Available online at: http://journal.uny.ac.id/index.php/jpip

Jurnal Penelitian Ilmu Pendidikan

Volume 18, Nomor 2, 169-180, 2025

Problem-based learning worksheet integrating Islamic values to facilitate elementary students' critical thinking in natural and social sciences

Agustang[1], Unik Ambar Wati[2], and Lia Nur Kartika[3]
[1,2] Fakultas Ilmu Pendidikan, Universitas Negeri Yogyakarta, Yogyakarta, Indonesia
[3] SD Islam Al Azhar 55 Yogyakarta, Yogyakarta, Indonesia
Corresponding Author. e-mail: agustang0144fip.2025@student.uny.ac.id

Abstract
Twenty-first-century competency frameworks emphasize critical reasoning as a core skill, while integrating Islamic values into education is considered important for providing an ethical foundation in students' decision-making. However, there are still limited digital worksheets that combine Problem-Based Learning (PBL) with Islamic values in elementary natural and social sciences. This study developed and evaluated the feasibility of a PBL-based digital worksheet integrating Islamic values for Grade 5 natural and social sciences learning. The research and development design followed the ADDIE model: analysis, design, development, implementation, and evaluation. The product (a digital presentation, a student worksheet guide, and interactive worksheets) was validated by experts and trialed with 19 Grade 5 students and 1 teacher in Yogyakarta. Instruments included expert validation questionnaires and user response questionnaires (5-point Likert scale); data were analyzed by calculating percentage scores and qualitatively assessing comments and observations. Expert validation indicated high feasibility (material expert 100%; media expert 84%). In a limited classroom trial, the worksheet's practicality reached 76% (teacher) and 65.47% (students). Qualitative feedback identified technical constraints (e.g., connectivity issues), user behaviors (e.g., skipping tutorials, off-task web browsing), and the need to improve content clarity and simplify the presentation of Islamic values. Overall, the PBL worksheet integrating Islamic values was found to be valid and practical, but it requires technical refinements, enhanced digital scaffolding, and more concrete formulation of values to strengthen connections between environmental learning and Islamic principles. Practical implications include developing an offline or lighter version of the media, making tutorials non-skippable, and strengthening digital classroom management. Further research with a quasi-experimental design and a broader sample is recommended to test the worksheet's effectiveness in improving students' critical thinking.
Keywords: Worksheet; Problem-based learning; Islamic values; Critical thinking; Natural and social sciences

How to Cite (APA): Agustang, A., Wati, U.A., & Kartika, L. N. (2025). Problem-based learning worksheet integrating islamic values to facilitate elementary students' critical thinking in natural and social sciences. *Jurnal Penelitian Ilmu Pendidikan, Vol*(18.2), 169-180. doi: https://doi.org/10.21831/jpip.v18i2.92019

Received 17-10-2025; Received in revised from 29-10-2025; Accepted 15-11-2025

INTRODUCTION

In the current era, OECD (2023) has identified eight essential 21st-century skills: critical thinking, creativity, research and inquiry, autonomy (initiative and persistence), information use, systems thinking, communication, and reflection. In line with this, the World Economic Forum (2020), through its "Top 15 Skills for 2025" list, affirms that critical thinking and analysis is one of the

most needed skills for the future. This skill plays an important role in preparing students to adapt effectively to social, technological, and cultural changes. In the context of formal education, schools provide a strategic environment for developing critical thinking skills.

In the Indonesian education context, the Ministry of Education has formulated eight graduate profile competencies, namely: (1) faith and piety toward God Almighty, (2) citizenship, (3) critical reasoning, (4) creativity, (5) collaboration, (6) independence, (7) health, and (8) communication. The critical reasoning dimension is defined as the ability to think logically, analytically, and reflectively in understanding, evaluating, and processing information (Kemendikdasmen, 2025). Similarly, Ennis (1993) defines critical thinking as a reflective and rational thinking process oriented toward deciding what to believe or do. Thus, cultivating critical thinking skills is not only part of the national graduate profile but also one of the fundamental goals of delivering 21st-century education.

One subject area with strong potential for developing critical reasoning is the integrated natural and social sciences. Kemendikbudristek (2022) states that there are at least six inquiry skills students must acquire in natural and social sciences learning: observing; questioning and predicting; planning and conducting investigations; processing and analyzing information; evaluating and reflecting; and communicating results. The Problem-Based Learning (PBL) approach is highly relevant in this context because PBL uses contextual problems as the starting point, encouraging students to engage in observation, investigation, analysis, and reflection in an integrated manner. Additionally, UNESCO (2022) emphasizes that education today is expected to strengthen capacity for sustainability. Natural and social sciences are therefore very pertinent, as they involve real-world issues, natural phenomena, and social problems that prompt students to think reflectively, critically, and rationally about the relationship between humans and the environment.

