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Development of an Interactive Digital E-Module Based on the ADDIE Model with *Thaharah* Material for PAI Students at UIN Palangka Raya as MTs Level Learners

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Abstract

This study focuses on the development of an interactive digital e-module on *Thaharah* (Wudhu) using the ADDIE instructional design model, aimed at enhancing the learning experience of MTs (Junior High School) students. The e-module was designed as an interactive flipbook incorporating textual explanations, images, instructional videos, and interactive quizzes to support conceptual understanding and learner engagement. The ADDIE model—comprising the phases of Analysis, Design, Development, Implementation, and Evaluation—provided a structured framework for systematic instructional media development. A trial implementation was carried out at the UIN Palangka Raya campus, involving Islamic Education Study Program students who acted as representative MTs learners. Evaluation results indicated that the e-module is user-friendly and pedagogically effective, leading to improved comprehension of wudhu principles and increased student motivation. Participant feedback highlighted the module's potential as an engaging and accessible tool for delivering technology-integrated Islamic religious education. These findings

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affirm the relevance of interactive digital media in supporting curriculum delivery and learner-centered pedagogy in religious education contexts.

Keywords: ADDIE Model; Interactive E-Module; *Thaharah* (Wudhu); Islamic Education; Learning Media Development

INTRODUCTION

This analysis highlights the crucial role of Islamic Education (PAI) in shaping students' personalities and noble character. PAI focuses not only on cognitive aspects but also develops affective and psychomotor dimensions, making the learning process more holistic and comprehensive. However, the reality on the ground shows that the PAI learning process in schools and madrasahs remains largely conventional (Mala et al., 2024). Teachers often dominate by using lectures, Q&A, and written assignments as primary teaching strategies, without much variation to increase students' active engagement (Hew, 2016).

As a result of the monotonous methods used, students tend to be passive during learning, which leads to boredom and difficulty in deeply understanding the material. This issue is especially pronounced in practical subjects, such as learning about *Thaharah* (*Wudhu*). The less interactive approach hinders mastery of valuable skills that are important in daily life and the actual application of religious values (Husnayain et al., 2024). Therefore, innovation in PAI teaching methods is necessary to create a more dynamic, engaging learning atmosphere that supports the development of strong character.

Along with technological advancements, learning is increasingly digitalized, requiring teachers and prospective educators to optimize the use of information technology as a learning medium. It requires educators to enhance their competencies and adapt to ensure that teaching and learning processes run effectively and efficiently in the digital era. According to Munir (2017), educational technology is not only a mere tool but also an integral part of the education system that can accelerate and deepen learners' learning experiences.

One innovation with great potential is the development of interactive digital e-modules, which are electronic learning materials designed to be engaging, flexible, and interactive. This innovation not only facilitates independent learning access for students but also improves their engagement and understanding of the subject matter. The use of

interactive digital e-modules can enrich traditional teaching methods with features such as videos, quizzes, and simulations, providing a more dynamic and enjoyable learning experience (Gunawan et al., 2024).

The interactive digital e-module offers many advantages over conventional printed teaching materials. This module can integrate text, images, videos, and quizzes, all digitally connected, allowing learners to study independently at their own pace (Ismaniati & Iskhamdhanah, 2023). This research focuses on developing an interactive digital e-module based on the ADDIE model on the topic of *Thaharah* (*Wudhu*), a fundamental subject in Islamic *fiqh* education at the MTs level.

Previous research on the development of interactive digital e-modules based on the ADDIE model with the topic of *Thaharah* (*Wudhu*) has shown that this e-module is practical and relevant as a learning medium at the MTs level (Nengsih et al., 2025). The e-module integrates multimedia elements—text, images, videos, and quizzes — that facilitate independent learning at students' own pace, significantly improving learning outcomes after use (Syafa'ah et al., 2024). Material and media validation indicate a high level of feasibility, and students' positive responses affirm the appeal and effectiveness of this module in teaching Islamic *fiqh* (Asmiani, 2023). The systematic use of the ADDIE model —Analysis, Design, Development, Implementation, and Evaluation —is considered capable of ensuring the quality and success of this interactive e-module in the context of modern Islamic education (Fathurroziq & Astutik, 2024).

This research was conducted on the UIN Palangka Raya campus, involving trial subjects who are students of the 2023 cohort of the PAI Study Program acting as MTs (Junior High School) level learners. This condition was chosen due to limited time and access to schools, but it still maintains the validity of the product development process. As prospective educators, the students possess strong analytical competence to provide feedback on the effectiveness of developing an interactive digital e-module based on the ADDIE model, which includes the stages of Analysis, Design, Development, Implementation, and Evaluation.

