


Development of the Adably (*Akhlak Dan Adab Daily*) Website Based on Gemini Canvas for Sixth-Grade Elementary School Students

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Article Info	ABSTRACT
<p>Article history: Received Apr 14, 2026 Revised Apr 20, 2026 Accepted Apr 20, 2026 Online First Apr 21, 2026</p> <p>Keyword: AdabLy Website Gemini Canvas Character Education Digital Learning Resources Elementary School</p>	<p>Purpose of the study: The purpose of this article is to describe the development process of the Adably website, built using Gemini Canvas, as a learning tool for sixth-grade elementary school students; evaluate its suitability as a medium for teaching ethics and etiquette; and analyze students' responses to its use in the learning process.</p> <p>Methodology: This Research and Development (R&D) study employed ADDIE model. The software used included Gemini Canvas, Canva, S.id, and Youtube. Data collection instrument consisted of interviews, expert validation sheets, and learning outcome tests (pre-test and post-test). Data analysis techniques utilized descriptive statistics and N-gain score formula. Product feasibility was determined using a percentage formula based on Likert-scale expert assessments.</p> <p>Main Findings: Validation results confirmed the AdabLy platform is highly suitable, scoring 95% from media experts and 98.75% from content experts. The implementation showed an improvement in student learning outcomes, with the average score rising from 39,26 to 84,07. This improvement was confirmed by N-gain score calculation and graphical analysis showing post-test score consistently exceeding pre-test score. The platform effectively enhanced student motivation and active engagement through interactive features.</p> <p>Novelty/Originality of this study: This study addresses conventional Islamic education in elementary school limitations that hinder moral development. The novelty lies in integrating the AI-based Gemini Canvas platform with moral content into an interactive website. This advances character education by providing a contextual, dynamic alternative to traditional materials, essential for fostering deep internalization of values in the Society 5.0 era.</p> <p style="text-align: right;"><i>This is an open access article under the CC BY license</i></p> 
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1. INTRODUCTION

The development of digital technology in the Society 5.0 era has brought substantial changes to education, expanding access to interactive and technology mediated learning environments at all levels of schooling [1], [2]. In the context of Indonesian elementary schools, increased student access to internet connected devices has made digital-based learning an integral component of effective instruction [3]. Within this context, Islamic Religious Education (IRE) occupies a central role in forming students' character, as it aims to cultivate *akhlak* (moral character) and *adab* (ethical conduct) that are applied in students' daily lives [4]. However, IRE instruction at the elementary school level continues to rely predominantly on conventional, lecture-based methods and rote memorisation, which are insufficient for facilitating the deep internalisation of moral values in behaviour [5], [6]. Today's students, who are accustomed to visual and interactive media, are less engaged by such approaches,

resulting in moral learning that remains at the cognitive level rather than being reflected in everyday conduct [7]. The absence of contextually relevant, interactive digital learning media for *akhlak* and *adab* instruction therefore constitutes a meaningful obstacle to achieving the pedagogical objectives of IRE at the elementary school level [8].

Prior research has established the positive effects of technology integration in religious and character education. The use of gamification and interactive digital media in IRE has been shown to increase students' learning motivation and to strengthen the internalisation of character values, particularly among Generation Z learners [9]. Digital learning strategies that combine storytelling, interactive content, and game-based elements have also proven effective in making Islamic character education more engaging and comprehensible for elementary students [10], [11]. Ref. [12] further confirmed that interactive game-based media designed specifically for moral education at the elementary level significantly improves students' understanding and internalisation of virtuous values. The integration of artificial intelligence (AI) tools in developing PAI learning media has likewise been identified as a promising direction, given its capacity to generate adaptive and contextually rich educational content [13], [14]. Other studies affirm that technology-based character education can serve as a meaningful response to the moral challenges facing the younger generation [15]. Despite these advances, the existing body of research has not yet produced an interactive website-based learning medium that specifically addresses *akhlak* and *adab* education for sixth-grade elementary students and utilises an AI platform such as Gemini Canvas as the primary development tool [3], [5], [9]-[11]. This gap in the literature motivates the present study.

