

Development of Flipbook-Based Learning Media in Aqidah Akhlak Instruction

¹Asmara Yumarni*, ²Yeti Herliza, ³Abdul Hobir

Corresponding Author: asmarayurmani@mail.uinfasbengkulu.ac.id

^{1,2}Universitas Islam Negeri Fatmawati Sukarno Bengkulu, Universitas Islam Madura

ARTICLE INFO

Article history

Received XX July 2022

Revised XX August 2022

Accepted XX August 2022

ABSTRACT

The problem faced by seventh-grade students at MTs Nur Rahma in Bengkulu City in the Aqidah Akhlak learning process is the lack of utilization of instructional media, which leads to low student interest in learning. The teacher uses conventional, non-technology-based teaching methods due to inadequate school facilities that do not support technology-integrated instruction. The objective of this research is to design a flipbook-based learning media for Aqidah Akhlak instruction for seventh-grade students at MTs Nur Rahma, Bengkulu City. This study employs a Research and Development (R&D) methodology based on the Richey and Klein model, which includes five stages: identifying potentials and problems, data collection, product design, design validation, and design revision. Data were collected using questionnaires, documentation, and interviews. The results of this study show that: (1) the development of the flipbook media followed five stages—identifying potentials and problems, data collection, product design, design validation, and design revision; (2) the flipbook developed was found to be valid with an expert score of 109.6 from the media expert (very good), 39.2 from the language expert (very good), and 44.8 from the content expert (very good). Based on these findings, it can be concluded that the flipbook media for Aqidah Akhlak instruction is feasible for use as a learning tool for students. The advantages of using flipbook media include faster and easier delivery of material, increased learning interest, time efficiency, and portability. However, its limitations include the need for internet access and the requirement that all students possess smartphones.

Keywords

Aqidah Akhlak, flipbook, learning interest, learning media, Research and Development

This is an open-access article under the [CC-BY-SA](#) license.



Introduction

The development of information technology has had a significant impact on the field of education, particularly in the innovation of instructional media [1]. In the digital era, educators are required to provide learning media that are interactive, flexible, and aligned with the characteristics of today's generation of learners [2], [3]. The use of digital-based instructional media not only enriches the learning experience but also enhances students' motivation and engagement in the learning process [4], [5]. This aligns with the paradigm of 21st-century education, which emphasizes critical thinking, creativity, collaboration, and communication skills [6], [7].

However, the reality in the field shows that not all educational institutions are able to adopt educational technology optimally. One such example can be seen at MTs Nur Rahma in Bengkulu City, particularly in the Aqidah Akhlak subject. The learning process is still dominated by traditional lecture-based methods with little to no use of interactive media, resulting in low student interest in learning [8], [9]. Teachers have yet to utilize technology-based learning media due to the limited facilities and infrastructure available at the school. This is particularly concerning, as Aqidah Akhlak content is closely related to character building and the development of students' religious attitudes, which require a contextual, engaging, and adaptive learning approach in response to current developments.

Previous studies have developed various forms of digital learning media, such as instructional videos [10], [11], [12], [13], [14], [15], learning management systems [16], [17], [18], [19], [20], and augmented reality [21], [22], [23]. However, there is still a noticeable lack of studies that specifically focus on the development of flipbook media for Aqidah Akhlak instruction, particularly at the junior Islamic secondary school (madrasah tsanawiyah) level. Flipbook media offer advantages in presenting content through a combination of text, images, and engaging animations in a digital book format that is

easily accessible via mobile devices [24], [25], [26], [27], [28], [29]. In addition, flipbooks are lightweight, easy to develop, and do not require specialized applications, making them well-suited for school environments with limited technological infrastructure [30], [31].

The research gap addressed in this study lies in the absence of flipbook-based learning media specifically designed for Aqidah Akhlak instruction at the madrasah tsanawiyah (MTs) level, as well as the lack of empirical validation data regarding the effectiveness of such media in enhancing students' learning interest. The novelty of this research lies in the development of a flipbook learning media based on the instructional design model proposed by Richey and Klein, which has rarely been applied to Aqidah Akhlak learning. Furthermore, this study employs multi-expert validation—including media, language, and content experts—to ensure the feasibility and quality of the product. This innovation is expected to serve as a practical solution to improve the quality of instruction in madrasahs, particularly in the context of character-based learning and the internalization of Islamic values. Thus, the study not only contributes to the advancement of instructional media but also supports the digital transformation of Islamic religious education in a way that is more adaptive and relevant to the needs of the current generation.

Methods

This study employs a Research and Development (R&D) approach aimed at developing a learning media product in the form of a flipbook for the Aqidah Akhlak subject, targeting seventh-grade students at MTs Nur Rahma in Bengkulu City. The development model used in this research refers to the Richey and Klein model, which consists of five systematic stages [32], [33], [34], [35]: (1) identifying potentials and problems, (2) data collection, (3) product design, (4) design validation, and (5) design revision.

A. Stage of Identifying Potentials and Problems

This stage was conducted through preliminary observations and interviews with Islamic education (PAI) teachers and students to identify the low level of learning motivation and the limited use of instructional media in the Aqidah Akhlak learning process.

B. Data Collection Stage

Data were collected through documentation, interviews, and the distribution of questionnaires to both students and teachers. These data were used to strengthen the rationale for media development and to formulate content specifications that align with students' learning needs.

C. Product Design Stage

At this stage, the flipbook media was designed by outlining the content structure, page visualization, integration of text and images, as well as the development of user-friendly digital navigation. The media design was tailored to the characteristics of madrasah students and aligned with the principles of value-based learning in Aqidah Akhlak.

D. Design Validation Stage

The designed flipbook product was then validated by three experts: a media expert, a language expert, and a content expert. The validation aimed to assess the feasibility of the visual design, the clarity of the language, and the accuracy of the content in accordance with the seventh-grade Aqidah Akhlak curriculum.

E. Design Revision Stage

Based on the results of expert validation, revisions were made to components that required improvement. These revisions ensured that the final product met pedagogical, technical, and content standards aligned with instructional needs.

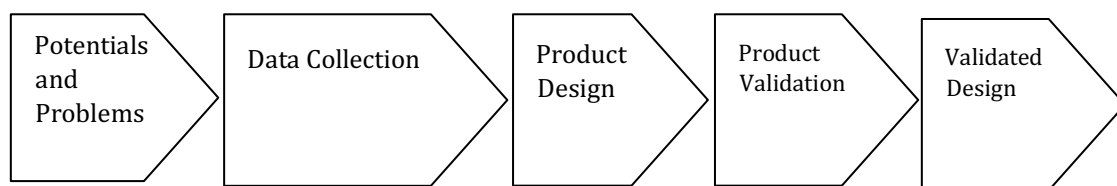


Figure 1. Research and Development (R&D) Framework

The data collection techniques in this study included [36], [37], [38], [39], [40], [41]: 1) semi-structured interviews, conducted to explore the needs of teachers and students regarding learning media; 2) questionnaires, used to assess the feasibility of the product by expert reviewers; and 3) documentation, employed to gather supporting data such as teaching modules, learning objectives flowcharts, and photographs of activities during the development process.

The data analysis technique was conducted using a descriptive quantitative approach by calculating the validation scores from experts based on a rating scale [42], [43], [44]. The scores were then categorized into criteria of very good, good, fair, or poor, according to the score interpretation. Qualitative data from interviews were used to support the analysis results and to describe the development context.