METHODS

This study uses a Research and Development (R&D) approach, adapting the ADDIE model, which consists of five stages: Analysis, Design, Development,

Implementation, and Evaluation (Sanjaya, 2015). This model is chosen because it is systematic and structured in producing valid, engaging, and effective learning products for application in the teaching and learning process of Islamic Education (*Pendidikan Agama Islam*/PAI).

This research was conducted at the State Islamic University (UIN) Palangka Raya with 29 students from the 2023 cohort of the Islamic Education (PAI) Study Program as subjects, acting as learners at the Madrasah Tsanawiyah (MTs) level. The students were selected for their strong analytical abilities in the subject matter and instructional design, as well as their capacity to provide feedback on the quality of the e-module they developed. The development process of the interactive digital e-module followed the five stages of the ADDIE model: Analysis, Design, Development, Implementation, and Evaluation.

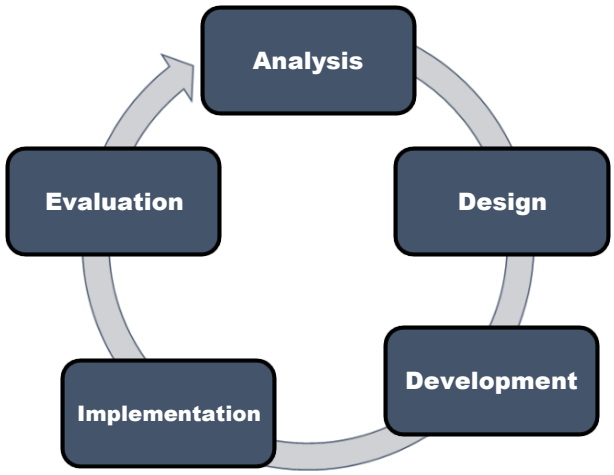

Figure 1. The Five Stages of the ADDIE Model

1. Analysis

At this stage, analyses of learners' needs and characteristics, curriculum analysis, and identification of problems in Islamic Education (PAI) are conducted. Based on interview results, it was found that the teaching of *Thaharah* (*Wudhu*) material remains conventional, predominantly using lecture methods, and lacks digital media. The Merdeka curriculum analysis for the MTs level indicates that the basic competency related to *wudhu* requires students to understand the procedures, conditions, and wisdom of performing *wudhu* correctly.

2. Design

This stage includes analyzing needs, learner characteristics, learning objectives, and the learning environment. Based on initial interviews, students reported that the PAI learning media is still monotonous and has not widely utilized digital technology. Furthermore, the *Thaharah* (*Wudhu*) material is often considered boring because it consists solely of text, with no practical visualizations. Curriculum analysis was also conducted based on the Merdeka Curriculum for the MTs level, in which the basic competencies related to *Thaharah* (*Wudhu*) require learners to understand the procedures, conditions, and the wisdom of performing *wudhu* correctly. This stage involves designing the e-module's content, appearance, and features. Researchers set learning outcomes, developed a concept map for *wudhu* material, and determined multimedia elements, including text, images, demonstration videos, and interactive quizzes. The visual design was created using Canva and converted into an interactive flipbook with Flip PDF Corporate Edition.

Figure 2. Islamic Education (PAI) Teaching Module for MTs Class 7

3. Development

This stage focuses on product creation and validation. The product was developed as an interactive flipbook e-module featuring brief explanatory texts, images of *wudhu* steps, an eight-minute practical video, and multiple-choice evaluation quizzes. Validation was

conducted by two experts — namely, a content expert and a media expert — to assess content, design, and product interactivity.

Figure 3. Validation of an Interactive Flipbook e-Module

4. Implementation

This implementation stage was carried out through a limited trial involving 29 PAI students from the 2023 cohort acting as MT's learners. They used the e-module for 45 minutes, then completed response questionnaires and participated in interviews. The purpose of this stage was to determine the effectiveness, attractiveness, and ease of use of the developed interactive digital e-module.