To address this gap, this study developed the AdabLy (*Akhlak dan Adab* Daily) website, a digital learning medium for sixth-grade students at Public Elementary School Cibereum 1, Sumedang Regency. The platform was built using Gemini Canvas, an AI-based interactive workspace that supports the real-time creation of dynamic digital learning content [14]. AdabLy integrates structured learning materials on Islamic ethics and etiquette, educational drag-and-drop classification games, Higher-Order Thinking Skills (HOTS)-based competency assessments, and reflective activities within a single accessible link, providing a learning environment that is both technologically engaging and aligned with the IRE curriculum for Phase C [5]-[8]. The development followed the Research and Development (R&D) methodology using the ADDIE model, ensuring that the resulting medium is pedagogically valid, content-accurate, and empirically tested for effectiveness [13].

This study therefore aims to: (1) develop the AdabLy website using Gemini Canvas as an AI-based digital learning medium for *akhlak* and *adab* education in sixth-grade IRE; (2) assess the validity of the AdabLy platform based on evaluations by media and content experts; and (3) examine the effectiveness of AdabLy in improving student learning outcomes. The novelty of this study lies in the specific use of Gemini Canvas to develop an integrated, website-based moral education platform tailored to the content and learning objectives of the Phase C IRE curriculum, an approach that has not been previously reported in the literature. This contribution advances the development of innovative IRE learning media suited to the demands of the Society 5.0 era and provides a practical model that educators can adapt for character education in digital learning environments [1], [3], [4].

2. RESEARCH METHOD

2.1 Types of Research

This study aims to develop an educational medium in the form of a website named "AdabLy" on Ethics/Morals/Ethical Conduct from an Islamic Perspective. This study used a one-group pretest-posttest design to measure the effectiveness of the AdabLy website on student learning outcomes. The research method applied in this study is research and development (R&D), a method used to produce a specific product and test its effectiveness [16]. The development model used is the ADDIE model, which includes the stages of analysis, design, development, implementation, and evaluation [17]. The ADDIE model is a general learning model suitable for use in research and development [18].

2.2 Population and Research Sample

The population of this study consists of sixth-grade students at Public Elementary School Cibereum 1. The sample consists of 27 students who were present on the day of the study, the Islamic Religious Education teacher who served as the subject matter expert, and the homeroom teacher who served as the media expert. The learning outcome test instruments were validated by expert judgment prior to use. The validation sheets for media and content experts used a Likert scale of 1-4, with a feasibility threshold of $\geq 61\%$.

2.3 Data Analysis Techniques

Data were collected through interviews, expert validation forms, and pre-test and post-test questionnaires. The questionnaires consisted of 5 pre-test questions and 10 post-test questions. The implementation of these instruments is expected to yield standardized data, thereby facilitating the analysis process and enabling objective measurement. Data were analyzed using descriptive statistics (mean, median, minimum, maximum) to describe

learning outcomes. To measure the improvement in student learning, the N-gain score formula was applied: $N\text{-gain} = (100 - 80) / 80$. Expert validation data were analyzed using a percentage formula to determine the feasibility category of the product.

2.4 Research Procedures

This study employs the ADDIE model, which focuses on analysis, design, development, implementation, and evaluation. The ADDIE model serves as a guideline for developing effective, dynamic learning materials that support the learning process itself [19].

The first stage, analysis, was conducted to identify the field [20]. This activity was carried out through interviews with Islamic Religious Education teachers at Public Elementary School Cibereum 1. The interview results showed that the facilities and infrastructure at the school were adequate, as evidenced by the presence of a smart board; however, the utilization of these facilities was still lacking due to the absence of engaging and interactive learning media. The lack of engaging and interactive learning media can lead to a decline in student enthusiasm and make the learning process less effective, which aligns with the opinion in [17].

The second stage is the design phase, which follows the analysis. The design steps carried out by the researcher are as follows: 1) identifying the Learning Outcomes for the Islamic Religious Education subject in 6th grade elementary school regarding the topic of Ethics/Morals/Character from an Islamic Perspective, 2) formulating Learning Objectives in accordance with the Learning Outcomes, 3) developing instructional materials in accordance with the Learning Outcomes and Learning Objectives, 4) beginning to input coding prompts into Gemini Canvas, 5) designing the website homepage using s.id, 6) designing a video demonstrating website usage using the Canva app, 7) recording voice-over narration for the website usage video, 8) uploading the website usage video to YouTube, 9) adding the YouTube link to the website homepage.

The third stage is development; in this stage, the researcher designs the previously created materials into a learning resource that can be used by 6th-grade students at Public Elementary School Cibereum 1. In this stage, the researcher uses Gemini Canvas, Canva, and S.id as the tools used to create the AdabLy website.

