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Developing Problem-Based Learning Worksheets for Islamic Education in the Digital Transformation Era

Safrur Riza
Universitas Islam Negeri Sultanah Nahrasiyah, Lhokseumawe, Indonesia
2025520013@mhs.uinsuna.ac.id

Nia Wardhani
Universitas Islam Negeri Sultanah Nahrasiyah, Lhokseumawe, Indonesia
niawardhani@uinsuna.ac.id

Syarifah Rahmah
Universitas Islam Negeri Sultanah Nahrasiyah, Lhokseumawe, Indonesia
syarifah_rahmah@uinsuna.ac.id

Muhammad Raihan Adri Putra
Holy Quran And Islamic Science University, Yaman
raihan.adri98@gmail.com

Correspondence: *2025520013@mhs.uinsuna.ac.id*		
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Abstract
The digital transformation has shifted the paradigm of Islamic Religious Education (PAI) toward more interactive, contextual, and learner-centered approaches, yet classroom practices remain largely conventional and insufficient in fostering critical thinking. This article aims to formulate a conceptual framework for developing Problem Based Learning (PBL)-based student worksheets (LKS) that are responsive to digital-era demands. Employing a qualitative approach through library research and content analysis, the study synthesizes learning theories, prior empirical findings, and principles of Islamic pedagogy.As a conceptual rather than empirical study, its findings take the form of theoretical propositions rather than measured outcomes. These propositions indicate that PBL-based LKS function as structured learning scenarios integrating authentic problems, collaborative inquiry, and reflective value internalization, thereby promoting higher-order thinking alongside contextualized Islamic values. The incorporation of digital technology enhances engagement and learning relevance, although its effectiveness is contingent upon teacher readiness and infrastructural support. Consequently, this article contributes to advancing PAI instructional design by proposing a four-component conceptual model-authentic problem orientation, PBL-syntax structuring, digital-technology integration,

and Islamic-value reflection-that not only innovates pedagogically but also offers an epistemological synthesis between constructivist learning and Islamic educational values within the framework of 21st-century education.

Keyword: PAI Worksheets, Problem Based Learning, Digital Transformation, Contextual Learning, Islamic Education

Abstrak

Transformasi digital telah menggeser paradigma Pendidikan Agama Islam (PAI) menuju pendekatan pembelajaran yang lebih interaktif, kontekstual, dan berpusat pada peserta didik. Namun, praktik pembelajaran di kelas masih didominasi oleh pendekatan konvensional yang belum optimal dalam mengembangkan kemampuan berpikir kritis. Artikel ini bertujuan untuk merumuskan kerangka konseptual pengembangan lembar kerja siswa (LKS) berbasis Problem-Based Learning (PBL) yang responsif terhadap tuntutan era digital. Penelitian ini menggunakan pendekatan kualitatif melalui studi kepustakaan dan analisis isi dengan menyintesiskan teori-teori pembelajaran, temuan empiris dari penelitian terdahulu, serta prinsip-prinsip pedagogi Islam. Sebagai kajian konseptual, bukan penelitian empiris, hasil penelitian ini berupa proposisi teoretis, bukan hasil pengukuran empiris. Proposisi tersebut menunjukkan bahwa LKS berbasis PBL berfungsi sebagai skenario pembelajaran terstruktur yang mengintegrasikan permasalahan autentik, penyelidikan kolaboratif, dan internalisasi nilai melalui refleksi. Integrasi ketiga unsur tersebut berpotensi mengembangkan keterampilan berpikir tingkat tinggi sekaligus memperkuat pemahaman dan penghayatan nilai-nilai Islam secara kontekstual. Pemanfaatan teknologi digital dapat meningkatkan keterlibatan peserta didik dan relevansi pembelajaran, meskipun efektivitasnya bergantung pada kesiapan guru serta dukungan infrastruktur. Oleh karena itu, artikel ini berkontribusi terhadap pengembangan desain pembelajaran PAI melalui pengajuan model konseptual yang terdiri atas empat komponen, yaitu orientasi pada permasalahan autentik, penataan pembelajaran berdasarkan sintaks PBL, integrasi teknologi digital, dan refleksi nilai-nilai Islam. Model ini tidak hanya menawarkan inovasi pedagogis, tetapi juga menyajikan sintesis epistemologis antara pembelajaran konstruktivistik dan nilai-nilai pendidikan Islam dalam kerangka pendidikan abad ke-21.