Strengthening the spiritual aspect is an essential element in developing critical thinking skills so that the process not only emphasizes logic but also upholds ethical values and responsibility. In this modern era of global challenges, values derived from the Qur'an and Hadith, such as justice, consultation (syura), honesty, and responsibility, provide a strong moral foundation for shaping a civilized and harmonious society (Firdausiyah & Sofa, 2024). These Islamic values serve as an ethical framework in decision-making, ensuring that critical thinking is guided by wisdom (hikmah) in addition to logic. In the context of environmental change, values like amanah (trustworthiness) and islah (improvement) become important principles that can be instilled in students (Purnawanto & Munfariqoh, 2024). Likewise, values such as khalifah (stewardship) and ihsan (kindness) can be integrated into education to foster deeper ecological awareness (Agustin et al., 2023).

To achieve learning objectives that require higher-order thinking skills, scaffolding in the form of appropriate learning media is needed to systematically guide students' thinking processes in a problem-based context. Digital worksheets based on PBL are considered effective for facilitating higher-order thinking because they present structured, analytical tasks while also allowing students to engage in independent exploration and reflection.

Previous research has shown that developing instructional materials infused with values and critical thinking can yield strong results. For example, Supriatna and Asmahasanah (2019) demonstrated that student worksheets integrated with religious values had high validity and strengthened students' discipline. Suryani et al. (2023) found similar outcomes with worksheets containing Islamic values that were deemed valid, highly practical, and improved students' understanding of the "human and environment" subtheme. Strengthening critical thinking was also evident in worksheets based on critical thinking skills developed by Karim and Chang (2024), which were rated highly valid and improved indicators of inference and strategy. Similarly, Syahputri and Arfinanti (2024) confirmed that mathematics worksheets integrated with Islamic values effectively fostered critical thinking ability while instilling moral values.

From a learning model perspective, numerous studies reinforce the effectiveness of Problem-Based Learning. Yu and Zin (2023) identified several forms of PBL adaptations oriented

toward critical thinking and emphasized that explicitly embedding critical thinking activities in PBL increases student engagement and cognitive outcomes. A meta-analysis by Hafizah et al. (2024) also found that PBL produces significant improvements in students' critical thinking skills, with the greatest effects observed in secondary education. Integrating PBL into Islamic education curricula has been shown to improve problem-solving and critical thinking skills as well. For instance, Saskia and Iryanti (2024) reported a shift toward a more student-centered learning pattern and improved critical thinking when PBL was incorporated in Islamic studies. The findings of Arianto (2025) further reinforce this point: a PBL approach integrated with Islamic values led to a significant increase in students' critical thinking skills, greater student participation, and positive responses. Overall, these studies indicate that combining PBL with the integration of religious values and explicit critical thinking activities provides a strong foundation for developing effective learning tools.

Despite these promising findings, the availability of digital learning media that explicitly combine PBL with Islamic value integration, particularly in the context of elementary natural and social sciences, remains limited. Preliminary observations at one elementary school in Yogyakarta illustrate this need. The school possesses adequate digital infrastructure (projectors, computers, internet access, and personal devices for most students), which presents great potential for digital learning media development. The school implements three curricula in parallel: the national curriculum, the Cambridge curriculum, and an Islamic curriculum developed by its foundation. This integration of curricula reflects the school's strong orientation toward cultivating students' academic, global, and spiritual competencies. However, the Islamic curriculum at this school has so far been applied mostly through ritual activities (such as Dhuha prayer, Qur'an recitation, and memorization) and has not yet been contextually integrated into daily learning in subjects like natural and social sciences. This gap represents a strategic opportunity to develop learning media that can facilitate students' analytical skills while simultaneously instilling Islamic values in a contextual manner.

Considering the above context, this study aims to develop a digital worksheet based on Problem-Based Learning that integrates Islamic values for natural and social sciences learning in Grade 5, and to test the feasibility of this media through expert evaluations and limited classroom trials. The development is expected to yield a product that is valid in terms of content and media, while effectively facilitating students' critical reasoning and a contextual understanding of Islamic values. In addition, the study seeks to gather empirical data on user engagement (from both teachers and students) as a basis for evaluating the quality of the worksheet and its potential for broader implementation in elementary schools.

Accordingly, the study addresses the following research questions: (1) How valid is the developed PBL-based digital worksheet integrating Islamic values, as evaluated by subject matter and media experts? (2) How practical is the use of this worksheet in the classroom, based on teacher and student responses in a limited trial? (3) What implementation challenges or feedback emerge during the trial, and how can these improvements to the worksheet?

