INTEGRATING PROBLEM-BASED AND FLIPPED LEARNING IN ISLAMIC RELIGIOUS EDUCATION: A PATHWAY TO ACHIEVING SUSTAINABLE DEVELOPMENT GOALS

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ABSTRACT

Islamic religious education at universities has not yet become a foundational aspect of scientific discipline thinking. This study aims to explore the role of Islamic religious education in achieving Sustainable Development Goals (SDGs). A descriptive analysis method was employed, incorporating data collection through selected questionnaires and interviews, content analysis of the gathered data, and presentation of the results in tables with descriptive and explanatory explanations. The findings indicate that Islamic religious education, when implemented through a well-designed Problem-Based Learning (PBL) method, effectively trains students to provide paradigmatic solutions to issues related to population, the planet, and the economy. This approach fosters an academic atmosphere that encourages learning and enthusiasm among students. The PBL design equips students with the skills to apply Islamic concepts and methods as comprehensive solutions to various environmentally friendly challenges concerning population, planet, and economic issues. In conclusion, integrating PBL in Islamic religious education at universities enhances students' ability to address SDGs, promoting sustainable development through the application of Islamic principles.

Keywords: Higher Education, Islamic Religious Education, Problem-Based Learning, Sustainable Development Goals

INTRODUCTION

Sustainable Development Goals (SDGs) represent a global initiative aimed at addressing a wide range of challenges that humanity faces, including poverty, inequality, climate change, environmental degradation, peace, justice and food security (Manzoor et al. 2024) . Adopted by all United Nations Member States in 2015, the 17 SDGs provide a shared blueprint for peace and prosperity for people and the planet, now and into the future. The goals are interconnected, recognizing that action in one area will affect outcomes in others, and that development must balance social, economic, and environmental sustainability. Achieving these goals requires the collaborative efforts of governments, the private sector, civil society, and academia, with education playing a critical role (Yumnam, et al, 2024). Higher education institutions, in particular, are pivotal in this endeavor, as they not only educate future leaders and professionals but also conduct research that can offer innovative solutions to these global challenges. Integrating sustainable development into educational curricula is essential for equipping students with the knowledge, skills, and values needed to contribute to a sustainable future.

Research on Islamic religious education (IRE) has been extensive, with notable contributions from Taufik (2020), Siregar (2020), Warsah (2021), Das (2022), and Maemunah (2022). Taufik examined the strategic role of IRE in enhancing character education within the context of the Industrial Revolution 4.0, highlighting the importance of integrating traditional religious education with modern technological advancements to build character (Taufik, 2020). Siregar explored IRE learning activities at the An-Naba Islamic Boarding School for converted

Muslims, emphasizing the unique challenges and strategies in educating new converts (Siregar et al., 2020). Warsah focused on the epistemology of Islamic education concerning jihad and radicalism, providing insights into how Islamic education can address and mitigate radical ideologies (Warsah, 2021). Das investigated discipline levels in IRE at Sengkang Junior High School, demonstrating how character education and discipline are intertwined in religious learning environments (Das et al., 2022). Maemunah analyzed IRE study videos on social media platforms, exploring how digital content can influence religious education and engagement (Maemunah et al., 2022). However, these studies have not specifically addressed the role of IRE in higher education in relation to achieving Sustainable Development Goals (SDGs). This gap underscores the need for research that explores how IRE at universities can contribute to sustainable development by integrating Islamic principles with educational strategies aimed at addressing global challenges.

Previous studies have highlighted the potential of Islamic Religious Education (IRE) to prepare the younger generation for the Society 5.0 era, which envisions a human-centered society that integrates cyberspace and physical space to balance economic advancement with the resolution of social problems (Astini, 2022). For example, Rosmida (2019) discussed the necessary digital skills and industry responsiveness for accountants to thrive in Society 5.0, emphasizing the integration of digital literacy and technological proficiency in education. Wibisono (2020) underscored the need for language education reform to adapt to changing communication practices in the digital age, while Triyono (2021) emphasized the importance of monotheism in fostering noble morals within IRE. Despite these valuable insights, there remains a gap in understanding the role of IRE at the university level in addressing the specific challenges posed by Society 5.0, highlighting the need for focused research in this area.