Results And Discussion

Results

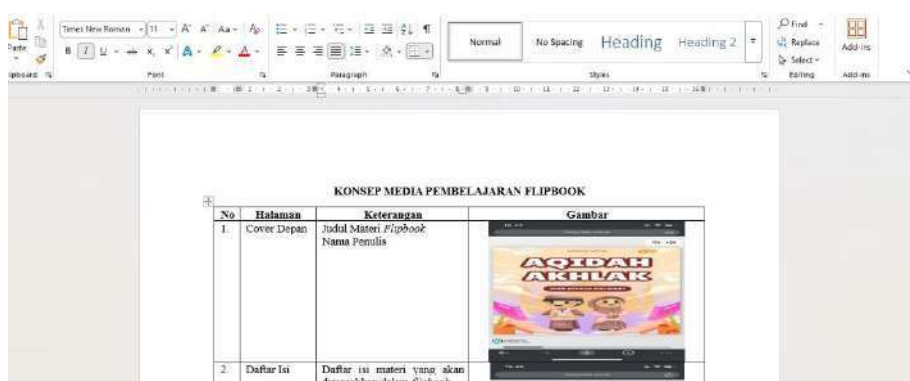
A. The Development Process of Flipbook Media

The flipbook learning media was developed to enhance students' interest and understanding in the Aqidah Akhlak subject, particularly on the topic of Faith in Angels (Iman kepada Malaikat). This flipbook takes the form of an interactive digital book equipped with instructional videos, audio recitations of Qur'anic verses, and quiz-based practice exercises accessible via QR codes and hyperlinks. The development was initiated after the researchers identified the problem of low student motivation and the lack of technology-based instructional media at MTs Nur Rahma in Bengkulu City. The flipbook was chosen due to its visual advantages, practicality, and accessibility via students' personal devices without the need for a projector.

The development model followed the steps proposed by Richey and Klein, which include:

1. Problem Identification: Through interviews with teachers and the school principal, it was found that the Aqidah Akhlak learning process remained conventional in nature.
2. Data Collection: Data were obtained through observations, interviews, and documentation related to the instructional conditions and available facilities.
3. Product Design: The flipbook was designed using Canva and Heyzine, and was equipped with QR codes to access instructional videos and online quizzes. The details of the product design are as follows.

- a. The flipbook was initially conceptualized and drafted using Microsoft Word.




No	Halaman	Keterangan	Gambar
1.	Cover Depan	Judul Materi Flipbook Nama Penulis	
2.	Daftar Isi	Daftar isi materi yang akan	

Figure 2. Conceptual Design of Flipbook Learning Media Development

- b. A learning video was created to present the material on Faith in Angels (Iman kepada Malaikat).



Figure 3. Development of the Instructional Video

- c. The video was uploaded to YouTube, and the link was then converted into a QR code.

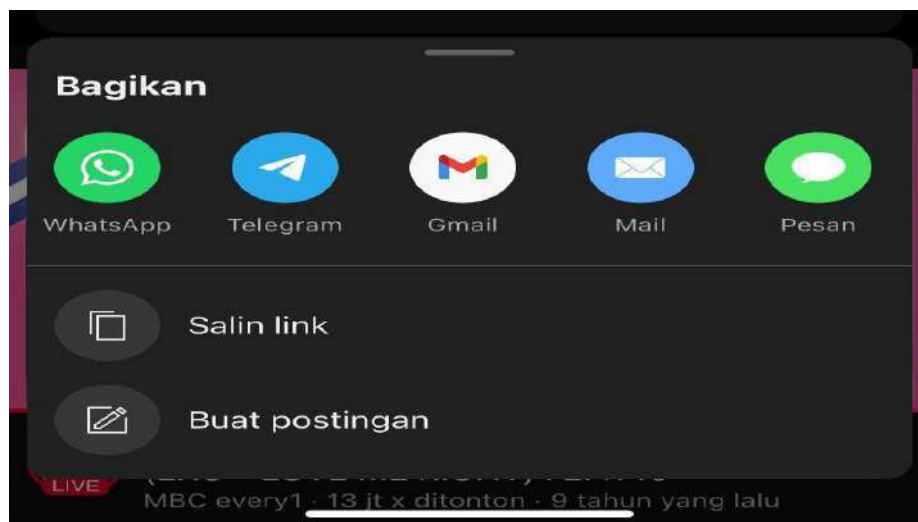


Figure 4. Uploading the Video and Copying the Link

- d. An online quiz in the form of a game was created based on the material on Faith in Angels (Iman kepada Malaikat).



Figure 5. Creating Practice Questions Using the Quizziz Application

- e. The Quizziz link was copied and converted into a QR code.

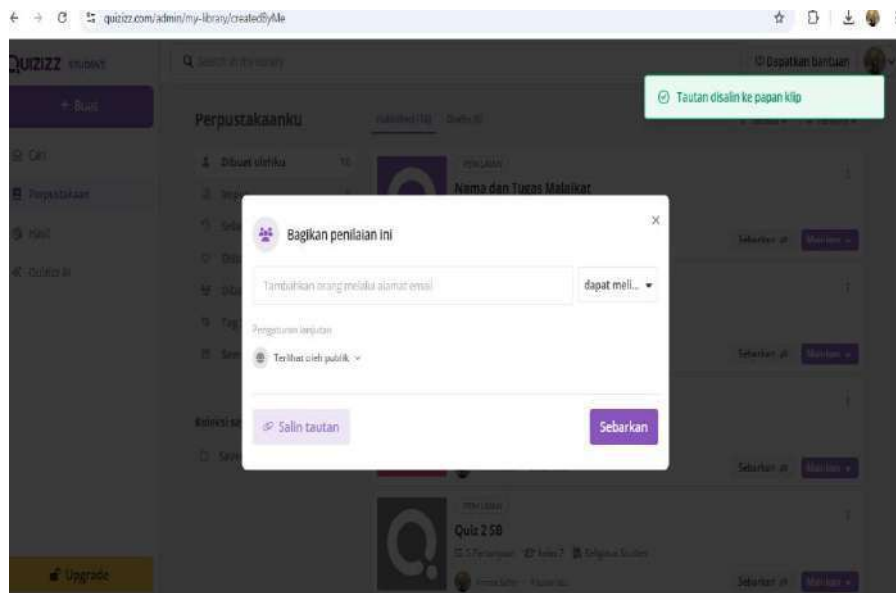


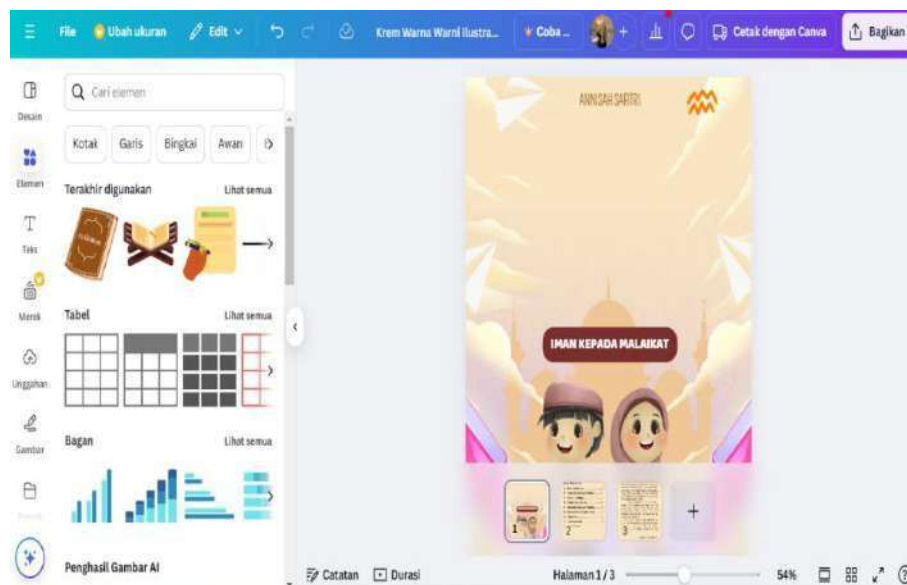
Figure 6. Copying the Quizziz Link

- f. QR codes for the instructional video and online quiz were generated using a QR Code Generator application, then downloaded and embedded into the flipbook design.