Kata Kunci: *Lembar Kerja Pendidikan Agama Islam, Problem-Based Learning, Transformasi Digital, Pembelajaran Kontekstual, Pendidikan Islam.*

A. INTRODUCTION

The development of digital technology has brought significant changes in the world of education, including in the learning of Islamic Religious Education (PAI). This transformation not only affects access to information, but also changes the learning characteristics of students who tend to be more interactive, visual, and contextual problem-based. However, the reality in the field shows that PAI learning is still dominated by conventional approaches that are oriented towards one-way memorization and knowledge transfer, so they are less able to develop critical thinking and problem-solving skills (Azra, 2019). This condition creates a gap between the ideals of PAI learning which are oriented towards the formation of Islamic character and life skills and learning practices that are still stagnant.

In an effort to overcome these problems, teaching material innovation is a strategic aspect. Student Worksheets (LKS) as one of the learning instruments have great potential

in directing learning activities independently and collaboratively. However, the worksheets used today are generally still textual, less contextual, and have not encouraged active student involvement (Sanjaya, 2018). In the digital era, the development of LKS demands integration between innovative pedagogical approaches and the use of technology to support high-level thinking processes.

One relevant approach is Problem Based Learning (PBL), which emphasizes authentic problem-based learning to encourage a process of inquiry, analysis, and reflection (Santrock, 2017). In the context of PAI, PBL has the potential to associate Islamic values with the reality of life so that learning becomes more meaningful. However, the implementation of PBL in PAI learning is still limited, especially because there is no availability of teaching materials that are systematically designed to integrate PBL syntax in learning activities (Trianto, 2016).

Various studies show that PBL is effective in improving students' high-level thinking skills and learning engagement (Arends, 2016; Hmelo-Silver, 2015), and the integration of digital technology can increase motivation and access to learning in PAI (Suyadi & Dahlia, 2020). However, studies that specifically develop PBL-based PAI LKS that are integrated with digital technology are still relatively limited. Most studies tend to separate between learning model development and media development, so they have not resulted in a comprehensive teaching material design. This limitation persists in more recent literature: systematic reviews and meta-analyses of PBL published between 2023 and 2024 continue to report gains in critical-thinking outcomes without addressing how PBL syntax should be embedded into a concrete teaching-material design for religious education (Anggraeni et al., 2023; Hafizah, 2024), while studies specifically on PAI teaching materials remain oriented toward general character reinforcement rather than a structured, PBL-syntax-based worksheet model (Habibullah et al., 2025). This persistent separation between pedagogical-model research and teaching-material development directly motivates the conceptual framework proposed in this article.

Based on this, there is a research gap in the development of LKS PAI that not only adopts a Problem Based Learning approach, but is also adaptive to learning characteristics in the digital era. The research problem addressed in this article can thus be stated concisely as follows: how can a Problem Based Learning-based conceptual framework for PAI worksheets be formulated so that it systematically integrates authentic problem-solving, digital technology, and the internalization of Islamic values? Therefore, this study aims to formulate the concept of developing PBL-based PAI LKS that is integrated with digital technology as an effort to bridge the gap between theoretical concepts and learning practices. Thus, this research is expected to contribute to the development of PAI teaching materials that are more contextual, interactive, and relevant to the demands of 21st century learning.

B. METHOD

This research uses a qualitative approach with the aim of conceptually understanding the conceptual development of Islamic Religious Education (PAI) teaching materials in the context of digital transformation. This approach was chosen because the study focuses on the exploration of meaning, theoretical analysis, and critical interpretation of the concept of developing Student Worksheets (LKS) based on Problem Based Learning (PBL), not on quantitative measurement (Creswell, 2018).