Figure 4. Implementation of Use of Interactive Digital E-Module

5. Evaluation

Evaluation was conducted both formatively and summatively. Formative evaluation was performed at each stage of development to address product weaknesses, while summative evaluation was conducted after the trial to assess the overall effectiveness of the e-module. Additionally, an assessment was also undertaken to determine the product's quality and its effectiveness in enhancing material comprehension (Dansereau, 2014). Data were collected through questionnaires, interviews, and observations of students during the use of the interactive digital e-module. Furthermore, evaluation was carried out formatively and summatively. Formative evaluation was performed at each development stage to

address shortcomings, while summative evaluation was conducted after the trial to assess the e-module's overall effectiveness. Data analysis was carried out using quantitative descriptive methods (through validation scores and response questionnaires) and qualitative descriptive methods (through interview results and field observations).

The instruments used in this study include: 1) Expert Validation Sheets to assess the feasibility of the content, appearance, and interactivity of the e-module. 2) Student Response Questionnaires to determine responses regarding the attractiveness and ease of use of the product. 3) Open Interviews to obtain qualitative data on the learning experiences of participants. 4) Understanding Tests (Pre-Test and Post-Test) to measure the improvement in comprehension after using the e-module.

The expert validation data were analyzed using feasibility percentages, while the student response data were analyzed using the Likert scale. The average scores were categorized based on feasibility criteria according to Sugiyono (2019) as follows:

Table 1. Validation

81–100%	**Very Feasible**
61–80%	Feasible
41–60%	Quite Feasible
21–40%	Less Feasible
0–20%	Not Feasible

Meanwhile, the pre-test and post-test results were analyzed to assess the increase in understanding by comparing average scores.

RESULTS

Product Validation Results

The validation process was conducted by two experts—a content expert and a media expert—to assess the feasibility of the interactive digital e-module's content and design, using the ADDIE model. The evaluation results showed that the product falls into the "very feasible" category with an average score of 90%. The content expert's validation covered content accuracy, curriculum alignment, conceptual completeness, and presentation clarity. Meanwhile, the media expert's validation encompassed visual appearance, navigation, ease

of use, and interactivity. The table below shows the assessment results based on the evaluation aspects from both validators:

Table 2. Validation Results of Interactive Digital E-Module

Assessment Aspects	Score (%)	Category
Appearance (Design and Navigation)	88	Very Feasible
Content and Conceptual Suitability	91	Very Feasible
User Interactivity and Engagement	92	Very Feasible
Average	**90**	**Very Feasible**

Based on these results, the interactive digital e-module is feasible as a learning medium for Islamic Education (PAI), particularly on the topic of *Thaharah* (*Wudhu*). It aligns with Nofia et al. (2023), who stated that flipbook-based media can enhance the attractiveness of learning and facilitate student interaction with the learning content. The content expert suggested clarifying the citation of verses and hadiths, while the media expert recommended increasing the size of the navigation buttons. These suggestions were used as the basis for product revisions during the formative evaluation stage.

Field Trial Results

The product trial was conducted on the UIN Palangka Raya campus, involving 29 students from the Islamic Religious Education Study Program, who served as MTs learners—the trial aimed to determine the effectiveness and user response to the developed e-module. To understand the application of the developed learning media, the researchers needed to test the product in the field (on campus) by involving students as learners in the teaching and learning activities. This step was carried out to gather information on the learning media product, which clearly requires improvement and quality enhancement to ensure compatibility with learners. This stage also aligns with the ADDIE development model guidelines —Analysis, Design, Development, Implementation, and Evaluation (Ningsih et al., 2023).

The model is appropriate because it provides a systematic approach to producing valid, engaging, and effective learning materials. Therefore, the researchers conducted a trial of the teaching media product, namely the interactive digital e-module. During the learning

process, students actively participate in the interactive digital e-module. The interactive digital e-module, explicitly designed for students, is visually appealing to prevent boredom during the learning process. Using the interactive digital e-module enhances students' understanding of the material and increases their interest in the content.

The researchers actively implemented the developed teaching media product during data collection on campus. This involvement is crucial to maintain a natural teaching and learning process (Yanzhi Zhao & Shi, 2024). Beyond being a mandatory step in the ADDIE development model, this phase also allowed the researchers to assess the effectiveness of the interactive digital e-module in terms of student engagement, interest, and motivation towards the new learning materials provided. The researchers observed high enthusiasm among students throughout the classroom learning activities. In addition to direct observation, the researchers recorded field notes focusing on several key aspects that emerged during the trial.

Following the trial, interviews were conducted with both lecturers and students to evaluate the outcomes of the interactive digital e-module development tested in the field. These interviews aimed to understand the extent to which the product contributed to students' learning experience and outcomes. The responses revealed improvements in students' comprehension and interest in the material, demonstrating the interactive e-module's positive impact on their learning motivation and achievement. This feedback provides valuable insights for further refining and validating the teaching media developed (Moll & Nielsen, 2017).