METHODS

This research is a Research and Development (R&D) study that aimed to produce and test a product in the form of a digital worksheet based on Problem-Based Learning integrating Islamic values for natural and social sciences learning. The development model used was ADDIE (Analysis, Design, Development, Implementation, Evaluation) as outlined by Branch (2009). The ADDIE model was chosen because it provides systematic, structured stages for designing, developing, and evaluating digital learning media, thereby facilitating expert validation and field trials.

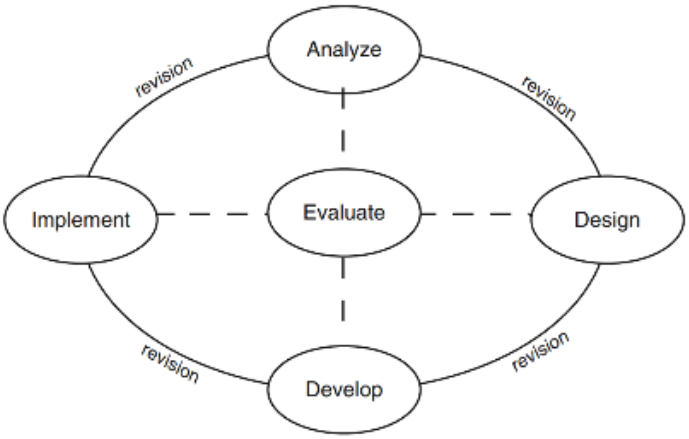

Figure 1. ADDIE development model

The study was conducted at a public elementary school in Yogyakarta, Indonesia. The development and testing involved 19 Grade 5 students and one Grade 5 natural and social sciences teacher. The product developed in this study was a digital PBL worksheet integrating Islamic values, focused on content about human behaviors that alter the environment (environmental change and mitigation). The product consisted of a digital slide presentation, a student worksheet guide, and interactive digital worksheets for students to complete.

Data collection included both quantitative and qualitative approaches. Quantitative data was obtained from expert validation questionnaires and user response questionnaires (completed by the students and teacher). Each questionnaire used a 5-point Likert scale to assess various aspects of the worksheet. The quantitative scores were then converted to percentage values using the formula:

$$p = \frac{Obtained\ Score}{Maximum\ Score} \times 100\%$$

The average percentage score across all assessment criteria determined the overall feasibility category of the media. Table 1 and Table 2 show the qualification criteria for validity and practicality scores, respectively, which were adapted from established rubrics.

Table 1. Score qualification

Score %	Category
81 – 100	Very Feasible
61 – 80	Feasible
41 – 60	Fairly Feasible
21 – 40	Less Feasible
0 – 20	Not Feasible

Source: Riduwan and Sunarto (2012)

Table 2. User response qualification

Score %	Category
81 – 100	Very Practical
61 – 80	Practical
41 – 60	Fairly Practical
<40	Less Practical

Source: Widoyoko (2016)

Qualitative data were collected through open-ended feedback from expert validators, an interview with the teacher after using the worksheet, and observation notes during the implementation of the media in the classroom. The qualitative data (e.g. expert comments, teacher interview responses, student behaviors observed) were analyzed thematically. These qualitative findings were used to enrich the interpretation of the quantitative results and served

as the basis for revising and refining the worksheet product after the trial. Ethical considerations: Prior to the study, permission was obtained from the school and the class teacher to conduct the research. Participants (and their parents/guardians, in the case of minors) were informed about the purpose and procedures of the study and gave consent to participate. Confidentiality of the participants' responses was maintained, and all activities were carried out in accordance with institutional research ethics guidelines.

RESULTS AND DISCUSSION

Results

Development of the PBL Worksheet, In the Analysis stage, the researcher first examined the relevant curriculum objectives. The learning objective from the Kurikulum Merdeka (national "Merdeka Curriculum") was compared with the corresponding objective in the school's existing Grade 5 natural and social sciences textbook (an unrevised edition provided by the school's foundation). Table 3 presents a comparison of these learning objectives. The national curriculum emphasized student involvement in climate change mitigation efforts, whereas the school's textbook focused on identifying harmful lifestyle patterns that cause environmental problems.

Table 3. Comparison of learning objectives

Merdeka Curriculum Revised Edition Learning Objective	Natural and social sciences Book Learning Objective Used in School
Students contribute to efforts to mitigate climate change through simple activities that can be done in daily life.	Identifying lifestyle patterns that cause environmental problems.

