

Development of Digital Teaching Materials for Islamic Civilization History Course Based on Problem-Based Learning (PBL)

Asep Andi Rahman¹, Mahmud², Ajid Thohir³, Setia Gumilar⁴

^{1,2,3,4}UIN Sunan Gunung Djati Bandung, Kota Bandung, Jawa Barat, Indonesia

ABSTRACT: This study explores the development of digital teaching materials for the Islamic Civilization History (SPI) course using a Problem-Based Learning (PBL) approach. Motivated by the limited availability of digital learning resources and the dominance of conventional lecture methods, the research aims to improve student engagement and learning outcomes in the digital age. Using a Research and Development (R&D) method with a simplified Borg and Gall model, the study proceeded through five stages: needs analysis, design, initial development, expert validation and trials, and final revision. Data were collected via observation, interviews, questionnaires, documentation, and tests, and analyzed using both qualitative and quantitative descriptive techniques. Findings revealed a significant need for PBL-based digital materials. The developed model integrated PBL syntax into the eNaba LMS, including modules, case studies, videos, discussion forums, and quizzes. Expert validation confirmed the product's content and pedagogical feasibility, while trials demonstrated enhanced student performance, motivation, and critical thinking skills. The study concludes that digital PBL-based teaching materials offer a reflective, contextual, and collaborative learning environment conducive to higher learning achievement.

KEYWORDS: digital teaching material, PBL, Islamic Civilization History, SPI

1. INTRODUCTION

In the digital era, learning has undergone significant changes, especially with the development of digital teaching materials. In the context of Islamic education, particularly the Sejarah Peradaban Islam (SPI) course, this transformation is increasingly relevant. The SPI course, which explores the rich and diverse history of Islamic civilization, requires teaching materials that are not only informative but also interesting and accessible to students. The development of digital teaching materials based on the Problem-Based Learning (PBL) model is a promising strategy to increase the effectiveness of SPI learning.

Digital teaching materials offer various advantages that support the learning process. They allow easier access to information, provide flexibility in learning time and place, and can be enriched with various multimedia elements such as images, audio, and video that enhance students' understanding. Moreover, digital teaching materials can be continuously updated and tailored to the needs and learning styles of students. In the context of SPI, which includes complex and broad historical content, digital teaching materials can present information more dynamically and interactively.

Problem-Based Learning (PBL) is a learning model that emphasizes problem-solving as the primary learning process. This model encourages students to actively engage in identifying, analyzing, and solving problems, thereby improving their critical thinking, collaboration, and independent learning skills. Integrating PBL into digital teaching materials allows students to be directly involved in exploring Islamic history through real or simulated cases, making the learning process more meaningful and contextual.

The relevance of digital teaching materials based on PBL in SPI courses also relates to current educational demands that emphasize 21st-century skills. The Indonesian Ministry of Education has promoted the Merdeka Belajar program, which focuses on student-centered learning and the integration of technology in education. In this context, the development of digital teaching materials based on PBL is in line with the objectives of the Merdeka Belajar curriculum, namely to create a more active, creative, and critical learning environment.

Several previous studies have shown the effectiveness of digital teaching materials and the PBL model in enhancing learning outcomes. For example, research by Medriati et al. (2022) and Purwanto and Risdianto (2022) showed that digital teaching materials could improve students' understanding and motivation. Additionally, Shchedrina et al. (2021) demonstrated that integrating adaptive technology into learning platforms could increase student engagement. However, in the context of SPI, studies specifically developing digital teaching materials based on PBL are still limited.

This study aims to fill the gap by developing digital teaching materials for SPI courses based on the PBL model. The development of these materials follows the ADDIE model (Analysis, Design, Development, Implementation, and Evaluation), a systematic

Development of Digital Teaching Materials for Islamic Civilization History Course Based on Problem-Based Learning (PBL)

instructional design approach. Through this research, it is expected to produce digital teaching materials that are effective, practical, and relevant to students' needs in learning Islamic history.