In higher education, effective learning designs such as Problem-Based Learning (PBL), Flipped Learning (FL), and Project-Based Learning (PjBL) have been widely recognized for catering to diverse student needs. Studies by Darhim (2020), Seibert (2021), Harnani (2021), and Saleh (2022) have demonstrated the effectiveness of PBL in enhancing critical thinking and problem-solving skills across various fields, from mathematics to nursing, digital literacy, and environmental problem-solving. FL research by Ahmadi (2020) and Haftador (2021) has shown how this method increases academic motivation and engagement by allowing students to learn at their own pace and apply their knowledge practically. Similarly, PjBL studies by Al-Busaidi (2021), Almazova (2022), and Kulsum (2022) highlight the benefits of project-based learning in professional development and the formation of digital competencies. However, the specific integration of these learning strategies with IRE to enhance student outcomes and support Sustainable Development Goals (SDGs) has not been thoroughly explored.

Regarding universities' contribution to the SDGs, Torres (2021) discussed their efforts to balance economic competitiveness with sustainability, emphasizing the critical role of higher education institutions in promoting sustainable development. Chankseliani & McCowan (2021) highlighted the importance of inclusivity and equal opportunities in education to achieve the SDGs, while Leite (2022) explored the integration of global sustainability principles into educational curricula to foster responsible global citizenship. Despite these contributions, there has been no specific research on the integration of SDGs with IRE. Therefore, this study aims to fill this gap by exploring the design of IRE at universities to support sustainable development.

METHOD

The research employs a descriptive analysis approach, following Nugraha et al.'s (2022) framework, which consists of three main steps: data provision, data analysis, and data presentation. Data collection was carried out using note-taking methods, including selected questionnaires and interview techniques. A total of 578 students participated in the study,

comprising 369 women (64%) and 209 men (36%). Of these, 500 students (87%) were high school graduates, while 78 (13%) graduated from Islamic High Schools. The respondents were from various faculties, including Business Economics (11%), Law (4%), Cultural Sciences (12%), Communication Science (9%), Governmental Science (11%), Dentistry (8%), Nursing (5%), Natural Sciences (10%), Marine Science (7%), Agriculture (3%), Agricultural Science Technology (2%), Animal Husbandry (19%), Geology (3%), Pharmacy (3%), and Psychology (2%).

The data analysis involved a comparative examination of pre-test and post-test questionnaire results, which were then verified through interviews with selected respondents (Apriani & Syahidin, 2021). This process enabled a comprehensive understanding of the impact of Islamic Religious Education (IRE) using a problem-based learning (PBL) method. The PBL process included defining problems, facilitating group discussions, and encouraging students to develop and present solutions. Finally, the data was presented in tables and percentages, accompanied by descriptive explanations to illustrate the findings clearly (Nurjanah et al., 2023). This method ensured a thorough and systematic analysis of the role of IRE in sustainable development education.

RESULTS AND DISCUSSION

The results of this study provide a comprehensive analysis of the impact of Islamic Religious Education (IRE) utilizing a problem-based learning (PBL) approach on students' ability to address sustainable development challenges. By examining the pre-test and post-test data, alongside qualitative insights from respondent interviews, this section elucidates the effectiveness of PBL in enhancing critical thinking and problem-solving skills. The findings are categorized based on key themes, including academic performance, skill development, and the application of Islamic principles to real-world issues, offering a detailed perspective on how IRE can contribute to sustainable development goals within a university setting.

IRE using PBL-Flipped Design in Universities

At the first meeting, students attended a public lecture on the importance of Islamic Religious Education (IRE) at universities, conducted in a hybrid format. Class representatives were present in the university hall, while other students participated actively via Zoom meetings. During this session, students received an overview of the Study Learning Plan for IRE, including a breakdown of the learning material from the first to the sixteenth meeting. They also gained an understanding of the assessment and evaluation patterns for the course. At the end of the lecture, students completed a questionnaire to assess their understanding and practice of Islam, resulting in Data-1, which captured their basic Islamic religious abilities, as shown in Table 1A.