The type of research used is library research, which relies on the analysis of various relevant scientific literature sources. This approach allows researchers to critically synthesize learning theories, previous research results, and teaching material

development concepts, as well as identify conceptual gaps as the basis for formulating a PBL-based LKS PAI model (Zed, 2017).

The data source consists of primary and secondary data. Primary data includes books and journal articles that directly discuss Problem Based Learning, the development of teaching materials, and PAI learning theory. The secondary data is in the form of supporting literature such as the results of previous research, proceedings, and relevant education policy documents. The selection of sources is carried out selectively by considering the credibility, relevance, and novelty of the publication.

Data collection was carried out through documentation studies and systematic literature search on various scientific databases. The search was conducted through Google Scholar, Scopus, and SINTA-indexed national journal databases, using combinations of the keywords "Problem Based Learning," "student worksheet/LKS," "Islamic Religious Education/PAI," and "digital transformation." A total of 38 sources were initially identified, of which 27 were retained for analysis after applying inclusion criteria requiring that a source be a peer-reviewed journal article, book, or proceedings paper published primarily between 2015 and 2026, be directly relevant to at least two of the four keyword themes, and be accessible in full text; sources not meeting these criteria, such as non-peer-reviewed blog posts or sources unrelated to education, were excluded. The credibility and relevance of each retained source were further assessed based on its publication venue, citation context, and thematic fit with the study's conceptual focus. The analysis then proceeded in three stages: open coding of key concepts across sources, thematic grouping of these concepts into the categories of PBL theory, LKS/teaching-material design, PAI pedagogy, and digital-learning integration, and finally the synthesis of these thematic groups into the conceptual framework presented in the Results and Discussion section. Furthermore, the data was analyzed using content analysis techniques with a descriptive-analytical approach, namely identifying, classifying, and interpreting key concepts related to PBL, LKS characteristics, and PAI learning in the digital era (Sugiyono, 2020). Through this analysis, various relevant concepts are integrated into a complete and applicable conceptual framework.

With this approach, this research produces a conceptual formulation regarding the development of Problem-Based Learning-based PAI LKS that is adaptive to the demands of learning in the era of digital transformation.

C. RESULT AND DISCUSSION

Conceptual Reconstruction of PAI LKS in the Framework of Problem Based Learning

The development of Student Worksheets (LKS) in Islamic Religious Education (PAI) learning can no longer be understood as just a mechanistic practice instrument. From the perspective of contemporary pedagogy, LKS must be positioned as a pedagogical tool that functions to build interaction between knowledge, experience, and values, as well as a medium for the construction of meaning and internalization of Islamic values (Sanjaya, 2018). Thus, LKS is an integral part of learning design that acts as cognitive and affective scaffolding.

This need for reconstruction is all the more important given the characteristics of PAI which is not only oriented towards knowledge transfer, but also the formation of attitudes and behaviors. However, the practice of PAI learning is still dominated by textual and memorization approaches, so it is less able to relate the material to the reality of students' lives (Azra, 2019). This condition shows the need to transform LKS from just a material presenter to a contextual and reflective learning facility.

In the framework of Problem Based Learning (PBL), LKS functions as a problem-based learning scenario that encourages students to think critically through the process of analysis and reflection on authentic problems (Savery, 2015). Therefore, the PAI LKS is not enough to only present evidence, but must be able to relate Islamic values to the real situation. For example, in the honesty material, LKS can present cases of information manipulation on social media to be analyzed based on the perspective of Islamic teachings. This approach allows for simultaneous integration of cognitive, affective, and moral dimensions.

However, the implementation of PBL in LKS still faces various obstacles, especially related to the design of teaching materials that have not been systematic. Without adequate scaffolding, PBL has the potential to become an undirected discussion activity (Hmelo-Silver, 2015). In addition, the tendency of normativity in PAI learning also limits the space for students' critical exploration, so that there is a gap between the ideal goals of Islamic education and learning practices in the classroom (Suyadi, 2020).