The fourth stage is implementation. Once the website has been approved by the course instructor, the next step is to conduct a validity test with experts: an Islamic Religious Education teacher as the subject matter expert and a homeroom teacher as the media expert. Following the validity test, the next step is to implement the product with sixth-grade students at Public Elementary School Cibereum 1, which took place on March 10, 2026.

The fifth stage is evaluation. At this stage, the researcher assesses whether the website that has been created meets the standards. In addition, feedback and suggestions from the course instructor, subject matter experts, and media experts can be used as input for the evaluation to improve the quality of the product.

The product is considered valid if the expert validation score reaches $\geq 61\%$ (recommended category). The learning media is considered effective if the average N-gain score is ≥ 0.3 (medium category) or higher.

3. RESULTS AND DISCUSSION

The website developed in this study is named AdabLy, an acronym for “Akhlik Adab Daily,” and serves as an educational website-based digital learning platform. This learning platform is designed to help sixth-grade elementary school students learn and understand Islamic Religious Education (IRE) material, particularly regarding ethics and etiquette in daily life. Innovative approaches to Islamic education learning can be implemented by utilizing learning media or innovative learning processes based on internet technology [21]

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The AdabLy learning medium was developed using Gemini Canvas, leveraging digital technology to create a more interactive, engaging, and enjoyable learning experience for students. The research findings are explained based on the media development process using the ADDIE model, from the analysis stage to the evaluation stage, along with an in-depth discussion of the effectiveness of the created media. In the initial stage of developing the AdabLy website learning media, the researcher conducted an analysis and identification of needs through a literature review and an analysis of the curriculum implemented at the elementary school level, particularly in the Islamic Religious Education (IRE) subject for sixth grade.

The results of the curriculum analysis indicate that material on ethics and etiquette in daily life is one of the most important topics for students to master and understand. This material focuses not only on knowledge but also on shaping students' attitudes and behavior in their daily lives. Therefore, there is a need for instructional media that can present this material in a way that is engaging and easy for students to understand. Furthermore, based on a literature review, it is known that the use of digital learning media can increase student motivation and engagement during the learning process; this is consistent with the research by A. Ali [22], in which the use of interactive learning media was found to be effective in increasing the interest and motivation of elementary school

students to learn. By making abstract concepts more concrete and creating engaging learning experiences, this medium is able to encourage students' active participation in learning. Furthermore, according to the results of F.R. Dinata's [23] research on AI-based interactive media in Islamic Education Islamic education learning, it was shown that students found the media engaging, easy to use, and helpful in understanding Islamic education material more clearly; in addition, learning became more enjoyable and less boring. Rapid technological advancements have driven a transformation in the learning process, where the use of digital media has become one of the solutions to improve the quality of learning. This is supported by J.I. Sawitri [24], who states that interactive learning media, particularly those based on technology, tend to be more engaging and enjoyable for students, especially younger generations who are already very accustomed to using gadgets and digital devices.

Based on this analysis, it was concluded that there is a need to develop interactive digital learning media tailored to the characteristics of elementary school students. Therefore, the AdabLy website was developed; this website not only presents material on ethics and manners but is also equipped with various engaging features, such as educational games and animated videos. It is hoped that with this learning platform, Islamic Religious Education in elementary schools will become more engaging and interactive, thereby supporting the achievement of learning objectives. This analysis phase serves to design learning materials that meet the needs of both students and teachers.

The researchers then planned and designed the content of the website and its layout. The AdabLy educational media design concept was developed as an educational website to make it easier for students to access materials on ethics and etiquette, presented in an engaging and interactive manner. This interactive educational website has been proven to enhance independent learning and motivation among elementary school students in Indonesia. [25]

The AbabLy *website* is designed with ease of use and flexible access in mind, as it can be accessed via both laptops and smartphones. To access the AbabLy website, users can visit the following link <https://s.id/Adably>.

This resource is specifically designed for sixth-grade elementary school students; therefore, the materials on the website align with Phase C of the Islamic Religious Education and Character Development curriculum. The goal is for students to understand that noble character is the key to happiness in this world and the hereafter, and to consistently practice it in their daily lives through proper conduct toward Allah SWT, their fellow human beings, and the environment. Through moral education, it is hoped that students' faith can be developed and strengthened, as reflected in noble behavior [26]

In developing this website, AI-based Gemini Canvas was utilized, particularly for creating the educational content. Gemini Canvas served as a workspace for generating commands and inputting learning materials. Additionally, in developing the AdabLy website, the researcher leveraged other supporting platforms such as Canva, which was used as a tool to design visually appealing graphic elements for the AdabLy website. Canva is a graphic design platform that allows users to easily combine visual elements, text, and graphics, thereby stimulating creativity in presenting engaging and easily understandable learning content [27]. Furthermore, S.id was used to integrate several components, including the educational content website, an animated video user guide, and other components [28].