Table.1A Basic Abilities in Islam

	Basic Ability	Excellent	Very Good	Good	Sufficient	Poor
1	RECITING AL-QURAN (Fluent - *Tajwid, Tahsin, Qira'ah, Hafidz*)	6 (1%)	79 (14%)	178 (31%)	275 (47%)	40 (7%)
2	Practicing the 5 Daily Prayers (On time, *khusyuk*, understand prayer recitation)	42 (7%)	124 (22%)	216 (37%)	187 (32%)	9 (2%)
3	Understanding the Pillars of Islam (*Iman, Islam, Ihsan*)	38 (7%)	148 (26%)	191 (33%)	192 (33%)	9 (1%)
4	Understanding Islam (Concept-Method-Technique)	16 (3%)	98 (17%)	195 (34%)	249 (43%)	20 (3%)

Table 1A, point 1, revealed heterogeneity in the students' basic Islamic abilities, with the majority coming from Senior High Schools (SMA). Most students (93%) had a good ability to read the Al-Quran, while 7% were not yet proficient. To address this, the lecturer team,

supported by student tutors, provided Al-Quran mentoring to improve the skills of the 7% (40 students). This mentoring program was adapted from a character-building initiative used in Malaysia (Ismail & Makhsin, 2023).

Additionally, Table 1A, point 2, showed that most students prayed on time but lacked understanding of the prayer recitations, which hindered their ability to pray with devotion (khusyuk). To improve this, the lecturer team and student tutors conducted study group sessions focused on understanding the meanings of prayer recitations through quotation tests. The aim was to help students achieve a devoted prayer practice, which is believed to prevent cruel and evil deeds (Q.S. Al-Ankabut, 29:45) (Hizbullah & Mardiah, 2020). One student class leader commented that understanding the meaning of prayer readings was particularly meaningful for them. These insights are detailed in Table 1B, which includes selected interview results.

Table 1 B Selected Interview Results

No	List of interview questions	Understand every word in the prayer reading	Understand the meaning of prayer reading	Don't know the meaning of prayer reading
1	Have you been able to be humble in prayer?	28%	40%	32%
	Verification		Correct	Incorrect
A	What does *wa-'fu annie* mean?		66%	34%
B	What does *attahiyyatul mubarakātuh* mean?		64%	36%
C	What is the meaning of *ihdinas shirāṭal mustaqiem*?		70%	30%
2	The high and low status of humans in the sight of ALLAH is determined by *taqwa* (God-consciousness) (Nazam et al., 2022) (Helli, 2021)		85%	15%
A	An example of the Sunnah that functions to detail the globality of the Koran is the Procedure for Prayer. (Sumbulah et al., 2022)		66%	34%
B	The function of the Sunnah is to limit (*taqyid*) the muthlaqan of the Koran, such as the punishment for cutting off one's hands. Freijah & Kafi (2022)		36%	64%

A notable insight from Table 1A is point 4, which indicates that while students generally have a good understanding of Islamic concepts, methods, and techniques, the majority struggle to apply these in everyday life. Interviews revealed this gap in practical application, highlighting the need to explain various Islamic concepts and problem-solving methods in a more engaging manner. Therefore, it is crucial to discuss the techniques for applying these concepts through a PBL-Flipped process. This approach aligns with Purwanto et al. (2023), who emphasize the importance of reflective practice in IRE, where lecturers assist students in reflecting on their knowledge and experiences.

Each meeting was structured into two sessions. In the first session of the second meeting, the lecturer presented material on the relationship between religion and humans. In the second session, students in each class were divided into 10 groups, each consisting of 5-10 members. Each group selected one SDG issue to focus on. The topics for these SDG issues are illustrated in Figure 1, which outlines the PAI learning design integrated with the PBL-Flipped method.
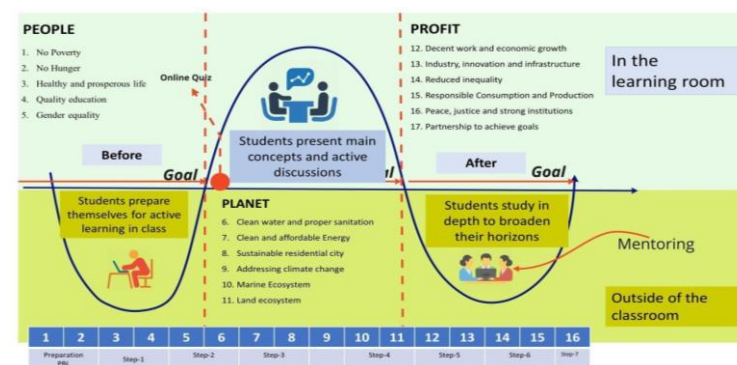

Figure 1. SDGs Topics

Figure 1 highlights a key difference between this research and previous studies by Saleh et al. (2022) and Ahmadi et al. (2020), which used PBL and Flipped methods separately. In contrast, this study integrates the PBL-Flipped method. During the first session of the third meeting, student teams began presenting their chosen topics according to their respective scientific fields. In the second session, lecturers discussed various alternatives for addressing SDG issues in Indonesia. From the third to the sixteenth meeting, students, guided by their lecturers, followed the seven steps of the PBL-Flipped process: (1) analyzing real problems in society, (2) formulating problems into objects of scientific study, (3) creatively exploring facts and problem systems according to the theory they used, (4) structuring problems using relevant methods, (5) abstracting selected concepts based on article reviews according to the formulated study objects, (6) analyzing problems using relevant concepts or theories to find alternative solutions, and (7) choosing and applying alternative solutions to the issues to draw appropriate conclusions.