Figure 7. Generating QR Codes Using the QR Code Generator Application

- g. The flipbook was designed using the Canva application.



Gambar 8. Pembuatan Desain *Flipbook* Pada *Canva*

- h. The flipbook design created in Canva was imported into Heyzine to be converted into a digital flipbook.

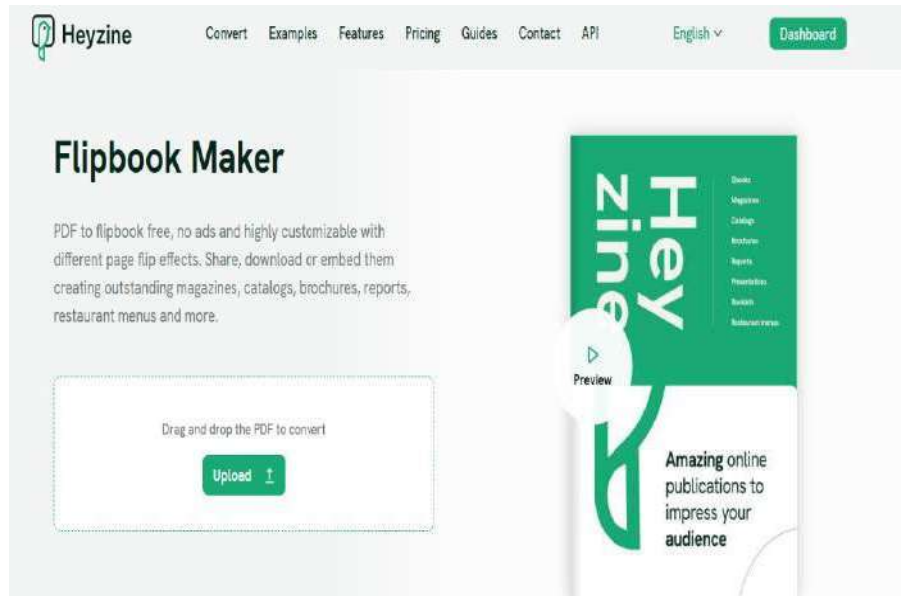


Figure 9. Converting the Canva Design into a Digital Flipbook

- i. Audio of Qur'anic verses related to Faith in Angels was embedded into the flipbook.

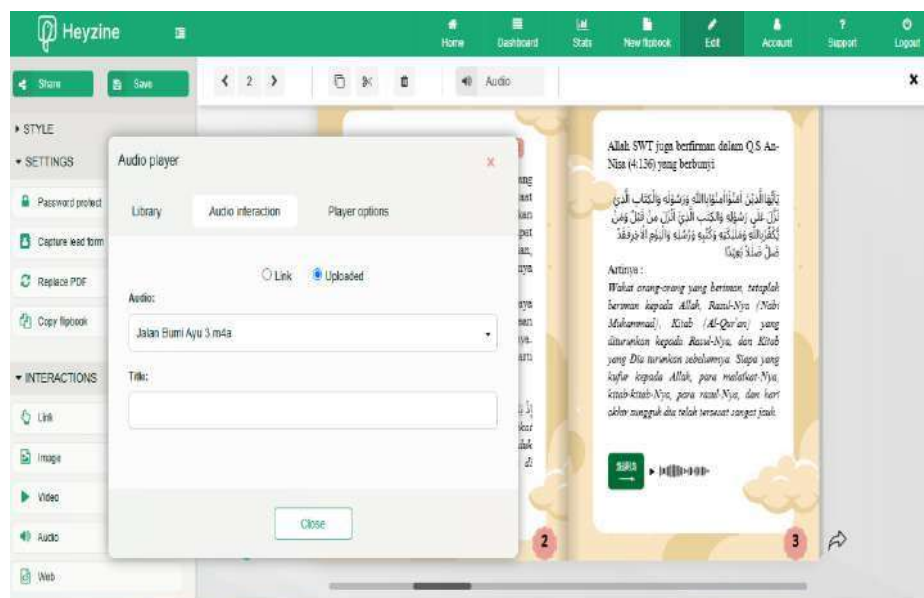


Figure 10. Embedding Audio into the Flipbook

- j. The links and QR codes for the instructional video and online quiz were embedded into the flipbook.

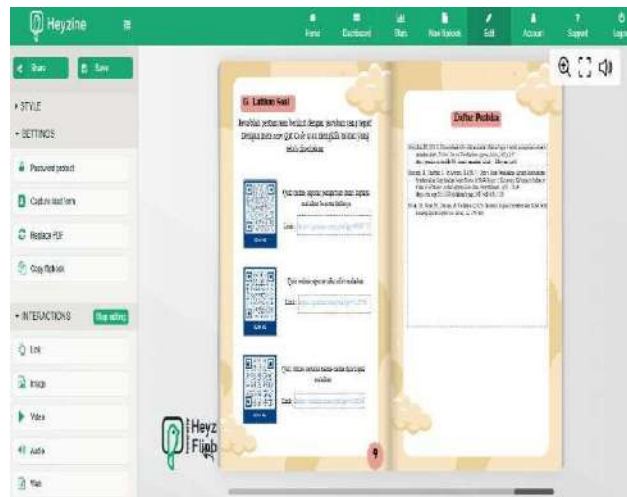


Figure 11. Embedding QR Codes and Links into the Flipbook

- k. The flipbook was then finalized and made ready for use as a learning aid in Aqidah Akhlak classroom instruction.

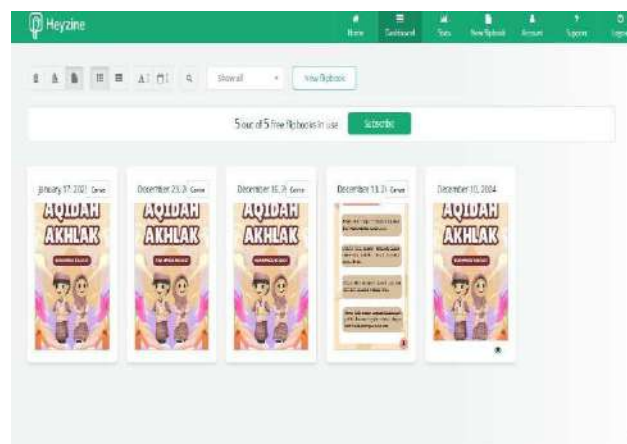


Figure 12. Finalizing the Flipbook Learning Media

- l. The flipbook is ready for use in supporting Aqidah Akhlak classroom instruction and can be shared via WhatsApp.