Source: Fitri et al. (2023), and Ghaniem et al. (2021)

In addition to the national curriculum, the researcher considered relevant elements of the Cambridge curriculum used by the school. The Cambridge Global Perspectives subject, for instance, aims to develop skills in research, analysis, evaluation, reflection, collaboration, and communication, which informed the design of activities. For the integration of Islamic values, the researcher selected specific values aligned with the topic (environmental responsibility) to reinforce students' moral and spiritual development. In formulating the final learning objectives for the worksheet, the researcher followed guidelines for higher-order thinking-oriented learning design (Ariyana et al., 2018). As a result, the following targeted learning objectives (LO) and indicators were established for the worksheet that is presented in Table 4.

Table 4. Learning objectives adapted by the researcher

Learning Objective	Indicator
Students investigate lifestyle patterns that cause environmental problems.	1. Students can identify one consumptive or harmful lifestyle pattern from a given case. 2. Students can analyze the cause-and-effect relationship between the lifestyle investigated and its direct impact on the environment.
Students apply environmental mitigation principles by selecting relevant daily activities and explaining their reasons.	1. Students determine daily activities that include mitigation according to the home or school context. 2. Students use the cause-and-effect pattern to write the reasons behind the selected activity.
Students apply Islamic values to connect mitigation actions.	1. Students evaluate one mitigation action using relevant Islamic values through a coherent explanation. 2. Students construct a statement of action or commitment aligned with the value as a form of application.

During the Design stage, the content of the worksheet was carefully structured. The researcher conducted in-depth research on the topic of environmental change in accordance with the school's materials. The content focuses on the causes and effects of human behaviors that negatively impact the environment. Based on this content, appropriate Islamic values (such as responsibility and stewardship) were chosen to reinforce the lessons. The worksheet was designed to be interactive: students would progress through a series of problems and tasks, and they were given a choice of three different case examples to explore (e.g., scenarios illustrating

various environmental issues). At the end of the material, a real-world case (the Leuwigajah landfill disaster in Indonesia) was presented as a reflection to deepen understanding. After finalizing the learning objectives and content, a prototype of the worksheet was created.

In the Development stage, the initial prototype was refined into a final digital product. The worksheet was developed using Canva (to design the presentation and visual elements) and Liveworksheets (to create interactive worksheet activities). These tools were chosen because they are web-based and do not require installation, allowing easy access and editing. The product includes a digital presentation that introduces the lesson and Islamic values, a step-by-step tutorial for students, and the interactive worksheet exercises. Figures 2–8 provide an overview of the developed digital media interface and content.