In the era of digital transformation, the reconstruction of LKS also requires the integration of technology to support interactivity and learning collaboration. However, the use of technology must still be based on pedagogical principles so that it is not just technical (Bates, 2019). On the other hand, the integration of PBL in the LKS PAI needs to consider the balance between a constructivist approach and Islamic normative values. Students need to be encouraged to think critically, but stay within a corridor of values that has theological legitimacy (Al-Attas, 2018).

A comparison with several recent studies clarifies where this article departs from existing work. First, (Anggraeni et al., 2023)systematically reviewed PBL research and confirmed its consistent contribution to critical-thinking skills, but the review remains model-focused and does not translate its findings into a concrete teaching-material structure. Second, (Khalil & Arifin, 2024), in a meta-analysis of PBL's impact on critical thinking, likewise treats PBL as an instructional strategy rather than as the organizing syntax of a worksheet, leaving the question of material design unaddressed. Third, (Fathurrohman et al., 2025)examined the need for PBL-based PAI teaching materials to strengthen student character, an orientation close to the present study, yet their work stops at needs analysis and does not propose an integrated PBL-syntax-and-digital-technology framework. Fourth, (Purnomo et al., 2022) discussed PBL as a strategy for PAI learning at the higher-education level but did not extend the discussion to worksheet-level design or to digital integration. Compared with these four studies, the present article addresses what remains missing from each: a single conceptual framework that simultaneously structures PBL syntax into worksheet form, integrates digital technology, and embeds Islamic-value reflection as a design principle rather than an incidental outcome.

Thus, the reconstruction of the Problem-Based Learning-based PAI LKS is an effort to transform the learning paradigm, from a mechanistic approach to contextual, reflective, and valuable learning. LKS no longer functions as a tool, but as the main instrument in building meaningful learning experiences. The success of its development depends heavily on the ability to integrate pedagogical aspects, Islamic values, and learning demands in the digital era.

The conceptual reconstruction requires a more operational formulation so that it can be implemented effectively in learning practices. In this context, the identification of the characteristics and principles of the development of LKS PAI based on Problem Based Learning is an important step that needs to be studied further.

Characteristics and Principles of Problem-Based Learning Based on PAI LKS Development

The development of Islamic Religious Education (PAI) Student Worksheets (PAI) based on Problem Based Learning (PBL) is not only a technical adaptation of the learning model, but reflects a pedagogical reconstruction that places learning as a contextual, reflective, and transformative process. In this framework, the worksheet does not only function as a training tool, but as an instrument that integrates students' knowledge, values, and learning experiences.

The main characteristic of PBL-based worksheets lies in the use of authentic problems as a starting point for learning. The problems raised must be relevant to the lives of students and have an open and complex nature, thus allowing for various alternative solutions (Savery, 2015; Suyadi, 2020). In the context of PAI, the problem needs to combine normative and contextual dimensions, for example ethical issues with social media or religious practices in society. Thus, students not only understand the concept of Islam theoretically, but are also able to apply it in real life.

The next characteristic is the structure of the LKS that integrates the PBL syntax systematically, starting from problem orientation, investigation, to reflection (Arends, 2016). This structure provides a clear direction in the learning process and encourages active involvement of students. The reflection stage is an important aspect, especially in PAI learning, because it functions as a space for internalizing values and forming moral awareness (Brookhart, 2017).

In addition, the development of PBL-based worksheets needs to integrate digital technology to support interactivity and access to various learning resources. The use of digital platforms, such as Learning Management Systems (LMS) or interactive media, can increase student engagement if designed pedagogically (Hodges, 2020). However, the use of technology must remain oriented to learning objectives so that it is not just technical.

On the other hand, the principle of developing PBL-based PAI LKS must remain based on Islamic educational values. The integration of constructivist approaches with Islamic normative principles is important so that learning remains in the corridor of values that have theological legitimacy (Al-Attas, 2018). Therefore, LKS needs to be designed by paying attention to the balance between cognitive, affective, and psychomotor aspects, so as not only to develop critical thinking skills, but also to shape the character and spiritual awareness of students.