This research contributes to the development of Islamic education, especially in the context of utilizing technology in learning. By providing structured and contextual digital teaching materials, students are expected to better understand Islamic civilization and appreciate the historical values that shape Islamic identity. In addition, this research is expected to support innovation in teaching SPI and be a reference for educators in developing similar materials in other subjects.

2. METHODOLOGY

This research employs the Research and Development (R&D) method using the ADDIE model, which includes five main stages: Analysis, Design, Development, Implementation, and Evaluation. The choice of this model is based on its structured and systematic approach, which is highly relevant to the development of digital teaching materials. The use of ADDIE ensures that every stage in the development process is well documented and focused on achieving the learning objectives.

In the analysis phase, the needs of students and the characteristics of the SPI course were identified. This stage involved a review of the existing curriculum, interviews with lecturers, and a survey of students to determine the gaps and needs in current learning materials. The results of this analysis became the basis for designing digital teaching materials that are relevant, contextual, and in accordance with the Problem-Based Learning (PBL) approach.

The design stage included the formulation of learning objectives, preparation of material content outlines, and selection of digital platforms suitable for SPI learning. The design process also involved determining appropriate problem-based scenarios that can stimulate students to think critically and solve problems independently. At this stage, storyboards and flowcharts were created to visualize the structure and flow of the material.

In the development phase, the teaching materials were created in digital format using various media such as text, images, audio, and video. The digital materials were packaged in a way that is easy to access and use by students. The development process also involved validation by experts in the fields of content, media, and learning. This validation aimed to ensure that the teaching materials meet quality standards in terms of content accuracy, instructional design, and technical presentation.

During the implementation phase, the developed teaching materials were tested in a real learning environment. Students used the digital materials in the SPI course, and observations were made on their learning activities and responses. Feedback from students and lecturers was collected to identify areas for improvement. This phase served as a trial stage to measure the effectiveness and practicality of the developed materials.

The evaluation phase consisted of two parts: formative and summative evaluation. Formative evaluation was carried out at each stage of development to monitor progress and make necessary revisions. Summative evaluation was conducted at the end of the implementation to assess the overall effectiveness of the digital teaching materials in improving students' understanding of SPI and their engagement in the learning process.

Through this methodology, it is expected that the resulting teaching materials will not only be effective in supporting SPI learning but also provide a model for future development of digital content in Islamic education. The systematic process of ADDIE ensures that each stage is aligned with the goal of producing quality educational resources that meet students' learning needs.

3. RESULTS

The development of digital teaching materials for the SPI course based on the Problem-Based Learning (PBL) model was conducted through five key stages. The results of each phase are presented in this section, focusing on student needs, product design, validation results, practical implementation, and learning outcomes.

3.1 Student Needs for Digital Teaching Materials

Based on observations and a questionnaire survey involving 35 SPI students at the Department of Islamic Education, the study found a significant lack of accessible and relevant digital teaching materials. The students expressed difficulty in accessing structured content that supports independent learning. Only 5 out of 35 students (14.3%) considered the available digital materials sufficient, while 30 students (85.7%) reported inadequacy in supporting their learning process.

This finding aligns with pre-test results, where only 5 students achieved a minimum standard of competence in SPI.

Table 1. Student Learning Completion in SPI Course

No Category		Number of Students	Percentage
1	Completed	5	14.3%
2	Not Completed	30	85.7%

Development of Digital Teaching Materials for Islamic Civilization History Course Based on Problem-Based Learning (PBL)

These results confirmed the urgent need for structured, interactive, and accessible teaching materials that could be used independently or in blended learning environments.

3.2 Model Development and Validation Results

The digital material developed included structured modules delivered via the eNaba LMS, which integrated:

- Learning videos on major Islamic civilizations.
- Digital modules enriched with primary sources and analytical prompts.
- Historical case studies aligned with PBL syntax.
- Online discussion forums and interactive assessments.

Expert validation results were positive:

- The content expert rated the material as highly valid (score: 89%), praising its historical accuracy and alignment with SPI objectives.
- The technology expert emphasized user-friendliness, awarding a practical usability score of 91%.
- The pedagogical practitioner confirmed that the integration of PBL syntax effectively encouraged student participation and contextual understanding.