Simultaneously, lecturers guided students in integrating local wisdom with their scientific fields, aligning with Dasopang et al. (2022), who advocate for integrating Islamic values into students' scientific knowledge. The 7-step PBL-Flipped learning process significantly enhanced students' perceptions of using Islamic concepts and methods to address SDG problems. This improvement is illustrated in Table 2.

Table-2 Perception Enhancement Process

No	PBL-Flipped Material	Beginning	Process	Solution
1	Islamic Insight	0%	86%	14%
2	SDGs Theme	3%	81%	17%
	Recognizing SDGs Issues	0%	78%	22%
3	SDGs Islamic Solutions	3%	78%	19%
	Rahmat Lil-'alamin Islam	0%	83%	17%

Table 2 reveals a significant improvement in students' perceptions across three key areas. First, there was a notable increase in Islamic insight, with 86% of students rating it as very good. Students recognized the relevance of their knowledge to the responsibility of Muslim scientists in promoting Islam as a mercy to all creation (rahmatan lil-alamin). Second, the class discussion results were rated as good by 79.5% of students. Despite focusing on solving a single SDG problem, the discussions provided diverse information on issues related to people, planet, and profit, thanks to the dynamic exchanges in each study group. Third, the average significant increase in students' problem-solving capabilities was rated as very good by 80.5% of students. To address SDG issues, students sought out and consulted experts on relevant Quranic verses, the Sunnah of the Prophet, and scholars' opinions, leading to viable alternative solutions. This activity is expected to foster spiritual growth or ruhiyah, enhancing students' awareness of their connection to God's law. This aligns with Chanifah et al. (2021), who emphasize the importance of developing students' spirituality in their respective scientific fields.

Output-Based Education in IRE

Output-Based Education (OBE) is a mandatory course at universities, reflecting the shift towards student-centered learning. This approach aligns with Chigbu et al. (2023), who argue that the most effective and sustainable pedagogy is student-centered learning. Consequently, IRE courses are also designed to be student-centered. One of the key outputs in IRE is the creation of book chapter articles. Examples of these article titles, discussed in IRE classes, are presented in Table 3.

Table-3 Article Themes in IRE Class Discussions

No	Article Theme (class discussion)
1	Islamic Solutions in the Clean Water and Proper Sanitation Crisis in Kukin Village, North Moyo District
2	Development of Information Facility Applications for Entrepreneurship Training Programs as a Solution to the Unemployment Issue in Indonesia
3	*Baitul Mal* as a Step to Reduce Poverty in Jatinangor District
4	Education on the Impact of Air Pollution on Health
5	Islamic Concepts in Overcoming Structural Poverty
6	Eradicating Poverty in Indonesian Society with *Zakat*
7	Islamic Perspective Solutions to Overcome Economic and Employment Issues in West Java
8	Construction of Environmentally Friendly Power Plants
9	Stopping Hunger for the Future
10	Preserving, Protecting, and Restoring Land Ecosystems by Protecting Forests
11	Clean and Affordable Energy from the Perspective of Islam
12	Riau Forest Fires and Their Solutions from the Perspective of Islam
13	The Perspective of Islam in Resolving Low Levels of Education with Islamic Character Development in Sukabumi Regency, West Java
14	Natural Resources Management in Islam
15	Deforestation in Indonesia in the Perspective of Islam
16	Gender Equality According to the Perspective of Islam

Table 3 shows that students can understand the facts and realities of problems according to their knowledge and place of residence. This achievement is largely due to the motivation provided by PAI lecturers, who share examples of their own published articles. For instance, Nugraha (2019) wrote about the sustainability of blessings in the culinary business community, while Nugraha et al. (2019) explored "Sustainability of Family Harmony through Literacy of the Prophet Muhammad's Family Model" and authored an article on "Family Literacy and Revitalization of Islamic Values in Indonesia." These discussions and examples inspire students to engage deeply with SDG topics from an Islamic perspective, enhancing their enthusiasm and understanding of Islam in relation to their academic fields.