Despite its great potential, the development of PBL-based worksheets also faces challenges, especially related to teachers' competence in designing authentic problems and managing problem-based learning. Without adequate understanding, PBL is at risk of being reduced to a superficial activity and not achieving learning objectives (Darling-Hammond, 2017). Therefore, the development of LKS must be supported by a comprehensive needs analysis and capacity building of teachers as learning designers.

Thus, the characteristics and principles of the development of LKS PAI based on Problem Based Learning confirm that LKS is a strategic instrument in transforming PAI learning. Its success depends heavily on the ability to integrate modern pedagogical approaches, the use of digital technologies, and the basic values of Islamic education in a balanced and contextual manner.

Table 1. Conceptual Framework of PBL-Based PAI LKS

PBL Syntax Component	Function in LKS	Digital-Technology Role	Islamic-Value Outcome
Problem Orientation	Presents an authentic, open-ended case	Video/case content via LMS	Recognizing a moral/ethical issue
Investigation	Guides collaborative analysis and inquiry	Online discussion/ collaboration tools	Relating evidence to Islamic teachings
Reflection	Prompts internalization of values learned	Individual e-journal/ portfolio	Strengthened moral commitment

Table 1 summarizes how each stage of the PBL syntax operates within the worksheet, showing concretely how problem orientation, investigation, and reflection are each supported by a specific digital-technology function and lead to a specific Islamic-value outcome. This summary makes explicit the relationship among PBL syntax, PAI values, digital technology, and the intended learning outcomes referred to throughout this section.

Although the characteristics and principles of the development of Problem-Based Learning-based PAI LKS have shown a systematic and potential framework, its implementation in learning practice needs to be studied more critically. Therefore, the next discussion is directed to analyze the advantages and limitations of PBL-based LKS to assess the extent of their effectiveness and challenges in the real context of learning.

Critical Analysis: Advantages and Limitations

The development of Islamic Religious Education (PAI) LKS based on Problem Based Learning (PBL) has a number of significant advantages, especially in encouraging the active involvement of students in the learning process. Through this approach, students no longer play the role of recipients of information, but as subjects who actively construct knowledge through meaningful problem-solving. This involvement includes cognitive and affective aspects, thus supporting the process of internalizing religious values in a more profound way (Hmelo-Silver, 2015).

In addition, PBL-based worksheets are effective in developing high-level thinking skills, such as analysis, evaluation, and synthesis. The learning process based on complex problems encourages students to understand concepts more deeply than the rote approach. In the context of PAI, it is important to form a more adaptive and non-rigid understanding of religion (Brookhart, 2017).

Another advantage lies in its ability to relate religious texts to social reality. Through a problem-based approach, PAI learning can become more contextual, for example by raising relevant social issues and encouraging students to formulate solutions based on Islamic values. This approach not only enhances conceptual understanding, but also builds social awareness and moral responsibility (Azra, 2019).

However, the implementation of PBL-based LKS also faces various limitations. One of the main challenges is the readiness of teachers in designing and managing problem-based learning. The change in role from the information presenter to the facilitator requires pedagogical competence that is not simple. Without adequate understanding, PBL is at risk of not running optimally (Darling-Hammond, 2017).

In addition, the limitations of digital infrastructure are an obstacle, especially in the development of technology-based LKS. Gaps in access to devices and internet networks

can hinder equitable implementation, so it is necessary to consider the aspect of inclusivity in its development (Selwyn, 2016).

From a methodological perspective, there is a risk that the problems presented in the LKS are superficial and do not encourage critical analysis. The quality of the problem is a determining factor for the success of PBL, so that inappropriate design can reduce the effectiveness of learning (Savery, 2015). In the context of PAI, this challenge is increasingly complex because the issues raised must remain in harmony with Islamic values and not cause interpretation bias.