Table 3. Results of Student Responses and Improved Understanding

Rated Aspect	**Percentage (%)**	**Category**
Improved Understanding (Pre–Post Test)	27	Increased
Response to Design and Appearance	93	Very Positive
Response to Interactivity and Quizzes	85	Positive
Response to Ease of Use	90	Very Positive

The table results show that students responded positively to the interactive digital e-module. They found the module's appearance and colors very appealing, navigation user-friendly, and the interactive quiz feature helpful for better retention of the material. This

positive response indicates that the visual design and functionality enhance the learning experience by making it more enjoyable and effective for students (Ha & Im, 2020).

Moreover, the pre-test and post-test results demonstrate a 27% improvement in understanding, reflecting the product's positive impact on students' grasp of the *wudhu* concept. This finding aligns with Kravchenko and Cass's (2017) view that interactive learning media can boost student attention, motivation, and retention of lesson content. Such a significant gain underscores the importance of using digital interactive media to teach religious concepts, such as *wudhu*.

Some students provided specific feedback highlighting the strengths of the interactive digital e-module. They noted that it simplifies understanding of *the wudhu* steps through clear visualization, has an aesthetically pleasing design with soft colors, and encourages learning enthusiasm through interactive quizzes. Additionally, they stated that this media is highly suitable for digital-based school settings. However, some students also suggested adding an audio narration feature to support those who have difficulty reading, making the material more accessible and inclusive.

DISCUSSION

Digital E-Module Product Display

The final product of the e-module was developed as an interactive flipbook accessible both online and offline. This module features a compelling combination of text, images, videos, and quizzes. The product's interface can be viewed through the following link: https://heyzine.com/flibook/ee3169141e.html.

This module contains several main components, including: 1) A brief explanation of the definition, conditions, pillars, and nullifiers of *wudhu*. 2) Clear and sequential illustrations of *wudhu* steps. 3) An approximately 8-minute video demonstrating the practice of *wudhu*, enhancing visual understanding. 4) An interactive multiple-choice quiz accessible at the end of the learning session. According to Munir (2017), integrating various media types into learning can foster student interest and enhance the effectiveness of message delivery. Therefore, this interactive digital e-module is designed not only to convey information but also to create an active and enjoyable learning experience.

The results of the development indicate that the interactive digital e-module based on the ADDIE model can be effectively implemented in Islamic Education (PAI), particularly on the topic of *Thaharah* (*Wudhu*). This product effectively integrates cognitive, affective, and psychomotor elements through text, images, videos, and evaluative quizzes.

Conceptually, this study reinforces Indra et al.'s (2023) theory that technology-based learning media can accelerate students' understanding. This acceleration occurs because the use of visual and interactive media increases student engagement and focus during the learning process. Furthermore, the effectiveness test results align with Alkeva's (2025) emphasis on the importance of innovative digital learning media in supporting the implementation of the Independent Curriculum (*Kurikulum Merdeka*). These findings indicate that innovative learning media are essential to meet the demands of modern education (Yanti, 2022).

Thus, this interactive digital e-module can serve as a solution to challenges in Islamic Religious Education in the digital era, which requires active student participation and the use of information technology-based media. This product not only enriches teaching methods but also enhances the quality and effectiveness of the teaching and learning process.

CONCLUSION

This study successfully developed an Interactive Digital E-Module based on the ADDIE Model for the *Thaharah* (*Wudhu*) material targeting students at the Madrasah Tsanawiyah (MTs) level. Product validation results categorized the module as highly feasible, achieving an average score of 90%. Trial results also showed a 27% improvement in students' understanding after using the e-module. The e-module was found to be engaging, user-friendly, and capable of enhancing students' motivation and involvement in the learning process. By integrating text, images, videos, and interactive quizzes, the module offers a more meaningful learning experience aligned with the demands of the digital era. Overall, this interactive digital e-module proves to be an effective alternative learning medium in Islamic Education (*Pendidikan Agama Islam*/PAI), particularly for practical topics such as *Thaharah* (*Wudhu*). Future development is recommended to include audio narration features to accommodate auditory learners, integrate automated assessments for direct measurement of learning outcomes, expand the e-module for use on online learning platforms such as Google

Classroom or an LMS for Islamic Education, and conduct effectiveness testing with a larger student sample to achieve more generalizable and representative findings.

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