Assessment and Evaluation System in IRE

According to Dimyati and Hermanu (2023), academic communities, including students and lecturers, must collaborate to enhance scientific productivity. In this context, the PBL assessment pattern in IRE courses is distributed as follows: 35% for attitude, 40% for knowledge, and 25% for problem-solving ability. The attitudes assessed are based on nine anti-corruption values: honesty, concern, independence, discipline, responsibility, hard work, simplicity, courage, and justice. These values are emphasized through understanding the meanings of prayer recitations, aligning with the Quranic function of prayer to prevent cruel and evil deeds and to foster noble values (Stimpson & Calvert, 2021).

The mastery of Islamic insight covers several themes: 1) The importance of Islamic religious education at universities, 2) The relationship between religion and humans, 3) Three basic rational human problems, 4) The role of Islamic values and laws in regulating Muslim behavior in a pluralistic society, 5) Islam's perspective on religious, cultural, and worldview diversity, 6) The role of faith and Islamic law in creating an anti-corruption society, 7) An Islamic society full of peace and prosperity, 8) Islam's role in forming individuals and society with noble morals, 9) Islam's contribution to science and technology and its role in solving global problems (SDGs), and 10) Islam's role in national development. The assessment of Islamic insight was conducted through dynamic thematic discussions and writing articles on various SDG issues from an Islamic perspective. This output-based assessment pattern is adapted from Assaidi

(2021), who advocates for digital-based IRE learning methods at universities to foster positive perspectives and behaviors.

The ability to solve problems is assessed through students' skills in objectively formulating societal problems with an Islamic perspective. According to Yusuf et al. (2023), this involves three steps: 1) Deep understanding of facts and reality, 2) Careful and precise understanding of relevant Quranic and Sunnah texts, and 3) Providing concepts and methods from the Quran and Sunnah as paradigms for addressing sustainable development issues. This approach aligns with Abdurrahim (2023), who emphasizes Indonesia's potential to become an economic power in ASEAN and a key player in maritime security alongside Europe and America, contributing to global prosperity and environmental preservation through the SDGs.

The initial findings from the public lecture and subsequent sessions illustrate the effectiveness of the hybrid approach in introducing Islamic Religious Education (IRE) to students. The diverse backgrounds of students, particularly in their ability to recite the Al-Quran, highlighted a significant variation in their initial competencies. The implementation of targeted Al-Quran mentoring for the 7% of students who were not proficient demonstrated a practical solution to this disparity, reinforcing the importance of character-building initiatives in enhancing religious education (Ismail & Makhsin, 2023).

A critical insight from Table 1A, point 2, was the gap in students' understanding of prayer recitations, which affected their ability to pray with devotion (khusyuk). The study group sessions focused on comprehending the meanings of prayer recitations proved effective in addressing this gap. This method not only improved their devotional practice but also underscored the role of reflective practice in religious education, aligning with the view that understanding the meanings behind prayers fosters spiritual growth and adherence to noble values (Hizbullah & Mardiah, 2020).

The study revealed a significant challenge in the application of Islamic concepts, methods, and techniques to everyday life, as noted in Table 1A, point 4. This finding emphasizes the necessity of a more engaging and practical approach to teaching these concepts. Previous studies have shown that traditional teaching methods often fail to bridge the gap between theoretical knowledge and practical application (Purwanto et al., 2023). Therefore, integrating innovative educational strategies such as Problem-Based Learning (PBL) within a flipped classroom model becomes essential.

The integration of the PBL method within the flipped classroom model addressed the need for a more engaging approach by encouraging students to actively engage with real-world problems and apply Islamic principles in their solutions. This method aligns with the reflective practice advocated by Purwanto et al. (2023), who emphasize the importance of deepening students' understanding and application of their knowledge through active engagement and reflection. The structured PBL-Flipped learning process from the third to the sixteenth meeting facilitated a comprehensive exploration of SDG issues from an Islamic perspective.

Students were guided through seven steps in the PBL process, from analyzing real problems to formulating and implementing solutions. This process not only enhanced their problem-solving skills but also integrated local wisdom with their scientific knowledge. This approach reflects Dasopang et al. (2022)'s emphasis on incorporating Islamic values into scientific education. The significant improvement in students' perceptions, as shown in Table 2, indicates the effectiveness of this approach in fostering a holistic understanding of SDG issues.