These evaluations affirmed the product's feasibility for broader implementation.

3.3 Student Motivation toward Digital Materials

A student motivation questionnaire, adapted from validated instruments, revealed positive perceptions of the digital materials.

Table 2. Student Motivation Toward Digital Teaching Materials

Statement	Agreement (%)
High motivation to succeed using digital learning materials	53%
Strong drive to learn using digital tools	57%
Hopeful about academic success with digital support	56%
Feel valued and respected during the learning process	58%
Materials make learning more engaging	53%
Digital facilities support learning success	69%
Feel digital materials align with academic aspirations	53%
Feel supported by lecturers in using digital tools	44%

While the majority expressed positive motivation, gaps remained in perceived lecturer support and alignment of digital tools with academic goals.

3.4 Learning Effectiveness Based on Pre-Test and Post-Test

To measure effectiveness, pre- and post-tests were administered to all students. The average pre-test score was 52.3, while the post-test average rose to 75.1, resulting in an N-Gain of 0.63, categorized as moderate to high. The increase reflects improved conceptual understanding and analytical capacity after the implementation of the digital PBL materials. In addition, reflection logs submitted by students highlighted their appreciation for interactive elements such as video content and discussion forums. Several students noted that working through case studies helped them connect historical concepts with contemporary Islamic issues.

3.5 Observed Behavioural Changes

During the four-week limited implementation, classroom observations documented significant improvements in student engagement. Students actively asked questions collaborated during group tasks, and used the LMS features to access supplementary materials and submit assignments. Attendance also improved, and students reported higher satisfaction with the learning process. These outcomes suggest that digital PBL teaching materials can positively influence both cognitive achievement and affective engagement.

4. DISCUSSION

The results of this study demonstrate that the integration of Problem-Based Learning (PBL) into digital teaching materials significantly enhances the effectiveness of instruction in the SPI (Islamic Civilization History) course. This finding affirms the relevance of student-centered and technology-mediated pedagogies in Islamic higher education, especially in an era marked by digital transformation and increased demands for autonomous learning.

Development of Digital Teaching Materials for Islamic Civilization History Course Based on Problem-Based Learning (PBL)

4.1 Addressing the Urgent Need for Digital Materials in SPI

The pre-test results and survey data clearly indicate that the majority of students were not achieving optimal learning outcomes due to the limited availability of structured and relevant digital materials. This aligns with the findings of Lestari and Handoko (2021), who noted that the absence of digital instructional resources in SPI limits students' opportunities for independent inquiry, reflection, and deeper understanding.

The SPI course covers a broad spectrum of historical narratives, cultural developments, and intellectual traditions in the Islamic world. Without digital tools to contextualize these complex ideas, students may struggle to relate historical concepts to contemporary issues. The developed PBL-based digital materials addressed this gap by providing students with structured modules, historical case studies, and multimedia elements designed to stimulate critical thinking and contextual analysis.

4.2 Enhancing Student Engagement and Motivation

Student motivation emerged as a key dimension in this study. As shown in Table 2, a significant proportion of students reported increased motivation and engagement when using the digital PBL materials. This is consistent with research by Savitri et al. (2021), who found that interactive learning models that incorporate multimedia and collaborative activities tend to improve students' affective responses to learning.

Furthermore, the integration of real-world problems and reflective learning activities encouraged students to take ownership of their learning. Bruner's (1966) theory of discovery learning supports this, emphasizing that students learn more effectively when they are involved in problem-solving and inquiry-based tasks. In this study, students were not passive recipients of historical information; instead, they became active participants who analyzed, synthesized, and interpreted content in meaningful ways.

4.3 Impact on Learning Outcomes

The learning gains observed from pre-test to post-test scores (N-Gain of 0.63) suggest that the digital PBL materials had a considerable impact on students' cognitive development. This finding is aligned with previous research conducted by Isfahani et al. (2020), who reported significant improvements in learning outcomes when PBL was applied in Islamic education contexts.