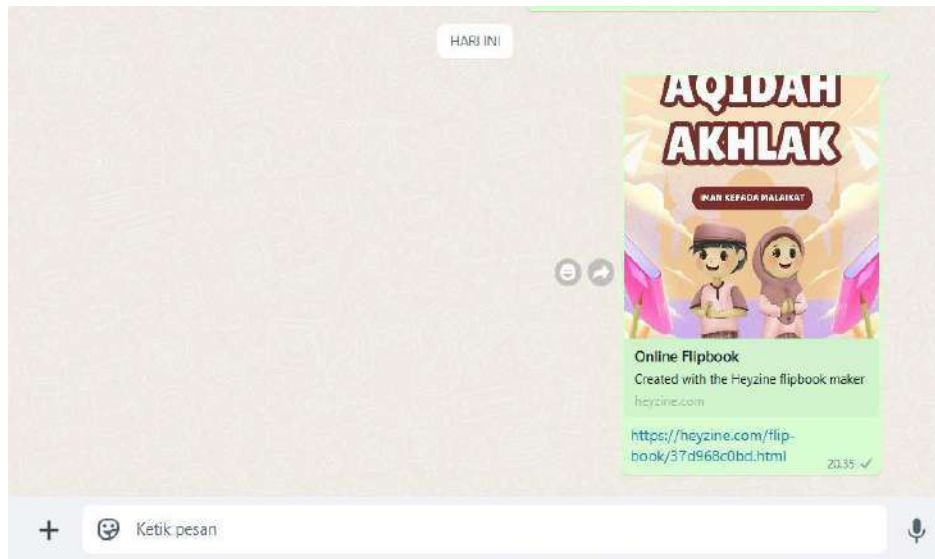


Figure 13. Flipbook Display Shared via WhatsApp

4. Design Validation: The validation process was conducted by three experts—media, language, and content specialists—as well as by students.

The validation results indicated that the flipbook media was classified as excellent and deemed suitable for use in instruction.

Table 1. Validation Score Results

Validation Expert	Score	Maximum	Category
Media Expert	109.6	120	Very Good
Language Expert	39.2	45	Very Good
Content Expert	44.8	50	Very Good
20 Students	80	100	Good

The media expert evaluated the visual and technical aspects, the language expert focused on language appropriateness and spelling accuracy, while the content expert ensured the material aligned with the curriculum. Students gave positive responses regarding the ease of use and the relevance of the content.

Several supporting and inhibiting factors were identified in the implementation of flipbook learning media. The supporting factors included the school's approval and support for using flipbook media in the learning process, and the allowance for students

at MTs Nur Rahma to bring smartphones to support classroom activities, subject to specific regulations. Additionally, the school provided adequate Wi-Fi access, and its location had stable network coverage, making it conducive to the use of digital learning tools such as flipbooks. Accessing the flipbook was considered easy by students, as it only required opening a link shared by the teacher in the class group. This media also saved smartphone storage space since it did not require downloading files beforehand.

The flipbook could include recorded recitations of Qur'anic verses, instructional videos, and online quizzes, which teachers could use to facilitate a more effective and engaging teaching and learning process. Overall, the flipbook offered several advantages, such as making learning more interesting and enjoyable, increasing students' learning motivation, and supporting instructional delivery.

The main challenge encountered was students' lack of focus during the learning process, primarily due to the misuse of smartphones. Although smartphones were intended to facilitate learning, in some cases they became a distraction, preventing students from fully engaging with and understanding the learning material. To address this issue, teachers needed to supervise actively by moving around the classroom and monitoring students' activities to ensure that smartphones were being used appropriately and that students remained attentive to the lesson.

Feasibility of the Flipbook Learning Media

Based on the practicality results obtained from all validation processes, the flipbook media received a validation score within the "very good" category, indicating that the product is both effective and feasible for use. After all validations were carried out in accordance with the suggestions and guidance of three experts—namely, Prof. Dr. Suhirman, M.Pd., an expert in instructional media design; Dina Putri Juni Astuti, M.Pd., an expert in language; and Dr. Pasmah Chandra, M.Pd.I., an expert in subject content—along with 20 students who completed a questionnaire and provided an average score of 80, the product achieved a score considered appropriate for use and publication. Thus, the flipbook media is deemed suitable for enhancing the Aqidah Akhlak learning process among seventh-grade students at MTs Nur Rahma, Bengkulu City.

The average scores obtained from the validation results fell within the "very good" category. The media expert provided a score of 109.6 or 90.4%, the language expert gave a score of 39.2 or 32%, and the content expert assigned a score of 44.8 or 36.8%. Additionally, the student questionnaire yielded an average score of 80, categorized as "good." Based on the scores obtained from the media, language, and content experts, as well as from students, it can be concluded that the flipbook learning media is feasible for use in supporting the teaching and learning process at MTs Nur Rahma, Bengkulu City.

Based on the assessment from the media expert validator, the flipbook learning media has an appealing visual design in terms of color selection and layout arrangement. The researcher used Canva, a modern and up-to-date application, to develop the media. The language expert validator noted that the use of language, sentence structure, and word choice required further attention to align with standard language rules to ensure comprehension by seventh-grade students. These aspects have been revised accordingly by the researcher. The content expert validator confirmed that the material aligns with the curriculum implemented at MTs Nur Rahma, specifically the Aqidah Akhlak subject covering the topic of Faith in Angels. The flipbook includes key content such as the definition of faith in angels, Qur'anic evidence, the characteristics of angels, their names and duties, the wisdom of believing in angels, behaviors that reflect such belief, as well as online quiz questions—all of which are consistent with the teaching modules used at MTs Nur Rahma, Bengkulu City.

The advantages of the flipbook learning media include its ability to deliver learning material in a concise and clear manner, its portability and practicality, and its capacity to enhance students' enthusiasm and interest in the classroom learning process. The flipbook also supports Aqidah Akhlak teachers in effectively delivering subject content, with this study focusing specifically on the topic of Faith in Angels. Through the use of flipbook media, teachers can simultaneously introduce students to educational technology while engaging them in classroom learning. The limitations of the flipbook learning media include the requirement of internet data or Wi-Fi access to open the flipbook, and the necessity for each student to have a smartphone capable of accessing the link provided by the teacher.

This is in line with the theory of Richey and Klein, which states that the process of developing instructional media—such as the flipbook in this research and development study—involves planning the product, producing it based on the design, and finally evaluating it by assessing how well the product meets the specified criteria. In this study,

the researcher carried out the development process but did not proceed to field testing [45], [46], [47].

The feasibility of the flipbook learning media was assessed through expert judgment based on rational considerations, without conducting field trials. The feasibility evaluation was carried out by involving several experts in their respective fields to assess the design of the developed product. In this study, three experts were involved—namely, a media expert, a content expert, and a language expert—along with 20 student respondents through questionnaires. After the product design was validated by these experts, the feasibility of the developed media could be determined. This approach is consistent with the theoretical framework presented in Chapter III regarding the process and feasibility of instructional media development.

Discussion

The use of flipbooks has proven to support active and creative learning [48], [49]. Flipbooks allow students to access learning materials independently via smartphones, without relying on projection devices [50], [51]. The advantages of this media include: (1) facilitating the delivery of instructional content; (2) increasing student interest and engagement; and (3) being practical and flexible [52], [53]. However, several challenges were identified, such as the need for internet connectivity and the potential misuse of smartphones by students. Therefore, the role of the teacher as both facilitator and supervisor remains crucial [54], [55], [56], [57], [58], [59], [60].

The developed flipbook media has been proven theoretically and practically feasible based on validation results. The product was deemed effective for use in teaching Aqidah Akhlak to seventh-grade students at MTs Nur Rahma. In the future, this media can be further developed for other subject matter and tested more extensively through field trials.