The AdabLy website consists of several components. The first is the home page, which contains important information such as learning outcomes and objectives, a guide to using the website, the content section, the university's address, contact information to facilitate communication, and the development team—including details on who was involved in creating the website.

The content section is the main component of the AbadLy website. On the initial screen, there are several menus, including the content menu, which contains a comprehensive discussion on proper conduct toward Allah SWT, toward fellow human beings, the environment, and reprehensible moral behavior. The second menu is an educational drag-and-drop game, where students match examples of reprehensible and praiseworthy moral behaviors into the appropriate categories; this mechanism was chosen because direct interaction with visual objects has been proven to intuitively enhance students' active engagement and understanding in the learning process [29]. The third menu is the Competency Test, which contains questions to practice and assess students' understanding. The final menu is Reflection, a space for students to record their commitments, plans, and concrete actions as a manifestation of applying moral values in daily life.

During the development phase, all previously prepared concepts and designs are being realized in the form of the final product, namely a website.

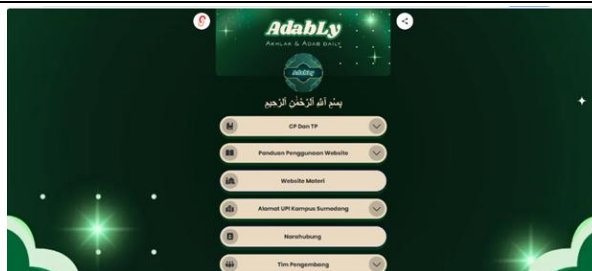


Figure 1. AdabLy homepage



Figure 2. Overview of the CP ATP Feature and User Guide

The CP and ATP features include the learning outcomes for Phase C of the Islamic Religious Education and Character Education curriculum, as well as the specific learning objectives to be achieved in the lessons. The user guide is presented in the form of an animated video to make it more engaging and easier for students to understand.



Figure 3. Screenshot of the UPI Address feature and the Development Team feature

The CP and ATP features include the learning outcomes for Phase C of the Islamic Religious Education and Character Education curriculum, as well as the specific learning objectives to be achieved in the lessons. The user guide is presented in the form of an animated video to make it more engaging and easier for students to understand.

The “Competition Test” menu contains questions designed to assess students' understanding. After completing all the questions, the score will be displayed, along with an analysis and explanation of the correct and incorrect answers. The website also features an educational drag-and-drop game where students must categorize examples of reprehensible behavior and commendable behavior.

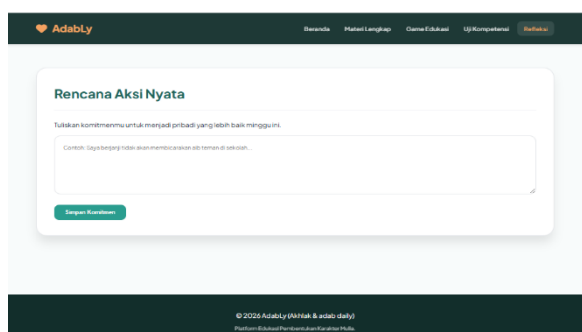


Figure 8. Reflection Menu Screen

The final menu on the educational materials website is “Reflection,” which involves students documenting their commitments, plans, and actions as a tangible manifestation of the implementation of etiquette and moral values in daily life.

The implementation phase the process of applying and testing the AbabLy website as a learning tool for the Islamic Religious Education (IRE) subject at Public Aelementary School Cibeureum 1 in Cimalaka Subdistrict, Sumedang Regency proceeded smoothly. The number of respondents involved was 27 sixth-grade students as research subjects. The learning process, conducted over several sessions, began with a pre-test, an introduction and explanation of the product, educational games, and a post-test. The trial was conducted using a smartboard and laptops; during the educational games, students took turns trying them out using the research laptops. Throughout the learning activities, the students appeared enthusiastic and focused.

The media evaluation process consists of media and content validity tests to assess the functionality and quality of the AdabLy website. The evaluation is conducted by submitting the product link and validation sheet to media and content experts. After reviewing the materials, the media and content experts conduct the evaluation and provide feedback and notes on the validation sheet provided by the research team. The results of the AdabLy website media validity test can be seen in the table below.