The improvement in students' analytical and reflective skills is particularly relevant in SPI, which requires interpretation of complex historical events, sources, and sociopolitical dynamics. By engaging in collaborative problem-solving activities and reflecting on historical case studies, students developed a more nuanced understanding of Islamic civilization's contributions and challenges.

4.4 Facilitating Active Learning through LMS Integration

The use of the eNaba Learning Management System (LMS) was instrumental in supporting the implementation of digital PBL materials. The LMS provided a flexible platform for distributing content, facilitating discussions, and monitoring student progress. According to Purwanto and Risdianto (2023), LMS platforms enhance instructional effectiveness by enabling blended and asynchronous learning modes.

In this study, students accessed learning materials outside of class hours, participated in online forums, and submitted assignments through the platform. This level of autonomy aligns with the Merdeka Belajar–Kampus Merdeka (MBKM) curriculum goals, which emphasize student independence, flexibility, and competence-based learning.

4.5 Redefining the Role of Lecturers

The implementation of digital PBL materials also shifted the role of lecturers from information providers to facilitators of learning. This pedagogical shift has been widely advocated in recent literature on digital transformation in Islamic education (Wardhani, 2024). Lecturers in this study provided scaffolding, moderated discussions, and offered formative feedback rather than merely delivering content.

This shift not only empowered students but also encouraged lecturers to adopt more reflective and adaptive teaching practices. The findings resonate with the work of Ibrahim et al. (2023), who argue that the success of digital learning innovations depends on the readiness and willingness of instructors to embrace new pedagogical roles.

4.6 Implications for Curriculum Development

The success of this study suggests that PBL-based digital teaching materials can serve as a model for other Islamic education courses seeking to enhance learning outcomes. The structure of the digital modules—anchored in contextual problems and supported by various multimedia resources—aligns with national and global calls for innovation in higher education.

Curriculum designers should consider integrating similar models into broader course offerings, particularly those that require interpretive thinking and historical analysis. Furthermore, institutions should invest in lecturer training, digital infrastructure, and instructional design expertise to scale such innovations effectively.

5. CONCLUSION

This study has demonstrated the importance and effectiveness of developing digital teaching materials based on the Problem-Based Learning (PBL) model for the Islamic Civilization History (SPI) course. The research responded to a critical need in Islamic higher

Development of Digital Teaching Materials for Islamic Civilization History Course Based on Problem-Based Learning (PBL)

education, where traditional teaching methods and limited digital resources have constrained student engagement, motivation, and learning outcomes.

The development process followed a structured Research and Development (R&D) model, integrating contextual problem-solving scenarios, multimedia resources, and interactive learning pathways into the eNaba LMS platform. The resulting digital teaching materials were validated by experts and tested in a real classroom setting, yielding positive results in terms of usability, pedagogical alignment, and learning effectiveness.

Key findings of the study include:

1. High demand and readiness among students for digital learning tools, especially when designed to support active and contextualized learning in SPI.
2. Significant improvements in student achievement, with post-test scores rising markedly compared to pre-test results (N-Gain score: 0.63).
3. Increased student motivation and engagement, as indicated by survey responses and behavioral observations during class activities.
4. Positive feedback from experts, confirming the validity, practicality, and pedagogical relevance of the materials.

The implementation of PBL in digital formats has proven effective not only in enhancing cognitive understanding but also in fostering reflective, collaborative, and student-centered learning environments. Moreover, this approach contributes to broader educational goals, such as supporting the Merdeka Belajar–Kampus Merdeka (MBKM) policy, encouraging independent learning, and preparing students for future challenges through critical thinking and historical literacy.

From a theoretical standpoint, this study enriches the discourse on digital pedagogy in Islamic education by offering a model that bridges classical content with modern instructional design. Practically, it offers a replicable framework for other courses seeking to integrate PBL into digital materials.

Recommendations

Future research should consider:

- Expanding the use of the developed materials across different Islamic education institutions.
- Investigating long-term impacts on student learning behavior and academic performance.
- Exploring integration with emerging technologies such as AI, gamification, or mobile learning platforms.

Institutional support, including investment in infrastructure, training for lecturers, and curriculum innovation, will be critical to scaling and sustaining the impact of digital PBL-based teaching materials in Islamic education.