The findings of this study support previous research which has shown that digital media with visual and interactive elements can enhance students' motivation and comprehension [61], [62]. As a learning medium, the flipbook has proven effective in overcoming the limitations of conventional media and fostering active student participation. This is consistent with the findings of Arifah, et. al [63], who stated that

technology-based instructional media enhances the appeal and retention of student learning.

From a pedagogical perspective, the flipbook serves not only as a visual aid but also supports the principles of student-centered learning, which position students as active participants in the learning process. The flipbook's ability to incorporate multimedia elements—such as text, images, audio, and video—makes Aqidah Akhlak material more contextual and easier to understand.

However, challenges remain, such as the need for internet access and the possibility of students using their devices for non-instructional purposes. Therefore, the teacher's role in guiding and supervising the productive use of technology remains crucial.

The results of this study demonstrate that flipbook media can enhance the effectiveness of Aqidah Akhlak instruction, in line with various studies emphasizing the effectiveness of visually and interactively based digital media [64], [65], [66], [67], [68], [69], [70]. Flipbooks are considered capable of fostering active student engagement, improving comprehension, and presenting material in a contextualized manner.

However, these findings are not entirely consistent with several previous studies indicating that digital media such as flipbooks are not always effective in learning. For instance, a study by Adsız & Dinçer [71] found that the use of digital media actually reduced student focus due to limited teacher control over the use of personal devices during lessons. This issue is particularly evident in educational environments that lack robust technology monitoring systems, leading students to use their devices for non-academic purposes.

In addition, Muhammad [72] stated that digital media such as flipbooks do not have a significant impact on improving learning outcomes if not accompanied by adequate digital literacy among both teachers and students. They found that media innovations often fail to achieve maximum effectiveness because not all teachers are pedagogically and technologically prepared to integrate such media into their instructional planning.

Similar challenges were also identified in this study, particularly regarding the supervision of smartphone usage and unequal access to the internet. Therefore, although flipbook media has been proven generally feasible and effective, its implementation still requires institutional policy support, teacher training, and the cultivation of ethical technology use among students.

Conclusion

This study followed five stages: identifying potential and problems, data collection, product design, product validation, and tested design. The developed product took the form of an innovative flipbook that included voice recordings, instructional videos, and online quizzes accessible to students. The visuals in the media were designed to be attractive, with bright colors and easily understandable language. As a result, students were better able to comprehend the learning material while engaging in playful learning activities, thereby enhancing their understanding. The feasibility of the flipbook was tested through expert validation. The product was found to be valid and suitable for use. The validation summary results were as follows: the media expert gave a score of 109.6 out of a maximum of 120, the language expert gave 39.2 out of 45, the content expert gave 44.8 out of 50, and the student questionnaire from 20 respondents yielded a score of 80 out of a maximum of 100. The three validation results fell within the assessment range of "very good" and "good" criteria, indicating that the flipbook is feasible for use by seventh-grade students at MTs Nur Rahma, Bengkulu City. The development process followed the stages of identifying potential and problems, data collection, product design, product validation, and tested design. The development of the flipbook media for the Aqidah Akhlak subject—specifically the topic of faith in angels—aimed at enhancing students' understanding of the material. After being validated and assessed by experts, the product was declared feasible, and it is considered ready for publication and implementation in the classroom for seventh-grade students at MTs Nur Rahma, Bengkulu City.

Acknowledgements

Thank you to the Rector of the Universitas Islam Negeri Fatmawati Sukarno Bengkulu, and friends who have supported us in conducting this research.

References

- [1] Y. Zhao, M. Zhao, and F. Shi, "Integrating moral education and educational information technology: A strategic approach to enhance rural teacher training in universities," *J. Knowl. Econ.*, vol. 15, no. 3, pp. 15053–15093, 2024, doi: 10.1007/s13132-023-01693-z.
- [2] A. Saykılı, "Higher education in the digital age: The impact of digital connective

- technologies," *J. Educ. Technol. Online Learn.*, vol. 2, no. 1, pp. 1–15, 2019.
- [3] B. Gan, T. Menkhoff, and R. Smith, "Enhancing students' learning process through interactive digital media: New opportunities for collaborative learning," *Comput. Human Behav.*, vol. 51, pp. 652–663, Oct. 2015, doi: 10.1016/j.chb.2014.12.048.
- [4] J. Xiao and S. Adnan, "Flipped anatomy classroom integrating multimodal digital resources shows positive influence upon students' experience and learning performance," *Anat. Sci. Educ.*, vol. 15, no. 6, pp. 1086–1102, 2022, doi: 10.1002/ase.2207.
- [5] E. A. Rosydiana, D. A. Sudjimat, and C. Utama, "The Effect of Digital Learning Media Using Scratch Game Based Learning on Student Problem Solving Skills," *J. Penelit. Pendidik. IPA*, vol. 9, no. 11, pp. 10010–10015, 2023, doi: 10.29303/jppipa.v9i11.4876.
- [6] C. Kivunja, "Do You Want Your Students to Be Job-Ready with 21st Century Skills? Change Pedagogies: A Pedagogical Paradigm Shift from Vygotskyian Social Constructivism to Critical Thinking, Problem Solving and Siemens' Digital Connectivism," *Int. J. High. Educ.*, vol. 3, no. 3, pp. 81–91, 2014, [Online]. Available: <https://eric.ed.gov/?id=EJ1067554>
- [7] M. A. Adeoye, E. F. Prastikawati, and Y. O. Abimbowo, "Empowering Learning: Pedagogical Strategies for Advancing 21st Century Skills and Quality Education," *J. Nonform. Educ.*, vol. 10, no. 1, pp. 10–21, Sep. 2024, doi: 10.15294/jone.v10i1.1451.
- [8] T. Li, W. Wang, Z. Li, H. Wang, and X. Liu, "Problem-based or lecture-based learning, old topic in the new field: a meta-analysis on the effects of PBL teaching method in Chinese standardized residency training," *BMC Med. Educ.*, vol. 22, no. 1, p. 221, 2022, doi: 10.1186/s12909-022-03254-5.
- [9] Ö. Delialioğlu, "Student engagement in blended learning environments with lecture-based and problem-based instructional approaches," *J. Educ. Technol. Soc.*, vol. 15, no. 3, pp. 310–322, 2012, [Online]. Available: <https://www.jstor.org/stable/jeductechsoci.15.3.310>
- [10] H. T. Croghan, V. D. Cano, E. Pacheco, R. B. Sonawane, and R. Boroon, "Virtual Reality, Augmented Reality, and Mixed Reality in Experiential Learning: Transforming Educational Paradigms," *Educ. Sci.*, vol. 15, no. 3, p. 303, Feb. 2025, doi: 10.3390/educsci15030303.
- [11] B. Çeken and N. Taşkın, "Examination of Multimedia Learning Principles in Augmented Reality and Virtual Reality Learning Environments," *J. Comput. Assist. Learn.*, vol. 41, no. 1, p. e13097, Feb. 2025, doi: 10.1111/jcal.13097.
- [12] Z. Zufahmi, F. Rohman, and M. S. Sari, "Augmented Reality in Science Learning: A Systematic Literature Review," *J. Biol. Educ. Indones. (Jurnal Pendidik. Biol. Indones.)*, vol. 11, no. 1, pp. 274–291, 2025, [Online]. Available: <https://eric.ed.gov/?id=EJ1468551>
- [13] Ramadhani, Abu Bakar, Rachmad Ikhsan, and Wildanil AUFAR, "Design And Development Of Augmented Reality Applications For Human Anatomy Learning Mobile-Based," *J. Inotera*, vol. 10, no. 1, pp. 62–70, Feb. 2025, doi: 10.31572/inotera.Vol10.Iss1.2025.ID437.
- [14] M. W. A. Risqiyono and N. Setyasto, "Development of E-Learning Materials