Table 1. Product Validation Results by Media Experts

No	Indicators	Assessment Criteria	Skor
1.	Product Suitability	The product design aligns with the characteristics of the students	4
		The colors used align with the content of the material	4
		The characters/images used align with the content of the material	2
		The font size is appropriate (not too large and not too small)	4
		The font type is appropriate for the students' age	4
2.	Product Appearance	The product design is appealing	4
		The images are clear	4
		The color composition is appealing	4
		Sound/audio is clear	2
		The product includes instructions for use	4
3.	Ease of Access	The buttons on the product work	4
		There are various accessible menus	4
		The product can be used anywhere	4
		The product is child-friendly	4
4	Positive Impact indicators	The product motivates students to study diligently	4

No	Indicators	Assessment Criteria	Skor
	Product Suitability	The product motivates students to care for the environment and others	4
		The product motivates improvements in the quality of worship	4

Based on the validation test results and the data in Table 2, this product received a good score, though with some notes for revision. The notes pertain to the audio, which was deemed unclear, and the illustrations, which were deemed inconsistent with the content. Therefore, improvements are needed in these areas so that the AdabLy website's learning materials can be used more effectively and to their full potential in the learning process. The rating scale in the table above ranges from 1 to 3.

Table 2. Percentage of Product Suitability According to Media Experts

Indicators	Maximum Score	Maximum Score
Product Suitability	20	18
Product Appearance	20	18
Ease of Access	20	20
Positive Impact	20	20
Total	80	76
	Percentage	95%

Table 3. Product Feasibility Categories

Percentage	Category
81–100%	Highly Recommended
61–80%	Recommended
41–60%	Fair
≤40%	Unfit

Table 2 details the calculation of the percentage of the total score assigned by media experts. In this table, the maximum total score is 80, while the total score obtained in the evaluation of the AdabLy website is 95% of 100%. Table 3, which outlines the product suitability categories, indicates that the AdabLy platform falls into the “highly suitable” category for use as an educational tool, as it achieved a score of 95%.

Table 4. Product Validation Results by Subject Matter Experts

No	Indicator	Assessment Description	Score
1.	Relevance of the material	Alignment of the material with learning outcomes	4
		Alignment of the material with learning objectives	4
		Alignment of the material with student characteristics	4
		Alignment of the material with the main topic	4
		Alignment of the material with the grade level	4
2.	The material is presented in an easy-to-understand manner	The material is presented in an easy-to-understand manner	4
		The language is easy to understand	4
		The material is presented clearly and legibly	4
		The meaning of the material is clear	4

No	Indicator	Assessment Description	Score
		The amount of material is neither too much nor too little	4
3.	Writing style	No errors in the writing of the Qur'an/Hadith	4
		No typographical errors	4
		Materials include references	3
		Proper use of capital letters	4
		Proper use of punctuation	4
4.	Positive impact	Encourages students to have good character	4
		Encourages students to study diligently	4
		Encourages students' curiosity	4
		Encourages students' empathy	4
		Encourages good habits	4

Table 5. Percentage of Product Feasibility by Subject Matter Experts

No	Indicator	Maximum Score	Score Obtained
1.	Relevance of the material	20	20
2.	Presentation of the material	20	20
3.	Writing	20	19
4.	Positive Impact	20	20
Total		80	79
Percentage		98,75	

Based on the validation results by subject matter experts, the AdabLy learning material received a score of 79 out of a maximum of 80, representing a percentage of 98.75%. These results indicate that the material presented in the learning material falls into the “highly suitable” category.

The content alignment aspect indicates that the presented content aligns with the learning outcomes, learning objectives, and characteristics of elementary school students. Additionally, regarding the presentation of the material, the delivery was assessed as easy to understand, clear, and appropriate for the students' needs. Regarding the writing aspect, no significant errors were generally found; however, it was noted that the material needs to be supplemented with references to strengthen the scientific rigor of the content. Meanwhile, regarding the positive impact aspect, the learning media was assessed as capable of encouraging students to exhibit good character, increasing their curiosity, and fostering positive habits in daily life. Thus, the AdabLy learning media is deemed highly suitable for use in the learning process.