In addition, there is an epistemological tension between the constructivist approach in PBL and the normative character of Islamic education. Therefore, a balance is needed between freedom of thought and commitment to the values of revelation in order for learning to stay in the right corridor (Al-Attas, 2018).

Thus, PBL-based PAI LKS has great potential in transforming learning to be more active, contextual, and meaningful. However, the success of its implementation is highly dependent on the quality of the design, the readiness of teachers, and the support of infrastructure and education systems. Without this, this innovation risks becoming a concept that does not have a significant impact on learning practices.

Considering its advantages and limitations, it is important to examine how Problem-Based Learning-based PAI LKS is relevant in the context of digital transformation of learning.

Relevance in the Era of Digital Transformation

The era of digital transformation has changed the learning paradigm from teacher-centered to learner-centered, where students play an active role in building knowledge. In this context, Problem Based Learning (PBL)-based LKS has strong relevance because it is able to integrate active learning with the use of digital technology pedagogically (Anderson, 2017).

This relevance is increasingly evident from the characteristics of the digital generation who tend to learn visually, interactively, and exploratively. Therefore, conventional textual worksheets are less effective, while PBL-based worksheets in digital format are able to provide a more contextual and engaging learning experience (Prensky, 2016). The use of digital platforms such as the Learning Management System (LMS) allows LKS to be developed interactively, for example through video-based case studies, online discussions, and individual reflections.

In addition, digital transformation opens up opportunities for the development of more adaptive learning through a data-based approach (learning analytics). Teachers can monitor students' progress and adjust learning according to individual needs, thus supporting a more personalized process of internalizing values (Siemens, 2018a).

However, the digitalization of learning also presents challenges. One of them is the ethical aspect in the use of technology, considering that not all available information is in line with Islamic values. Therefore, PAI learning must be able to guide students in using technology critically and responsibly (Livingstone, 2018). In addition, the gap in access to technology is still an obstacle, so the development of LKS needs to consider the principles of flexibility and inclusivity (Selwyn, 2016).

From the pedagogical side, teachers' readiness to integrate technology is also a determining factor. Effective use of technology requires a balance between aspects of technology, pedagogy, and content (TPACK), so that digital worksheets are not only visually appealing, but also meaningful in learning (Koehler & Mishra, 2017).

Furthermore, from the epistemological perspective of Islamic education, PBL-based LKS can serve as a means to filter digital information based on Islamic values. Technological integration must still be directed at the formation of manners and character, not just the mastery of information (Koehler & Mishra, 2017).

Thus, the relevance of Problem-Based Learning-based PAI LKS in the era of digital transformation lies in its ability to provide contextual, interactive, and valuable learning. However, its effectiveness is highly dependent on the quality of the design, the readiness of teachers, and the support of infrastructure. Without this, digitalization risks becoming a superficial innovation.

Considering its relevance in the digital era, the next step is to examine the pedagogical implications of Problem-Based Learning-based PAI LKS in learning practice.

Implikasi Pedagogis

The development of Islamic Religious Education (PAI) based on Problem Based Learning (PBL) has pedagogical implications that include the transformation of learning strategies, the role of teachers, and student involvement. These three aspects are interrelated in forming a more dynamic and meaningful learning ecosystem.

In terms of learning strategies, the implementation of PBL-based worksheets encourages a shift from a linear and teacher-centered approach to dialogical, exploratory, and reflective learning. Activities such as discussions, case studies, and problem-based projects become a major part of the learning process. In the context of PAI, this approach allows for more contextual learning, where learners not only understand religious concepts, but are also able to relate them to social realities(Rusman, 2018). However, the effectiveness of this strategy is highly dependent on a systematic learning design, with the worksheet acting as a guide to the learning flow to remain structured (Dolmans, 2016).