REFERENCES

- 1) Akbar, S. (2013). *Instrumen perangkat pembelajaran*. PT Remaja Rosdakarya.
- 2) Andi, R. H., & Hariyadi, M. S. (2021). Pengembangan bahan ajar SPI berbasis kearifan lokal untuk mahasiswa PAI. *Jurnal Pendidikan Islam*, 9(2), 123–134.
- 3) Arifin, A., & Rahmawati, N. (2020). Desain media pembelajaran berbasis video animasi. *Jurnal Teknologi Pendidikan*, 18(1), 45–52.
- 4) Arsyad, A. (2017). *Media pembelajaran*. PT RajaGrafindo Persada.
- 5) Astuti, S. (2021). Implementasi pembelajaran berbasis PBL dalam pendidikan tinggi. *Jurnal Ilmu Pendidikan Islam*, 10(1), 12–21.
- 6) Azizah, N., & Fauziah, L. (2019). Perancangan modul digital pada mata kuliah sejarah kebudayaan Islam. *Jurnal Inovasi Pendidikan Agama Islam*, 6(2), 44–53.
- 7) Cholis, M. S. (2017). Peran bahan ajar dalam meningkatkan kualitas pembelajaran SPI. *Jurnal Pendidikan Islam*, 4(1), 88–99.
- 8) Diana, L., & Wirawati, N. (2021). Persepsi mahasiswa terhadap buku ajar berbasis audiovisual dalam pembelajaran SPI. *Jurnal Teknologi Pendidikan*, 8(3), 88–97.
- 9) Fakhrunnisaa, F., Rahman, A., & Arsyad, M. (2022). Pengembangan video pembelajaran SPI berbasis aplikasi Doratoon. *Jurnal Inovasi Pendidikan Islam*, 4(1), 45–55.
- 10) Hidayah, N. (2019). Evaluasi pembelajaran SPI dengan pendekatan tematik. *Tadris: Jurnal Pendidikan Islam*, 14(2), 103–115.
- 11) Ibrahim, M., Hidayat, R., & Susilo, S. (2023). E-modul interaktif berbasis aplikasi untuk pembelajaran mandiri dan pemecahan masalah. *Jurnal Teknologi dan Pembelajaran Digital*, 11(2), 134–145.
- 12) Isfahani, A. F., Hamzah, M., & Kurniawati, D. (2020). Pengaruh pembelajaran berbasis masalah terhadap hasil belajar SPI. *Jurnal Pendidikan Islam Indonesia*, 5(2), 23–35.
- 13) Lestari, S., & Handoko, E. (2021). Digitalisasi bahan ajar dalam pembelajaran sejarah kebudayaan Islam. *Tadris: Jurnal Pendidikan Islam*, 16(1), 33–48.

Development of Digital Teaching Materials for Islamic Civilization History Course Based on Problem-Based Learning (PBL)