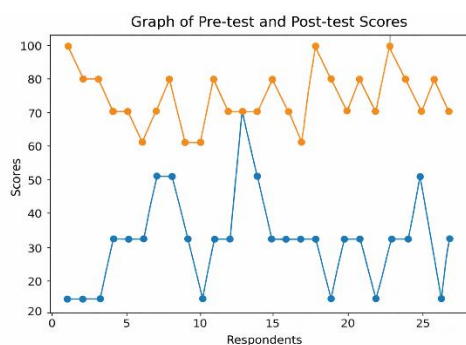


Figure 9. Graph of Pre-test and Post-test Score Data

Based on the pre-test and post-test score graphs, it can be concluded that there was a significant improvement in the students' (respondents') learning outcomes.

This is evident from the post-test graph, which consistently lies above the pre-test graph. Thus, learning using the AdabLy website can have a positive impact on improving students' understanding. In addition to graphical analysis to assess whether there are changes and improvements in the pre-test and post-test results, this can also be done using the descriptive statistical table presented below.

Table 6. Pre-test and Post-test Score Data

Description	Pre-test	Post-test
Number of data points (N)	27	27
Mean	39,26	84,07
Median	40	80
Minimum value	20	70
Maximum value	80	100
Range	60	30

Based on the descriptive statistics table, there were 27 students in the sample. The mean pre-test score of 39.26 increased to 84.07 on the post-test, representing an increase of 44.81 points. The median also rose from 40 to 80, while the minimum score increased from 20 to 70 and the maximum from 80 to 100. The range of scores decreased from 60 to 30, indicating that students' learning outcomes not only improved significantly but also became more evenly distributed following the instruction.

Based on the research, the development and implementation of the AdabLy website have successfully achieved the targeted objective of enhancing students' understanding of ethics and etiquette in daily life. Through an interactive learning approach, students not only learn theoretical concepts but also experience a more enjoyable and meaningful learning process. The development of the AdabLy website represents one form of utilizing technology as a medium for Islamic Education instruction; research findings indicate that the AdabLy website has a positive impact on enhancing students' motivation, interest, and active engagement during the learning process. This aligns with previous research stating that the use of digital technology in Islamic Education at elementary schools shows a positive trend and significant potential for enhancing student engagement, motivation, and conceptual understanding [30]. Thus, the development and implementation of the AdabLy website as a Islamic Education learning medium make a significant contribution to creating interactive learning experiences that improve the quality of education. Therefore, to improve the quality of Islamic Education learning in elementary schools, the use of the AdabLy website is highly recommended for implementation in the classroom.

4. CONCLUSION

Based on the research findings and discussion, it can be concluded that the development of the AdabLy (Akhlaq dan Adab Daily) website as a Gemini Canvas (AI)-based digital learning platform has successfully achieved its intended objectives. The implementation of the ADDIE development model resulted in an educational platform deemed highly suitable by experts, with a suitability rating of 95% and a content suitability rating of 98.75%. The use of the AdabLy website has been proven to significantly improve the understanding of sixth-grade students at elementary schools Cibureum 1 regarding the concepts of ethics and etiquette in daily life. This is demonstrated by a drastic increase in the average score from 39.26 on the pre-test to 84.07 on the post-test, as well as a more even distribution of learning outcomes. Interactive features such as drag-and-drop educational games, animated videos, and spaces for reflection on real-life actions have proven effective in enhancing students' motivation, active engagement, and interest in learning compared to conventional methods. This study contributes to the innovation of adaptive Islamic Religious Education (IRE) learning media for the Society 5.0 era. Future development prospects include improving audio and visual quality in accordance with expert recommendations, as well as conducting long-term evaluations to measure changes in students' actual behavior more deeply within their social environments.