Figure 2. Presentation media front page display

Figure 3. Learning objective display

Figure 4. Question display

Figure 5. Core content display

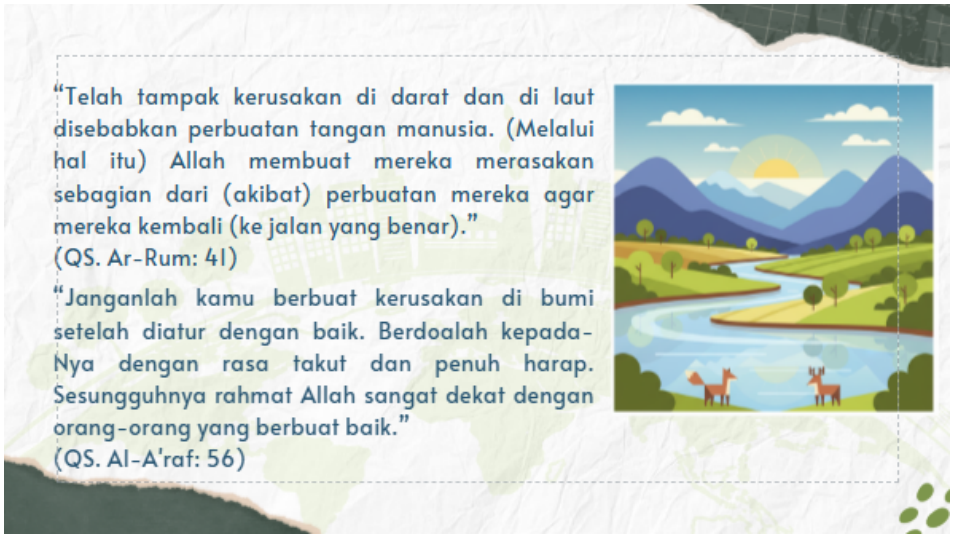

Figure 6. Display of islamic values material

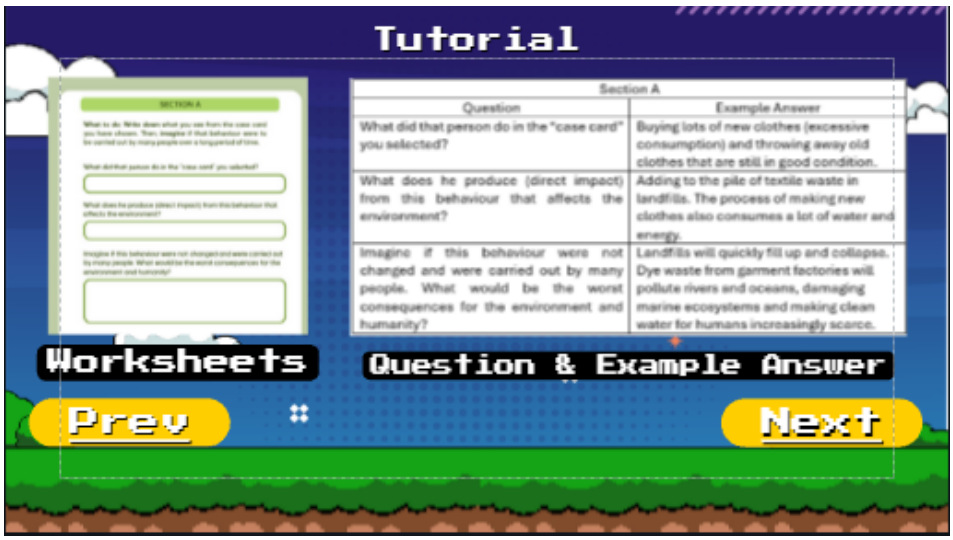

Figure 7. Tutorial display of worksheets for students

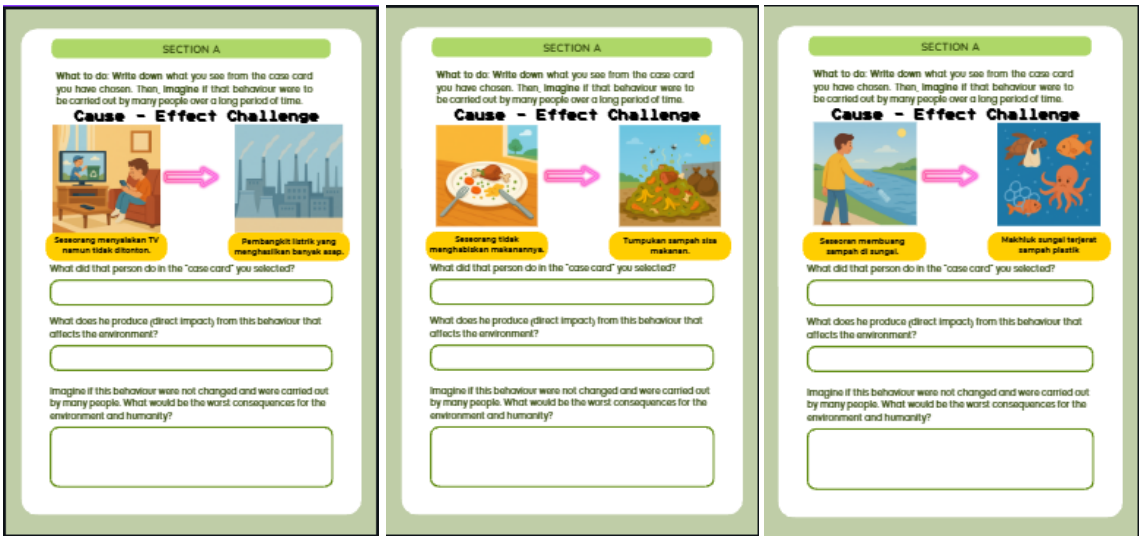

Figure 8. Student worksheet display.

After the development was completed, the product underwent an Evaluation stage involving expert validation and a limited implementation trial. The media was first evaluated by two experts to ensure it met content and design quality standards. Table 5 shows the expert validation results for the worksheet. The material/content expert gave a validity score of 100%, categorizing the content as “Very Feasible.” The media/design expert gave a score of 84%, also falling in the “Very Feasible” category. These results indicate that both experts found the worksheet’s content and its digital design to be of high quality and suitable for use.

Table 5. Expert validation results

Expert	Percentage	Category
Media Expert	84%	Very Feasible
Material Expert	100%	Very Feasible

Next, the worksheet was tested in a limited classroom setting. In this Implementation stage trial, the teacher and 19 students used the digital worksheet in a natural and social sciences lesson. After the lesson, their feedback was collected via questionnaires. Table 6 presents the user response results. The teacher’s overall practicality rating was 76%, which falls under “Practical.” The average student rating was 65.47%, also categorized as “Practical.” These results suggest that, from the users’ perspective, the worksheet was generally practical and

usable in the classroom context, though the students' score was on the lower end of the practical range.