- Assisted by Augmented Reality on Human Digestive System Material to Improve Elementary School Students' Learning Outcomes," *J. Penelit. Pendidik. IPA*, vol. 11, no. 1, pp. 244–256, Jan. 2025, doi: 10.29303/jppipa.v11i1.10229.
- [15] E. Navarrete, A. Nehring, S. Schanze, R. Ewerth, and A. Hoppe, "A Closer Look into Recent Video-based Learning Research: A Comprehensive Review of Video Characteristics, Tools, Technologies, and Learning Effectiveness," *Int. J. Artif. Intell. Educ.*, pp. 1–64, May 2025, doi: 10.1007/s40593-025-00481-x.
- [16] C.-Y. Su and C.-H. Chen, "Exploring and comparing pedagogical beliefs of university instructors in relation to their behavioural patterns regarding learning management system use," *Behav. Inf. Technol.*, vol. 44, no. 2, pp. 231–244, Jan. 2025, doi: 10.1080/0144929X.2024.2315321.
- [17] M. Alier, J. Pereira, F. J. García-Peñalvo, M. J. Casañ, and J. Cabré, "LAMB: An open-source software framework to create artificial intelligence assistants deployed and integrated into learning management systems," *Comput. Stand. Interfaces*, vol. 92, p. 103940, Mar. 2025, doi: 10.1016/j.csi.2024.103940.
- [18] S. H. Alshammari and A. F. Alkhwaldi, "An integrated approach using social support theory and technology acceptance model to investigate the sustainable use of digital learning technologies," *Sci. Rep.*, vol. 15, no. 1, p. 342, Jan. 2025, doi: 10.1038/s41598-024-83450-z.
- [19] S. Das, S. Vaishnavi Nakshatram, H. Söbke, J. Baalsrud Hauge, and C. Springer, "Towards gamification for spatial digital learning environments," *Entertain. Comput.*, vol. 52, p. 100893, Jan. 2025, doi: 10.1016/j.entcom.2024.100893.
- [20] Y. Jiang and J.-E. Peng, "Exploring the relationships between learners' engagement, autonomy, and academic performance in an English language MOOC," *Comput. Assist. Lang. Learn.*, vol. 38, no. 1–2, pp. 1–26, Jan. 2023, doi: 10.1080/09588221.2022.2164777.
- [21] S. H. N. Ginting, B. Singh, and J. Zhang, "Development of Augmented Reality Based Learning Media to Introduce Computer Components to students in Senior High School," *Int. J. Educ. Insights Innov.*, vol. 2, no. 1, pp. 8–13, 2025, [Online]. Available: <https://ijedins.technolabs.co.id/index.php/ijedins/article/view/7>
- [22] A. S. Mandala, L. Anwar, C. Sa'dijah, and H. Zulnaidi, "Development of mobile augmented reality-based geometry learning games to facilitate spatial reasoning," *Inf. J.*, vol. 14, no. 2, pp. 323–348, Feb. 2025, doi: 10.22460/infinity.v14i2.p323-348.
- [23] Q. Natasya, Hairida, Masriani, R. Rasmawan, and E. Enawaty, "Development of Video Tutorials for Making Learning Media Based on Augmented Reality on Ion Material," *J. Penelit. Pendidik. IPA*, vol. 11, no. 1, pp. 1157–1165, Feb. 2025, doi: 10.29303/jppipa.v11i1.7356.
- [24] A. Z. Nurramadhani, R. P. Sari, N. Y. P. Olli, M. A. Masruhim, and A. Rahmadani, "Development of interactive flipbook learning media on chemical bonding material," *Res. Dev. Educ.*, vol. 5, no. 1, pp. 289–305, 2025, doi: 10.22219/raden.v5i1.39757.
- [25] I. K. T. A. Ana and M. S. Indriani, "Flipping the Page: Engaging Elementary Literacy with Interactive Storybooks," *JETAL J. English Teach. Appl. Linguist.*, vol. 6, no. 2,

- pp. 97–104, 2025, doi: 10.36655/jetal.v6i2.1729.
- [26] R. E. Yulianti and B. Isdaryanti, “Development of Integrated Flipbook Learning Media with 2-Dimensional Quartet Cards (KAKASIBOOK) to Improve Student Learning Outcomes in IPAS Learning Content,” *J. Penelit. Pendidik. IPA*, vol. 11, no. 4, pp. 416–426, Apr. 2025, doi: 10.29303/jppipa.v11i4.10822.
- [27] G. P. A. Arimbawa, Ni Putu Eva Yuliawati, I. P. T. Windhu, K. Agustini, and I. G. W. Sudatha, “Effectiveness of Differentiated Explorative Flipbooks to Improve The Learning Independence of Junior High School Student,” *J. Nas. Pendidik. Tek. Inform.*, vol. 14, no. 1, pp. 96–106, Mar. 2025, doi: 10.23887/janapati.v14i1.83918.
- [28] Q. Zawuziah, K. Karpin, and A. Mahmudatussadah, “Designing Virtual Flipbook Learning Media For Herbs and Spices Material at Telkom Bandung Tourism Vocational School,” *Media Pendidik. Gizi dan Kuliner*, vol. 16, no. 2, pp. 89–96, Nov. 2024, doi: 10.17509/mpgk.v16i2.83028.
- [29] F. Fitriadi, S. Y. Slamet, and M. Salimi, “Design of Science E-Modules Based on Guided Inquiry to Improve Science Literacy Using Canva and Heyzine,” *Multidiscip.*, vol. 3, p. 223, Apr. 2025, doi: 10.62486/agmu2025223.
- [30] S. S. Predina, S. Wahyuni, U. Nuha, and T. Hasyim, “Development of E-Modules Based on Local Potential in Grenden Village to Improve the Digital Literacy of Junior High School Students,” *J. Innov. Sci. Educ.*, vol. 14, no. 1, pp. 26–35, 2025, doi: 10.15294/jise.v14i1.20834.
- [31] M. Biando, “Book Page Turner,” 2025, *WORCESTER POLYTECHNIC INSTITUTE*. [Online]. Available: <https://digital.wpi.edu/downloads/mk61rn70z>
- [32] T. Sittiya, C. Hemtasin, and W. Payoungkiattikun, “Designing and Developing Learning Management Processes to Promote Self-Directed Knowledge Construction,” *Int. J. Soc. Educ. Sci.*, vol. 7, no. 2, pp. 157–172, Mar. 2025, doi: 10.46328/ijonses.747.
- [33] S. Sutirman and Y. Yuliansah, “ERISE: A Web-Based Learning System for Digital Records Management in Vocational High Schools,” *Din. Pendidik.*, vol. 20, no. 1, pp. 50–67, May 2025, doi: 10.15294/dp.v20i1.12157.
- [34] S. McKenney and T. C. Reeves, “Educational design research for relevant & robust scholarship,” *J. Comput. High. Educ.*, pp. 1–25, May 2025, doi: 10.1007/s12528-025-09456-2.
- [35] A. Armstrong and B. Soto, “Overcoming Accessibility Barriers in Online Learning: A DDR Model Use Study Augmenting the R2D2/C3PO Model,” in *Society for Information Technology & Teacher Education International Conference*, Association for the Advancement of Computing in Education (AACE), 2025, pp. 1046–1053. [Online]. Available: <https://www.learntechlib.org/p/225632/>
- [36] J. Zhang, T. Xie, X. Kong, B. Liu, and W. Zhang, “Can data assets promote green innovation in enterprises?,” *Financ. Res. Lett.*, vol. 72, p. 106554, Feb. 2025, doi: 10.1016/j.frl.2024.106554.
- [37] L. M. Wingate, *Project management for research and development: Guiding innovation for positive R&D outcomes*. CRC press, 2025. [Online]. Available: <https://books.google.com/books?hl=id&lr=&id=wu9GEQAAQBAJ&oi=fnd&pg=PT11&dq=The+data+collection+techniques+in+R%26D&ots=7JbR8oYsY9&sig>