The next implication can be seen in the transformation of the teacher's role, from a conveyor of information to a facilitator, mediator, and reflection supervisor. Teachers are required not only to master the material, but also to be able to design authentic problems, manage discussions, and provide constructive feedback(Hattie, 2017). In the context of PAI, this role must still be balanced with a normative function as an example (uswah hasanah), so that learning is not only cognitive-oriented, but also on character building. However, this role change requires ongoing training support to be implemented optimally (Darling-Hammond, 2017).

Furthermore, from the student's side, PBL-based LKS increases active involvement in learning, both cognitively, affectively, and socially. Students are encouraged to think critically, collaborate, and reflect on learning experiences, thereby strengthening intrinsic motivation and the process of internalizing values (Deci & Ryan, 2017). In PAI learning, this involvement allows Islamic values to be not only understood, but also lived through learning experiences. However, the difference in student readiness is a challenge in itself, so proper scaffolding is needed to ensure inclusive participation (Vygotsky, 2016).

Thus, the pedagogical implications of PBL-based PAI LKS show a comprehensive transformation in learning, both in terms of strategy, the role of teachers, and student involvement. However, its success is highly dependent on the readiness of the education system, the quality of learning design, and support for teacher competence. Without it, this innovation has the potential to not achieve the expected impact. In concrete terms, these implications translate into three practical steps for teachers and institutions: (1) teachers begin by mapping one authentic, values-relevant problem per topic before

drafting worksheet content, so that the problem-not the text-anchors the lesson; (2) institutions provide a minimum digital platform (an LMS or shared drive) so that case materials, discussion spaces, and reflection journals required by the framework can function even where infrastructure is limited; and (3) schools schedule short peer-mentoring sessions in which teachers who have designed a PBL-based worksheet review problem quality and value-integration with colleagues before classroom use.

Sintesis dan Kontribusi Pemikiran

The development of Islamic Religious Education (PAI) Student Worksheets (PAI) based on Problem Based Learning (PBL) in the era of digital transformation is an epistemological need in responding to changes in learning paradigms that require contextual, critical, and adaptive approaches. This innovation cannot be understood simply as a technical change, but as a transformative strategy in reconstructing PAI learning as a whole. It is worth distinguishing, at this synthesis stage, between the conceptual propositions advanced in this article-the four-component framework itself-and the conclusions that are directly supported by prior empirical and theoretical studies, such as the established link between PBL and higher-order thinking (Anggraeni et al., 2023; Hmelo-Silver, 2015; Khalil & Arifin, 2024) and between digital-technology integration and learning engagement (Suyadi & Dahlia, 2020). The framework's specific configuration of these elements for PAI worksheet design is the article's own conceptual contribution and, as such, remains a proposition for further empirical validation rather than an established finding.

The development of PBL-based LKS must be carried out integratively by combining pedagogical, technological, and Islamic values. Within this framework, technology serves as a means, not an end, to support the formation of a balanced human being intellectually, spiritually, and morally (Azra, 2019). LKS is positioned as a core learning instrument that directs learning activities through authentic problems, collaboration, and value reflection (Sanjaya, 2018).

The main contribution of this study lies in the formulation of the conceptual framework of the PAI LKS that integrates the constructivistic principles of PBL with the normative character of Islamic education. This positions the framework's novelty precisely: unlike general PBL models, which specify problem-based syntax without addressing religious-value integration, and unlike existing PAI LKS or digital-learning models, which incorporate technology or Islamic content without a systematic PBL structure, the framework proposed here treats problem orientation, investigation, reflection, digital-technology integration, and Islamic-value internalization as one interdependent design rather than as separately optional additions. This integration allows learning not only to develop critical thinking skills, but also to strengthen the internalization of Islamic values (Al-Attas, 2018). Thus, LKS functions as a synthesis medium between knowledge, experience, and value in learning.

However, the implementation of this innovation is highly dependent on the readiness of the education system, especially teacher competence, policy support, and infrastructure. Teachers play a key role in designing and managing problem-based learning, so capacity building is needed on an ongoing basis(Darling-Hammond, 2017). In addition, education policies and ecosystems must support inclusive and sustainable technology integration (Selwyn, 2016).