Table 6. User response results

Respondent	Percentage	Category
Teacher	76%	Practical
Students	65,47%	Practical

Although the worksheet was considered practical overall, the trial provided important feedback indicating areas for improvement, especially from the students' viewpoint. Qualitative observations and open-ended responses during the trial revealed several obstacles and issues that affected the learning experience. These findings are summarized in Table 7. Four main themes emerged: (1) technical issues, (2) student usage behavior, (3) content or pedagogical support needs, and (4) Islamic value design needs. For example, some technical problems (like inconsistent image loading due to poor internet connectivity) were noted. In terms of usage behavior, a few students skipped the tutorial or opened unrelated web pages, suggesting the need for better guidance and supervision. Some students also struggled to connect the activity with the intended Islamic values or lacked understanding of specific content (e.g. how wasting electricity harms the environment), indicating a need for clearer instructions or additional background information. Additionally, the way Islamic values were presented could be simplified to make them more memorable and directly tied to student actions.

Table 7. Main theme of the obstacles encountered

Theme	Evidence or Findings
Technical issues	The media did not display images on some devices due to poor Wi-Fi connection.
Usage behavior	Students opened other websites; some students skipped the tutorial.
Content or pedagogical needs	Students were confused about connecting activities with Islamic values; lack of understanding of how electricity waste harms the environment; need for additional reading.
Islamic value design needs	Islamic values need to be formulated or displayed more simply to be easily remembered and connected to actions.

Discussion

This study successfully produced a digital problem-based learning worksheet integrating islamic values on the topic of human behaviors that alter the environment. The worksheet underwent expert validation and a classroom trial to assess its feasibility. In summary, the worksheet was found to have high content and design validity, with the material expert giving a 100% feasibility score and the media expert giving 84%. The limited trials with 19 students and 1 teacher indicated an acceptable level of practicality, with the teacher rating it 76% and the students 65.47%. The qualitative findings highlighted three main issues to address: technical constraints, student usage behavior, and needs related to content support and the design of the Islamic values integration.

The high expert validity suggests that the approach of combining value-based content with critical thinking tasks can effectively support meaningful learning. This aligns with prior studies by Supriatna and Asmahasanah (2019) and Suryani et al. (2023), which showed that learning tools integrating religious values and critical thinking skills can enhance the quality of learning outcomes. Moreover, the effectiveness of PBL in facilitating analytical, evaluative, and reflective thinking observed in this study is consistent with the findings of Hafizah et al. (2024), Saskia and Iryanti (2024), and Yu and Zin (2023), who all reported significant improvements in critical thinking when using PBL-based approaches.

The disparity between the teacher's and students' practicality responses provides valuable insight. The teacher considered the worksheet quite practical from an instructional standpoint, but the students encountered some challenges in using it. These challenges can be explained by factors related to technology, digital literacy, and instructional design. For instance, because the worksheet is web-based, it is highly dependent on internet connectivity; thus, network disruptions hindered access to some multimedia features (such as images and interactive content) during the trial. Additionally, certain user behaviors, such as skipping the

tutorial or browsing unrelated websites, indicate that stronger digital scaffolding and classroom management strategies are needed. The fact that some students were confused about linking the activities to Islamic values suggests that the integration of values needs to be made more concrete and accessible. The values should be presented in a simpler, action-oriented manner that directly relates to the students' everyday life, so that the connection between the environmental actions and Islamic ethical principles is clearer.

These findings reinforce an important point: even if a learning media product is designed with high validity, its effectiveness in practice depends on the implementation context and user readiness. In other words, good design alone does not guarantee successful outcomes if technical infrastructure and user behaviors are not adequately addressed. Therefore, to improve implementation effectiveness, the way Islamic values are incorporated should be applicable, concise, and contextual. For example, values can be conveyed through short action statements that students find easy to remember and apply, accompanied by real-life examples at home or school to illustrate each value in practice.

The contributions of this study can be viewed from both theoretical and practical perspectives. Theoretically, this research expands the application of value-based critical learning theory by demonstrating that it is feasible to integrate analytical cognitive skills with spiritual reinforcement in a digital learning tool. The study also shows that the digitalization of worksheets can maintain essential moral and reflective elements while engaging students in critical thinking activities. In addition, it offers a new perspective that the success of digital PBL implementations is heavily influenced by external factors such as infrastructure, digital literacy, and value design. These factors can be considered as potential moderators in the digital PBL model, meaning that they can strengthen or weaken the effectiveness of PBL in practice and therefore should be carefully managed in future implementations.