=fsG5EZ5DzOKbpUOltyXOGetVZ7A

- [38] C. Wang, F. Tang, Q. Zhang, and W. Zhang, "How does corporate social responsibility contribute to innovation performance? The moderating role of social media strategic capability and big data analytics capability," *Eur. J. Innov. Manag.*, vol. 28, no. 2, pp. 631–655, Jan. 2025, doi: 10.1108/EJIM-11-2022-0636.
- [39] X. Lei and X. Xu, "Innovation in the storm: How typhoons are reshaping the corporate R&D landscape," *Technol. Soc.*, vol. 81, p. 102828, Jun. 2025, doi: 10.1016/j.techsoc.2025.102828.
- [40] A. Shaikh, M. T. Berrouane, and C. Bottaro, "Implications of Using a Translational Research & Development Model," in *EAI 3rd International Conference on Smart Technologies and Innovation Management: MTYMEX 2024*, Springer Nature, 2025, p. 99. [Online]. Available: <https://books.google.com/books?hl=id&lr=&id=VgEuEQAAQBAJ&oi=fnd&pg=PA98&dq=The+data+collection+techniques+in+R%26D&ots=nPTUbXtczU&sig=ZCCDFM6YmkZxU3O1UJxR3jiwgBg>
- [41] I. Vasileiou, "Determinants of Participation in EU-funded R&D Cooperative Projects: the Greek Case," 2025. [Online]. Available: https://dspace.lib.ntua.gr/xmlui/bitstream/handle/123456789/60864/Vasileiou_Ioanna_Thesis.pdf?sequence=1
- [42] F. A. Hosseini, L. Zarshenas, K. Parvan, M. Shaygan, B. Tehranineshat, and B. Thomson, "Assessment of the validity and reliability of the nurses' professional values scale—revised in Persian version among nursing students," *BMC Med. Educ.*, vol. 25, no. 1, p. 125, Jan. 2025, doi: 10.1186/s12909-025-06677-y.
- [43] H. Wantoro, M. M. Afandi, and D. H. Siswanto, "Development of a Guided Discovery-Based Scientific Approach Module for Enhancing Problem-Solving Skills," *Contemp. Educ. Community Engagem.*, vol. 2, no. 1, pp. 51–63, Jan. 2025, doi: 10.12928/cece.v2i1.1271.
- [44] P. Ramadani and C. R. Anwar, "A valid and practical electronic digital security module for educational technology study program students," *J. Res. Instr.*, vol. 5, no. 1, pp. 246–257, Jan. 2025, doi: 10.30862/jri.v5i1.505.
- [45] S. Sugiyono, *Research Method: Case Study Approach Using Quantitative, Qualitative, and Mixed Methods*. Alfabeta, 2023.
- [46] A. Kumar and S. G. Praveenakumar, *Research methodology*. Authors Click Publishing, 2025. [Online]. Available: https://books.google.co.id/books?hl=id&lr=&id=e31SEQAAQBAJ&oi=fnd&pg=PA1&dq=the+researcher+carried+out+the+development+process+but+did+not+proceed+to+field+testing&ots=a6wsutu6iP&sig=7xuaeLm8J6DZbNAUNFnwCwFLINg&redir_esc=y#v=onepage&q&f=false
- [47] M. Bergmark, U. Markström, L. Richter Sundberg, and D. Rosenberg, "Implementing Evidence-Based Practices in Rural Areas: Development and Testing of a Researcher Practitioner Collaboration in Mental Health," *J. Evid. Based. Soc. Work*, vol. 22, no. 1, pp. 35–57, Jan. 2025, doi: 10.1080/26408066.2024.2430567.
- [48] S. Nurrohmah, R. Riyadi, and S. Sudiyanto, "Design and Development of Problem-

Title: Paper Formatting for IISTR (max. 12 words) (First author, et al.)


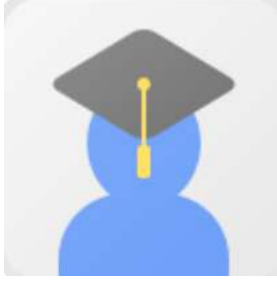
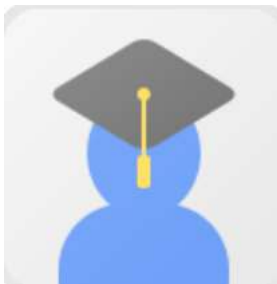
- Based Flipbook Media for Geometry Learning,” *Soc. Humanit. Educ. Stud. Conf. Ser.*, vol. 8, no. 1, p. 94, Feb. 2025, doi: 10.20961/shes.v8i1.98867.
- [49] L. Fransiska, F. Mayar, R. Rakimahwati, and D. Eliza, “DEVELOPMENT OF A FLIPBOOK E-MODULE ON PROJECT-BASED PANCASILA INCORPORATING LOCAL WISDOM TO STRENGTHEN THE VALUES OF MUTUAL COOPERATION AND CREATIVITY IN KINDERGARTEN,” *Prima Magistra J. Ilm. Kependidikan*, vol. 6, no. 2, pp. 71–80, Apr. 2025, doi: 10.37478/jpm.v6i2.4096.
- [50] S. N. Fitriyah, E. Sutadji, and R. S. I. Dewi, “Professionalism and technological pedagogical and content knowledge skills of primary school teacher,” *Res. Dev. Educ.*, vol. 5, no. 1, pp. 209–227, 2025, doi: 10.22219/raden.v5i1.37594.
- [51] R. Amelia, A. Syahid, and H. Widiastuty, “INFUSING ISLAMIC VALUES INTO ENGLISH LEARNING: CREATING AN INTERACTIVE E-MODULE FOR ISLAMIC SECONDARY SCHOOL STUDENTS: English,” *English J.*, vol. 19, no. 1, pp. 25–39, 2025, [Online]. Available: <https://ejournal.uika-bogor.ac.id/index.php/ENGLISH/article/view/19095>
- [52] A. P. Fuadi, D. Aulia, and D. Disman, “The Influence of Interactive Media Based on Information Technology on the Learning Effectiveness of Students,” *J. Pendidik. Ekon. Indones.*, vol. 7, no. 1, pp. 74–90, doi: 10.17509/jpei.v7i1.78136.
- [53] Y. Gao, L. Zhu, and M. Tian, “SWOT analysis of the application of three digital media in OLPE physical education teaching: Edmodo, Zoom, and Google Meet,” *BMC Med. Educ.*, vol. 25, no. 1, p. 243, Feb. 2025, doi: 10.1186/s12909-025-06826-3.
- [54] T. Ahmed, “EXPLORING DOCTORAL SUPERVISION IN LAW EDUCATION: PERSPECTIVES IN TEACHING AND PEDAGOGY,” *Malaysian J. Learn. Instr.*, vol. 22, no. 1, pp. 1–22, Jan. 2025, doi: 10.32890/mjli2025.22.1.1.
- [55] F. Stiefel, S. Krenz, V. Baechtold, L. Michaud, and C. Bourquin, “Experience feedback on participation in a structured, psychodynamic supervision centered on the clinician-patient interaction: Are oncologists ready to talk about themselves?,” *Ann. Médico-psychologiques, Rev. Psychiatr.*, Jan. 2025, doi: 10.1016/j.amp.2024.12.002.
- [56] L. L. Gonçalves, K. S. Silva, L. Liziero, M. Parker, and D. S. Silva, “Reimagining school-university partnerships in physical education: a collaborative design to approach democratic professionalism,” *Phys. Educ. Sport Pedagog.*, pp. 1–16, Feb. 2025, doi: 10.1080/17408989.2025.2463529.
- [57] A. H. Herut and M. A. Setlhako, “Shaping future preschool teachers in Ethiopia: A qualitative evaluation of pedagogical competence development mechanisms,” *Soc. Sci. Humanit. Open*, vol. 11, p. 101218, 2025, doi: 10.1016/j.ssaho.2024.101218.
- [58] M. C. Skewes, V. M. Gonzalez, and A. Stix, “Training community members to deliver an intervention for substance use disorder: Overcoming implementation barriers in American Indian communities,” *J. Subst. Use Addict. Treat.*, vol. 168, p. 209541, Jan. 2025, doi: 10.1016/j.josat.2024.209541.
- [59] S. Cox, M. Smithdeal, and M. Lee, “A script for change: Using theatre to facilitate difficult conversations about graduate supervision: un script transformateur: Utiliser le théâtre pour faciliter les conversations difficiles sur la supervision des