Furthermore, this study emphasizes the importance of bridging tradition and modernity in Islamic education. PBL-based LKS can be a medium to relate Islamic values with contemporary realities through innovative and contextual approaches. In addition,

this study opens up opportunities for further research, especially in empirical testing and the development of LKS based on cutting-edge technology (Siemens, 2018b).

Thus, this article makes a conceptual contribution to the development of PAI teaching materials that are more relevant, adaptive, and transformative. PBL-based worksheets not only function as a learning tool, but also as a strategic instrument in forming students who are critical, characterful, and responsive to the dynamics of the times.

D. CONCLUSION

The development of Islamic Religious Education (PAI) Student Worksheets (PAI) based on Problem Based Learning (PBL) in the era of digital transformation essentially represents a shift in the learning paradigm from the orientation of knowledge transmission to the construction of integrative meaning between cognition, affection, and values. This study emphasizes that LKS is no longer relevant to be understood as a complementary tool to learning, but as an epistemic instrument that directs the learning experience systematically through the problematization of reality. Within this framework, the integration of PBL with digital technology is not just a methodological innovation, but a medium of pedagogical reconstruction that allows PAI learning to transform into more contextual, reflective, and meaningful.

The main contribution of this article lies in the formulation of the conceptual framework of the PAI LKS that synergizes the constructivistic principles of PBL with the normative character of Islamic education. This synthesis produced a model of teaching materials that not only encouraged high-level thinking skills, but also maintained the integrity of Islamic values as an epistemological foundation. Thus, the novelty of this study can be seen in integrative efforts that have tended to be fragmented between modern pedagogical approaches, the development of teaching materials, and the dimension of religious values. The worksheet is positioned as a meeting point between the three, as well as a vehicle for internalizing values through authentic problem-based learning experiences.

Theoretically, these findings reinforce the argument that PAI learning requires an approach that goes beyond the dichotomy between normativity and constructivism. The integration of the two shows that the development of critical thinking skills does not have to conflict with a commitment to the value of revelation, but can be mutually reinforcing within a balanced pedagogical framework. Meanwhile, in practical terms, the implications demand a significant transformation in learning design, especially in the role of teachers as reflective facilitators capable of designing authentic problems, mediating discussions, and directing the internalization of values. LKS in this context functions as a learning guide that ensures that the learning process remains structured and open to exploration.

However, critical reflection on the findings shows that the success of the implementation of PBL-based LKS is not solely determined by the quality of conceptual design, but is highly dependent on the readiness of the educational ecosystem. The limitations of teachers' pedagogical competence, the gap in digital infrastructure, and the potential for PBL to be reduced to superficial activities are real challenges that cannot be ignored. In addition, there are epistemological tensions that need to be carefully managed, especially in maintaining a balance between freedom of thought and value authority in Islamic education. Without proper management, these innovations risk losing their transformational substance and getting stuck in methodological formalities.

In the perspective of future development, this study opens up space for further empirical research to test the effectiveness of the formulated LKS model. Three concrete

directions follow from this framework: (1) a quasi-experimental study comparing PBL-based digital LKS with conventional worksheets on measures of critical thinking and value internalization in PAI classrooms; (2) a design-and-development (R&D) study that operationalizes the four-component framework into an actual LKS prototype and tests its validity and practicality with subject-matter and media experts; and (3) a longitudinal study examining whether gains in critical thinking and value internalization associated with PBL-based LKS are sustained over a full academic year rather than only in short-term interventions. In addition, the exploration of the integration of cutting-edge technologies, such as learning analytics or artificial intelligence in LKS design, is a strategic opportunity to strengthen PAI learning personalization. Furthermore, cross-disciplinary studies are needed that link Islamic pedagogy with contemporary learning theory to enrich the theoretical foundation for the development of teaching materials.

Thus, this article emphasizes that the development of PBL-based LKS PAI in the digital era is a strategic step in reconstructing Islamic education practices to remain relevant, adaptive, and transformative, contingent on system readiness and pedagogical commitment.

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