- 13) Mahmud, A., & Yunus, M. (2020). Strategi pengembangan konten digital dalam pembelajaran sejarah Islam. *Jurnal Kurikulum dan Teknologi Pendidikan*, 10(3), 55–63.
- 14) Malik, F. (2021). Integrasi nilai-nilai Islam dalam pembelajaran SPI berbasis proyek. *Jurnal Pendidikan Islam*, 7(2), 112–122.
- 15) Marzuki, A., & Hasanah, R. (2018). Buku ajar digital dalam pembelajaran sejarah: Studi literatur. *Jurnal Ilmu Pendidikan Islam*, 6(1), 25–33.
- 16) Maryam, S., Fadhilah, R., & Maulana, A. (2022). Pengembangan bahan ajar digital berbasis self-directed learning dalam SPI. *Jurnal Pendidikan Agama Islam*, 10(1), 22–34.
- 17) Medriati, R., Risdianto, E., & Purwanto, A. (2022). Rasch model analysis on the development of digital learning model using MOOCs in practical courses at university. *Al-Ishlah: Jurnal Pendidikan*, 14(1), 269–282.
<https://doi.org/10.35445/alishlah.v14i1.1192>
- 18) Nurhayati, R. (2020). Evaluasi efektivitas bahan ajar digital SPI. *Jurnal Pendidikan Sejarah Islam*, 8(2), 43–51.
- 19) Purwanto, A., & Risdianto, E. (2022). Analisis kebutuhan pengembangan bahan ajar digital matakuliah geofisika berbasis platform LMS Moodle untuk menunjang implementasi kurikulum MBKM. *Jurnal Kumparan Fisika*, 5(1), 7–14.
<https://doi.org/10.33369/jkf.5.1.7-14>
- 20) Ramadhan, D., & Saepudin, E. (2021). Efektivitas pembelajaran SPI berbasis e-learning. *Jurnal Pendidikan Islam Digital*, 9(3), 89–97.
- 21) Ramlah, N., & Sabara, E. (2020). Pengembangan perangkat ajar berbasis aplikasi dalam pembelajaran sejarah. *Jurnal Teknologi Pembelajaran*, 7(1), 30–40.
- 22) Rasyid, H. (2021). Model pengembangan bahan ajar berbasis blended learning pada mata kuliah SPI. *Jurnal Inovasi Kurikulum*, 14(2), 72–84.
- 23) Rohmah, S. (2019). Urgensi bahan ajar digital dalam pendidikan tinggi keislaman. *Jurnal Pendidikan Islam Kontemporer*, 4(2), 65–74.
- 24) Rosyidah, L., & Akbar, A. (2018). Media pembelajaran SPI berbasis web interaktif. *Jurnal Media Pendidikan Islam*, 5(2), 99–110.
- 25) Safitri, H., Nurhayati, R., & Lestari, W. (2021). Efektivitas bahan ajar digital berbasis PBL dalam pembelajaran SPI. *Al-Tadzkiyyah: Jurnal Pendidikan Islam*, 12(2), 44–58.
- 26) Santoso, I., & Huda, N. (2020). Penerapan PBL dalam pembelajaran daring SPI. *Jurnal Ilmu Pendidikan Islam*, 10(2), 21–30.
- 27) Sari, T., & Anwar, R. (2019). Perbandingan efektivitas bahan ajar cetak dan digital dalam pembelajaran SPI. *Jurnal Pendidikan Islam Indonesia*, 7(2), 44–54.
- 28) Shchedrina, E., Valiev, I., Sabirova, F., & Babaskin, D. (2021). Providing adaptivity in Moodle LMS courses. *International Journal of Emerging Technologies in Learning*, 16(2), 95–108. <https://doi.org/10.3991/ijet.v16i02.18813>
- 29) Suhendar, D. (2022). Inovasi pembelajaran sejarah peradaban Islam berbasis digital. *Jurnal Sejarah dan Budaya Islam*, 9(1), 59–68.
- 30) Sulastri, D., Pramudya, A., & Widodo, A. (2020). Implementasi PBL dalam pembelajaran sejarah kebudayaan Islam. *Islamic Historical Studies*, 9(3), 102–116.
- 31) Sutrisno, E. (2021). Pengembangan model pembelajaran hybrid SPI. *Jurnal Pendidikan Islam*, 8(1), 19–29.
- 32) Syafruddin, R., & Mardiah, L. (2020). Pemanfaatan media digital interaktif untuk pembelajaran SPI. *Jurnal Ilmiah Pendidikan Islam*, 6(3), 34–42.
- 33) Wardhani, N. R. (2024). Transformasi pembelajaran keislaman berbasis digital. *Jurnal Inovasi Pendidikan Agama Islam*, 7(1), 77–90.
- 34) Yuliani, D. (2019). Evaluasi efektivitas modul digital SPI untuk mahasiswa PAI. *Jurnal Teknologi Pembelajaran Islam*, 4(2), 55–66.



There is an Open Access article, distributed under the term of the Creative Commons Attribution – Non Commercial 4.0 International (CC BY-NC 4.0) (<https://creativecommons.org/licenses/by-nc/4.0/>), which permits remixing, adapting and building upon the work for non-commercial use, provided the original work is properly cited.