- étudiants aux cycles supérieurs," *McGill J. Educ. des Sci. l'éducation McGill*, vol. 59, no. 1, pp. 111–130, 2025, [Online]. Available: <https://mje.mcgill.ca/article/view/10277>
- [60] O. T. Adigun, N. Mpofu, and M. C. Maphalala, "Fostering self-directed learning in blended learning environments: A constructivist perspective in Higher Education," *High. Educ. Q.*, vol. 79, no. 1, p. e12572, Jan. 2025, doi: 10.1111/hequ.12572.
- [61] G. Yang, Y. Yan, S. Guo, and X. Wei, "The Impact of Embedding Interactive Tasks in Augmented Reality Storybooks on Children's Reading Engagement and Reading Comprehension," *IEEE Trans. Learn. Technol.*, vol. 18, pp. 179–191, 2025, doi: 10.1109/TLT.2025.3532464.
- [62] M. Sattar, S. Raza, and H. Javed, "FROM AUDIO TO VISUAL: RETHINKING ESL LISTENING COMPREHENSION THROUGH VIDEO-BASED TESTS," *J. Appl. Linguist. TESOL*, vol. 8, no. 1, pp. 531–539, 2025, [Online]. Available: <https://jalt.com.pk/index.php/jalt/article/view/348>
- [63] A. F. Arifah, U. Ubaidillah, and A. Muhith, "Introducing Android-based Digital Learning Media Assisted by iSpring Suite in Science and Social Studies Learning in Elementary Schools," *J. Educ. Res. Pract.*, vol. 3, no. 1, pp. 149–166, Mar. 2025, doi: 10.70376/jerp.v3i1.352.
- [64] Y. Shen, W. Zhang, S. Wang, and Z. Wu, "An Empirical Study on the Communication Effectiveness of Rural Digital Creative Design Based on the Uses and Gratifications Theory," in *International Conference on Human-Computer Interaction*, Springer, 2025, pp. 89–104. doi: 10.1007/978-3-031-93163-5_7.
- [65] S. Chotimah and S. Nurhayati, "Effectiveness of the Problem-Based Learning Model Assisted by VBA-Based Media for Excel in Equivalency Education Context," *J. Ilm. Profesi Pendidik.*, vol. 10, no. 2, pp. 1496–1507, 2025, doi: 10.29303/jipp.v10i2.3316.
- [66] S. Nurvitasari, K. C. Suryandari, and S. Supianto, "Needs Analysis of Local Wisdom-Based Learning Media to Improve Science Literacy of Elementary School Learners," *Soc. Humanit. Educ. Stud. Conf. Ser.*, vol. 8, no. 1, p. 654, Feb. 2025, doi: 10.20961/shes.v8i1.99046.
- [67] F. Bifakhlina, F. Perdana, and A. Prasetyadi, "Optimizing Tableau for data visualization management by data analiyst at Kapanlagi Youniverse," *Informatio J. Libr. Inf. Sci.*, vol. 5, no. 2, pp. 111–125, 2025, doi: 10.24198/inf.v5i2.62097.
- [68] L. D. Purwati, T. Murwaningsih, and K. C. Suryandari, "The Effectiveness of Canva-Based Flipbook Learning Media to Improve Students' Scientific Literacy Abilities," *Soc. Humanit. Educ. Stud. Conf. Ser.*, vol. 8, no. 1, p. 332, Feb. 2025, doi: 10.20961/shes.v8i1.98935.
- [69] E. Daulay, "A case study in the use of audio-visual media for teaching listening skills in junior high school EFL classrooms: Perceived effectiveness and challenges," *J. English as a Foreign Lang.*, vol. 15, no. 1, pp. 135–159, Mar. 2025, doi: 10.23971/jevl.v15i1.9432.
- [70] Y. Boray, R. Alkai, and N. Fetais, "Falconry Heritage in Mixed Reality: An Interactive Experience for Digital-Native Tourists," in *Proceedings of the 2025*

ACM International Conference on Interactive Media Experiences, New York, NY, USA: ACM, Jun. 2025, pp. 333–337. doi: 10.1145/3706370.3731702.

- [71] M. Adsız and S. Dinçer, “The Analysis of Classroom Management Challenges Faced by Teachers in Online Classrooms,” *TechTrends*, vol. 69, no. 2, pp. 345–361, Mar. 2025, doi: 10.1007/s11528-025-01042-8.
- [72] A. P. Muhammad, “Flipbook-Based E-Module Development for Islamic Religious Education in Junior High Schools,” UIN RADEN INTAN LAMPUNG, 2025. [Online]. Available: <https://repository.radenintan.ac.id/37419/>

Biographies of Authors

	<p>Asmara Yumarni is a lecturer in Fiqh and Aqidah Akhlak instruction within the Islamic Religious Education program at the State Islamic University of Fatmawati Sukarno, Bengkulu. She actively writes scholarly articles on Fiqh education, particularly focusing on its role in fostering the religious development of students and university learners. Currently, she has a strong interest in exploring various aspects of Islamic Religious Education (PAI). She can be reached via email at: asmarayurmani@mail.uinfasbengkulu.ac.id</p>
	<p>Yeti Herliza is a lecturer in Fiqh instruction within the Islamic Religious Education program at the State Islamic University of Fatmawati Sukarno, Bengkulu. She actively writes scholarly articles on Fiqh education, particularly focusing on its contribution to the religious development of students and university learners. Currently, she has a strong interest in exploring various aspects of Islamic Religious Education (PAI). She can be contacted via email at: yetiherliza22@gmail.com</p>
	<p>Abdul Hobir is a lecturer in Islamic Education Management in the Master's Program in Islamic Education Management at the Islamic University of Madura. He actively writes scholarly articles on Islamic Education Management (MPI). Currently, he has a strong interest in exploring organizational structures and behavior within organizations. He can be contacted via email at: abdulhobir@uim.ac.id</p>