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REFERENCES

- [1] Z. Yaraş and F. K. Öztürk, "Society 5.0 in Human Technology Integration: Digital Transformation in Educational Organizations," *Int. J. Progress. Educ.*, vol. 18, no. 1, pp. 458–474, Feb. 2022, doi: 10.29329/ijpe.2022.426.26.
- [2] K. Ikeda, "Aiming to Build Future Skills for Society 5.0: Educational DX (Digital Transformation) of University Education in Japan," in *Creating the University of the Future*, U.-D. Ehlers and L. Eigbrecht, Eds., in *Zukunft der Hochschulbildung - Future Higher Education*, Wiesbaden: Springer Fachmedien Wiesbaden, 2024, pp. 549–567. doi: 10.1007/978-3-658-42948-5_28.
- [3] Y. Ardyanti, M. F. Y. Bahari, Helmawati, I. Suryadi, and M. Huda, "The Impact of Technology Integration in Islamic Religious Education on Students' Learning Motivation in Schools/Madrasahs in Bandung," *Belajea J. Pendidik. Islam*, vol. 10, no. 2, pp. 421–440, Oct. 2025, doi: 10.29240/belajea.v10i2.13406.
- [4] M. Muslim, "Internalising Digital Technology in Islamic Education," *Scaffolding J. Pendidik. Islam Dan Multikulturalisme*, vol. 6, no. 3, Dec. 2024, doi: 10.37680/scaffolding.v6i3.6309.
- [5] "Enhancing Learning Quality and Student Engagement: | Hukumonline." Accessed: Mar. 30, 2026. [Online]. Available: <https://jurnal.hukumonline.com/a/667c3716eb9bad8fabc95a7f/enhancing-learning-quality-and-student-engagement-utilizing-digital-technology-in-islamic-education>
- [6] N. Ulfa, N. Az-Zahra, F. I. Saputra, and Ervina, "Analisis Efektivitas Media Interaktif dalam Meningkatkan Partisipasi Belajar Siswa pada Pembelajaran Agama Islam di Era Digital," *CARONG J. Pendidik. Sos. Dan Hum.*, vol. 2, no. 2, pp. 649–659, Jun. 2025, doi: 10.62710/7ngxap43.
- [7] D. N. Aqmarina and M. J. Susilo, "pengaruh penggunaan media interaktif terhadap hasil belajar siswa pada mata pelajaran pendidikan agama islam," *Talif J. Pendidik. Dan Agama Islam*, vol. 1, no. 1, pp. 39–53, Feb. 2025.
- [8] R. Hidayati, "Inovasi Dan Optimalisasi Media Digital Berbasis TIK Dalam Pembelajaran PAI," vol. 4, no. 1.
- [9] M. Supyan, M. Dasuki, and S. N. Sa'idah, "Penerapan Gamifikasi berbasis Web untuk Meningkatkan Motivasi Belajar Sejarah Islam," 2024.
- [10] N. Putra, D. Putri, and R. Susanto, "Pendekatan Efektif dalam Pembelajaran Pendidikan Agama Islam di Dunia Digital," vol. 1, no. 3, 2025.
- [11] "Model Pembelajaran PAI Berbasis Gamifikasi Meningkatkan Minat dan Partisipasi Siswa dalam Pembelajaran Keagamaan di SDN 010033 Perk. Hessa | Khidmat." Accessed: Mar. 30, 2026. [Online]. Available: <https://ejournal.edutechjaya.com/index.php/khidmat/article/view/934>
- [12] O. Olisna, M. Zannah, A. Sukma, and A. N. Aeni, "Pengembangan Game Interaktif Wordwall untuk Meningkatkan Akhlak Terpuji Siswa Sekolah Dasar," *J. Basicedu*, vol. 6, no. 3, pp. 4133–4143, 2022, doi: 10.31004/basicedu.v6i3.2737.
- [13] L. A. Putri, A. N. B. Rohmah, and V. Kartikasari, "Exploring the Potential of Multi-AI (Artificial Intelligence) Integration as an Islamic Education Learning Media Instrument," *FENOMENA*, vol. 16, no. 2, pp. 75–90, Dec. 2024, doi: 10.21093/fj.v16i2.9557.
- [14] M. A. Muis *et al.*, "Integrasi Kecerdasan Buatan (AI) Dalam Kurikulum Pendidikan Agama Islam Era 5.0: Tantangan Dan Peluang".
- [15] A. N. Qowim, N. Afif, A. Mukhtarom, and E. Fauziah, "Pendidikan Karakter Dalam Era Digital: Pengintegrasian Nilai-Nilai Moral Dalam Kurikulum Berbasis Teknologi," *Tadarus Tarbawy J. Kaji. Islam Dan Pendidik.*, vol. 6, no. 1, Jun. 2024, doi: 10.31000/jkip.v6i1.11512.
- [16] A. Rustandi and Rismayanti, "Penerapan Model ADDIE dalam Pengembangan Media Pembelajaran di SMPN 22 Kota Samarinda," *J. FASILKOM*, vol. 11, no. 2, pp. 57–60, Aug. 2021, doi: 10.37859/jf.v11i2.2546.
- [17] N. Inayah, A. N. Aeni, and N. Hanifah, "Pengembangan Media E-Flipbook Materi Keragaman Sosial Budaya terhadap Sikap Toleransi Peserta Didik Kelas IV | ISLAMIKA," Sep. 2024, Accessed: Mar. 30, 2026. [Online]. Available: <https://ejournal.stitpn.ac.id/index.php/islamika/article/view/5287>
- [18] K. Anafi, I. Wiryokusumo, and I. P. Leksono, "Pengembangan media pembelajaran model ADDIE menggunakan software unity 3D," *J. Educ. Dev.*, vol. 9, no. 4, pp. 433–438, Nov. 2021.
- [19] M. Safitri and M. R. Aziz, "ADDIE, Sebuah model untuk pengemabngan multimedia learning," *J. Pendidik. Dasar*, vol. 3, no. 2, pp. 51–59, Aug. 2022.
- [20] Y. H. Rayanto and Sugianti, "Penelitian pengembangan model ADDIE dan R2D: Teori & praktek," Lembaga Academic & Research Institute.
- [21] A. N. Aeni, D. Djuanda, M. Maulana, R. Nursaadah, and S. B. P. Sopian, "Pengembangan aplikasi games edukatif wordwall sebagai media pembelajaran untuk memahami mater Pendidikan agama Islam bagi siswa SD," *Prim. J. Pendidik. Guru Sekol. Dasar*, vol. 11, no. 6, p. 1835, Dec. 2022, doi: 10.33578/jpkip.v11i6.9313.
- [22] A. Ali, S. Dea Venica, W. Aini, and A. Faisal Hidayat, "Efektivitas Media Pembelajaran Interaktif dalam Meningkatkan Minat dan Motivasi Belajar Siswa Sekolah Dasar," *J. Inf. Syst. Educ. Dev.*, vol. 3, no. 1, pp. 1–6, Mar. 2025, doi: 10.62386/jised.v3i1.115.
- [23] "Pengembangan Media Pembelajaran Interaktif Berbasis AI untuk Pembelajaran PAI di MI Roudhotu Tolibin Pisang Indah | Edu-MI Al Hikmah: Jurnal Pendidikan Guru Madrasah Ibtidaiyah." Accessed: Mar. 30, 2026. [Online]. Available: <https://ejournal.stit-alhikmahwk.ac.id/index.php/edumi/article/view/56>