From a practical standpoint, this study offers several recommendations that can be directly applied to improve the developed worksheet and similar digital learning media. The integration of Islamic values should be simplified and framed in an action-oriented way so that students can easily understand and practice them, for example, by explicitly linking the value of Amanah (trustworthiness) to responsible electricity use, such as turning off lights when they are not needed.

In addition, the worksheet's usage tutorial should be designed to be more interactive and non-skippable to ensure that all students clearly understand how to use the media before starting the main activities. The inclusion of checkpoints or mandatory completion of the tutorial can help prevent students from ignoring important instructions. Effective digital classroom management is also essential when implementing this type of media. Teachers are encouraged to use strategies such as screen monitoring, setting clear rules to minimize off-task behavior, providing step-by-step guidance, and actively supervising and motivating students throughout the learning process.

To address technical limitations, an offline or lighter version of the digital worksheet should be developed so that it remains accessible in situations with unstable internet connections or limited bandwidth. Providing downloadable materials or low-data versions can help ensure equitable access for all students. Moreover, the worksheet should be complemented with supporting resources, such as supplementary readings or contextual information, to strengthen students' background knowledge. These resources can help students better understand the relationship between human behavior, environmental impacts, and Islamic values.

Despite its contributions, this study has several limitations that need to be acknowledged. The sample size was relatively small and limited to one school, the study did not use a pre-test and post-test design, and the evaluation relied mainly on perception-based questionnaires rather than objective measures. Based on these limitations, future research is recommended to further validate and extend the findings. Subsequent studies should use quasi-experimental designs with larger and more diverse samples, incorporate accessibility features for inclusive

learning, and conduct long-term investigations to examine the sustained impact of integrating Islamic values through digital learning media.

CONCLUSION

This study developed and evaluated a digital worksheet based on Problem-Based Learning that integrates Islamic values for learning in elementary-level natural and social sciences. The developed product was found to be highly feasible according to expert assessments of content and media, and it was considered practical by both the teacher and students in a limited trial, although the trial also revealed areas for improvement in technical, pedagogical, and value-integration aspects. The main contribution of this research is an innovative instructional media design that not only facilitates students' critical thinking through a PBL approach but also instills spiritual awareness and a sense of moral responsibility toward the environment. The study demonstrates that it is possible to integrate cognitive (critical reasoning), affective, and spiritual dimensions into a unified digital learning tool.

For future development, this research opens opportunities for wider implementation of the worksheet and more rigorous effectiveness testing (e.g., measuring gains in critical thinking skills). It also highlights the potential to develop stronger interactive features and to explore integrating religious or moral values into PBL approaches for other 21st-century competencies. Overall, the PBL worksheet integrating Islamic values has the potential to serve as a strategic medium for realizing holistic, contextual, and character-based education in the elementary classroom.

REFERENCES

Agustin, M., Heryana, R., Heriyanto, I., Saldiana, R., & Wahab, A. (2023). Pendidikan Islam Berbasis Lingkungan: Membangun Kesadaran Ekologis Melalui Nilai-Nilai Keislaman. *Jurnal Penelitian Pendidikan Sosial Humaniora*, *8*(2), 214. https://doi.org/10.32696/jp2sh.v8i2.3442

Arianto, D. (2025). Pengaruh Model Problem-Based Learning yang Diintegrasikan dengan Nilai-Nilai Islam terhadap Kemampuan Berpikir Kritis Siswa MAN 1 OKU Timur. *Idaarotul Ulum (Jurnal Prodi MPI)*, *7*(1), 95–110. https://doi.org/10.70688/idaarotululum.v7i1.500

Ariyana, Y., Pudjiastuti, A., Bestary, R., & Zamroni. (2018). Buku Pegangan Pembelajaran Keterampilan Berpikir Tingkat Tinggi: Program Peningkatan Kompetensi Pembelajaran Berbasis Zonasi. In *Jakarta*.

Branch, R. M. (2009). *Instructional Design: The ADDIE Approach*. Springer US. http://link.springer.com/10.1007/978-0-387-09506-6

Ennis, R. H. (1993). Critical thinking assessment. *Theory Into Practice*, *32*(3), 179–186. https://doi.org/10.1080/00405849309543594

Firdausiyah, J., & Sofa, A. R. (2024). Relevansi Al-Qur'an dan Hadits Dalam Pembentukan Nilai Sosial, Etika Politik, dan Pengambilan Keputusan di Era Kontemporer: Kajian Terhadap Pengaruhnya Dalam Kehidupan Sosial, Kebijakan Publik, Demokrasi, Kepemimpinan, Hukum, Ekonomi, Pendidikan, dan Tekn. *Jurnal Budi Pekerti Agama Islam*, *3*(1), 102–131. https://doi.org/10.61132/jbpai.v3i1.872

Fitri, A., Kusumawardhani, A., Fatimah, K., Setianingsih, N. I., Nursya'bani, K. K., & Rasa, A. A. (2023). *Panduan Guru Ilmu Pengetahuan Alam dan Sosial untuk SD/MI Kelas IV* (Revisi). Kementerian Pendidikan, Kebudayaan, Riset,dan Teknologi.