Furthermore, the creation of book chapter articles as part of the Output-Based Education (OBE) approach in IRE courses provided students with a practical platform to apply their knowledge. Chigbu et al. (2023) advocate for student-centered learning as the most effective and sustainable pedagogy. This aligns with the motivational role of PAI lecturers in sharing their

published works, which inspired students to engage deeply with contemporary issues through the lens of Islamic teachings.

The integration of Islamic concepts and methods in addressing SDG issues is crucial for developing well-rounded individuals capable of contributing to sustainable development. This study's findings underscore the importance of innovative pedagogical approaches in IRE. The effectiveness of combining PBL and flipped classroom methods in enhancing both religious insight and practical problem-solving skills supports the argument for more integrative and student-centered educational strategies (Saleh et al., 2022; Seibert, 2021).

The hybrid format of the initial public lecture successfully accommodated diverse student backgrounds, ensuring broad accessibility and engagement. This inclusive approach is crucial for modern educational environments, particularly in light of the challenges posed by the COVID-19 pandemic (Ahmadi et al., 2020). The hybrid model allowed for the effective dissemination of the Study Learning Plan (RPS) for IRE, laying a solid foundation for the course.

Targeted Al-Quran mentoring significantly improved the recitation skills of the 7% of students who were initially not proficient. This personalized support mirrors the character-building initiatives used in Malaysia, highlighting the importance of tailored educational interventions (Ismail & Makhsin, 2023). Such interventions are crucial in religious education to ensure all students reach a satisfactory level of competence.

Addressing the gap in students' understanding of prayer recitations through study group sessions focused on comprehending the meanings of prayer recitations proved effective. This method not only improved their devotional practice but also underscored the role of reflective practice in religious education. According to Stimpson & Calvert (2021), understanding the meanings behind prayers fosters spiritual growth and adherence to noble values, further highlighting the benefits of this approach.

The challenge students faced in applying Islamic concepts to everyday life was effectively addressed through the PBL-Flipped approach. This method provided a structured framework for students to engage with real-world problems, enhancing their problem-solving skills and integrating local wisdom with their scientific knowledge. This holistic and contextually relevant understanding of Islamic teachings is crucial for modern education, particularly in fostering sustainable development (Dasopang et al., 2022).

Finally, the creation of book chapter articles demonstrated students' ability to relate Islamic teachings to contemporary issues, particularly those related to Sustainable Development Goals (SDGs). The motivational support from lecturers, who shared their published works, inspired students to engage deeply with these topics. This method not only enhanced students' academic skills but also promoted a deeper understanding of Islam's relevance to modern challenges, thus aligning with the advocacy for student-centered learning (Chigbu et al., 2023).

Overall, this study underscores the effectiveness of combining PBL and flipped classroom methods in IRE, promoting a student-centered approach that enhances both religious insight and practical problem-solving skills. The findings suggest that such integrative educational strategies can significantly contribute to developing well-rounded individuals who are capable of addressing modern challenges through the lens of Islamic principles. This aligns with broader educational goals of fostering critical thinking, spiritual growth, and social responsibility in students, as supported by contemporary educational research (Purwanto et al., 2023; Seibert, 2021).

CONCLUSION

The integration of Problem-Based Learning (PBL) and flipped classroom methods in Islamic Religious Education (IRE) at universities has proven highly effective in enhancing students' religious and practical competencies. The hybrid public lecture format ensured broad accessibility and engagement, while targeted Al-Quran mentoring significantly improved the recitation skills of those initially not proficient. Addressing the gap in students' understanding of prayer recitations through study groups fostered deeper spiritual connections and ethical behavior. The PBL-Flipped approach provided a structured framework for applying Islamic principles to real-world problems, thereby enhancing problem-solving skills and integrating local wisdom. Additionally, the creation of book chapter articles demonstrated students' ability to relate Islamic teachings to contemporary issues, particularly Sustainable Development Goals (SDGs). This study underscores the effectiveness of combining PBL and flipped classroom methods in IRE, promoting a student-centered approach that enhances both religious insight and practical problem-solving skills. Ultimately, this approach develops well-rounded individuals capable of addressing modern challenges through Islamic principles, contributing to the broader educational goals of fostering critical thinking, spiritual growth, and social responsibility.

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