- [24] J. I. Sawitri, T. N. B. K. Sekali, C. M. B. Barus, R. A. Sahara, and V. C. Budi, "Meningkatkan Kualitas Pembelajaran dengan Menggunakan Media Pembelajaran Interaktif," *POTENSI J. Pengabd. Kpd. Masy.*, vol. 1, no. 4, pp. 96–102, 2024, doi: 10.61689/potensi.v1i4.17.
- [25] R. F. Lestari, A. F. Nisa, H. M. Zulfiati, and B. H. C. Khosiyono, "Transformasi Kemandirian Belajar Siswa Melalui Website Edukatif," *Aulad J. Early Child.*, vol. 8, no. 3, pp. 1318–1328, 2025, doi: 10.31004/aulad.v8i3.1297.
- [26] I. Laras, A. Supriatna, H. E. Mariam, S. Asyrika, and S. Mulyati, "Implementasi pembelajaran pendidikan agama Islam (PAI) dalam peningkatan akhlak siswa sekolah dasar".
- [27] C. Rohmiasih, C. Rohmiati, and S. Sartika, "Pemanfaatan Media Pembelajaran Canva Sebagai Upaya Mewujudkan Transformasi Pendidikan," 2023.
- [28] A. N. Aeni, J. Jenuri, A. Hidayat, R. Febriani, L. A. P. H, and W. Kurniawati, "Development of S.Id. TABIR Website on Islamic Learning in Elementary School," *Sekol. Dasar Kaji. Teori Dan Prakt. Pendidik.*, vol. 33, no. 1, pp. 90–100, May 2024, doi: 10.17977/um009v33i12024p90-100.
- [29] W. Wahyuddin, M. I. Naqsin, M. Marlina, and M. Masnur, "Perancangan Game Mobile Drag And Drop Sebagai Alat Pembelajaran CRUD," *J. Surya Inform.*, vol. 15, no. 2, pp. 53–61, Nov. 2025, doi: 10.48144/suryainformatika.v15i2.2166.
- [30] A. Ali, S. D. Venica, W. Aini, and A. F. Hidayat, "Efektivitas Media Pembelajaran Interaktif dalam Meningkatkan Minat dan Motivasi Belajar Siswa Sekolah Dasar," *J. Inf. Syst. Educ. Dev.*, vol. 3, no. 1, pp. 1–6, Mar. 2025, doi: 10.62386/jised.v3i1.115.