Ghaniem, A. F., Rasa, A. A., Oktora, A. H., & Yasella, M. (2021). *Buku Panduan Guru Ilmu Pengetahuan Alam Sosial untuk SD Kelas V* (1st ed.). Pusat Perbukuan, Badan Standar, Kurikulum, dan Asesmen Pendidikan — Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi.

Hafizah, M., Solin, S., Purba, C. T., Sihotang, M. M., Rahmad, R., & Wirda, M. A. (2024). Meta-Analysis: The Impact of Problem-Based Learning (PBL) Models on Students' Critical Thinking Skills. *Journal of Digital Learning and Education*, *4*(3), 1–13.

https://doi.org/10.52562/jdle.v4i3.1393

Karim, P. A., & Chang, S. (2024). *Keterampilan Berpikir Kritis : Studi Pengembangan Lembar Kerja Peserta Didik (LKPD) Pada Mata Pelajaran Akidah Akhlak di MIN 1 Medan*. *XIV*(2), 139–147. https://doi.org/10.30821/niz.v14i2.3963

Kemendikbudristek. (2022). *Capaian Pembelajaran Mata Pelajaran Ilmu Pengetahuan Alam dan Sosial (IPAS) Fase A – Fase C untuk SD/MI/Program Paket A*.

Kemendikdasmen. (2025). *Naskah Akademik Pembelajaran Mendalam: Menuju Pendidikan Bermutu untuk Semua*.

OECD. (2023). PISA 2022 Assessment and Analytical Framework. In *PISA*. OECD Publishing. https://doi.org/https://doi.org/10.1787/dfe0bf9c-en

Purnawanto, A. T., & Munfariqoh, A. (2024). Membangun Kesadaran Lingkungan Untuk Mitigasi Perubahan Iklim: Perspektif Islam. *JURNAL PEDAGOGY*, *17*(1), 1–19. https://doi.org/10.63889/pedagogy.v17i1.285

Riduwan, & Sunarto. (2012). *Pengantar Statistika untuk Penelitian Pendidikan, Sosial, Ekonomi, Komunikasi, dan Bisnis*. Alfabeta.

Saskia, D. A., & Iryanti, S. S. (2024). Integrasi Pendekatan Model Problem-Based Learning Dalam Kurikulum Pendidikan Islam Untuk Meningkatkan Kemampuan Berpikir Kritis Siswa. *AL-MUADDIB: Jurnal Kajian Ilmu Kependidikan*, *6*(1), 68–82. https://doi.org/10.46773/muaddib.v6i1.1109

Supriatna, I., & Asmahasanah, S. (2019). Pengembangan Lembar Kerja Siswa Terintegrasi Dengan Nilai Agama Pada Mata Pelajaran Ipa Untuk Meningkatkan Karakter Disiplin. *DWIJA CENDEKIA: Jurnal Riset Pedagogik*, *3*(2), 162–174. https://doi.org/10.20961/jdc.v3i2.34803

Suryani, L., Alang, M., & Nuryani, N. (2023). Nilai-Nilai Keislaman Pada Lembar Kerja Peserta Didik Sekolah Dasar Subtema Manusia Dan Lingkungan. *ELEMENTARY SCHOOL JOURNAL PGSD FIP UNIMED*, *13*(1), 105–120. https://doi.org/10.24114/esjpgsd.v13i1.41325

Syahputri, N. I., & Arfinanti, N. (2024). Systematic Literature Review: Pengembangan LKPD Terintegrasi Keislaman Untuk Memfasilitasi Berpikir Kritis Siswa. *Polynom: Journal in Mathematics Education*, *4*(3), 78–87. https://doi.org/10.14421/polynom.2024.43.78-87

UNESCO. (2022). *Mengimajinasikan kembali masa depan kita bersama: Sebuah kontrak sosial baru untuk pendidikan*. UNESCO Publishing.

Widoyoko, E. P. (2016). *Evaluasi Program Pembelajaran*. Pustaka Pelajar.

World Economic Forum. (2020). *The Future of Jobs Report 2020*.

Yu, L., & Zin, Z. M. (2023). The critical thinking-oriented adaptations of problem-based learning models: a systematic review. *Frontiers in Education*, *8*, 1139987. https://doi.org/10.3389/feduc.2023.1139987