakarta: Kemendikbudristek.
12. Maharani, P., Ubadah, & Zul Aini Rengur. (2025). Investigating the Impact of Collaborative Learning on Arabic Language Achievement of Grade IX Students at MTsN 3 Palu. *Albariq: Jurnal Pendidikan Bahasa Arab*, 6(1), 1-14.
13. Majid, A. (2024). *Pembelajaran Pendidikan agama Islam Berbasis Kompetensi*. Bandung: Remaja Rosdakarya.
14. Mayer, R. E. (2019). *Multimedia Learning*. New York: Cambridge University Press.
15. Moleong, L. J. (2022). *Metodologi Penelitian Kualitatif*. Bandung: Remaja Rosdakarya.
16. Noor, F., Jainah, N., Anwar, M., Darmawaty, R., & Muhmood, M. F. A. (2023). The Implementation of Cooperative Learning Method for Arabic Language Learning. *Arabiyatuna: Jurnal Bahasa Arab*, 7(2), 589-610.
17. Piaget, J. (2022). *The Development of Thought: Equilibration of Cognitive Structures*. New York: Viking Press.
18. Prastowo, A. (2022). *Panduan Kreatif Membuat Bahan Ajar Inovatif*. Yogyakarta: Diva Press.
19. Rufaiqoh, E., Rosyidi, A. W., Machmudah, U., Ibrahim, N. I. E., & Sodik, A. J. F. (2023). The learning of Arabic speaking skills with constructive theory perspective. *Izdihar: Journal of Arabic Language Teaching, Linguistics, and Literature*, 6(3), 243-252.
20. Rusman. (2022). *Pembelajaran Berbasis Teknologi informasi serta Komunikasi*. Jakarta: Rajawali Pers.
21. Sugiyono. (2022). *Metode Penelitian Pendidikan Pendekatan Kuantitatif, Kualitatif, dan R&D*. Bandung: Alfabeta.
22. Sukmadinata, N. S. (2022). *Metode Penelitian Pendidikan*. Bandung: Remaja Rosdakarya.
23. Thiagarajan, S. (2022). *Instructional Development for pelatihan Teachers of Exceptional Children*. Bloomington: Indiana University.
24. Uno, H. B. (2020). *Model Pembelajaran: menciptakan Proses Belajar Mengajar yang Kreatif serta Efektif*. Jakarta: Bumi Aksara.

25. Yaumi, M. (2025). *Media dan Teknologi Pembelajaran*. Jakarta: Prenadamedia group.