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Optimizing NotebookLM for Islamic Religious Education in the Age of Artificial Intelligence

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ABSTRACT

The rapid advancement of Artificial Intelligence (AI) is reshaping education, including Islamic Religious Education (PAI). However, the integration of AI into PAI instruction at STAI Sirojul Falah Bogor remains limited, as teaching practices still rely heavily on conventional methods and participants face challenges related to limited learning resources, digital literacy, and interactive instructional design. This community service activity aimed to optimize the use of NotebookLM as a source-based AI tool to support more efficient, accessible, and contextual PAI learning. The activity was implemented through a hybrid online and offline workshop on Friday, April 17, 2026, at STAI Sirojul Falah Bogor, involving PAI lecturers, students, and members of the academic community. The method included material preparation, introduction to AI in education, NotebookLM feature demonstration, guided hands-on practice, AI-assisted PAI learning simulations, discussion, and reflective evaluation. The results showed that participants were able to use NotebookLM to upload PAI learning materials, generate AI-assisted summaries, develop study guide drafts, create source-based quiz questions, and formulate discussion prompts grounded in uploaded sources. The workshop also strengthened participants' awareness of ethical AI use, particularly in relation to source verification, responsible interpretation of AI outputs, and the need to align AI-generated materials with Islamic educational values. These findings indicate that NotebookLM can support PAI learning by helping lecturers and students transform religious education materials into more structured, interactive, and source-based learning resources. This activity contributes to strengthening digital literacy and provides a practical model for integrating AI tools ethically and contextually within Islamic higher education.

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1. Introduction

The rapid development of information and communication technology has transformed educational practices, including the teaching and learning of Islamic Religious Education (PAI). Artificial Intelligence (AI) is increasingly used to support content creation, learning material organization, assessment preparation, and independent learning. In higher education, AI can help lecturers and students access broader learning resources, summarize complex materials, and design more interactive learning activities. However, the integration of AI into Islamic Religious Education requires a more careful approach than general subject areas because PAI is closely related to religious values, ethical reasoning, source validity, and contextual interpretation of Islamic teachings. UNESCO emphasizes that the use of generative AI in education should be guided by human-centered principles, ethical validation, pedagogical relevance, and data privacy protection (Miao & Holmes, 2023).

Islamic Religious Education has a strategic role in developing students' religious understanding, moral awareness, and character formation. Therefore, the use of AI in PAI should not merely focus on technical efficiency, but also on how digital tools can support accurate, responsible, and value-based learning. AI-generated outputs in PAI must be reviewed carefully because religious learning materials often require valid references, contextual interpretation, and alignment with Islamic educational values. Previous studies on AI in Islamic education show that AI can support instructional innovation, but its use must remain under human supervision to prevent misinterpretation, academic dishonesty, and the weakening of teachers' moral guidance roles (Ahmad et al., 2025; Ali et al., 2023). In this context, lecturers and students need not only digital skills, but also critical literacy to evaluate sources, verify information, and ensure that technology supports rather than replaces human judgment in religious education.

The partner institution in this community service activity was STAI Sirojul Falah Bogor. Based on preliminary observation and informal discussions with the academic community before the workshop, several practical problems were identified in the implementation of PAI learning. First, PAI learning activities still relied largely on conventional approaches, such as lectures, class discussions, and static assignments. These methods remain important, but they do not fully support flexible, interactive, and source-based learning experiences. Second, lecturers and students still had limited experience in using AI tools for instructional purposes, particularly for summarizing PAI materials, preparing study guides, developing source-based questions, and supporting independent learning. Third, learning resources were often used in a fragmented way, making it difficult for students to connect lecture materials, Islamic texts, modules, and supporting references into a structured learning pathway. Fourth, there was a need for practical training that could help participants use AI ethically and contextually within Islamic education.

The initial need assessment showed that the main issue was not simply the availability of technology, but the limited ability to use AI tools in a structured, source-based, and pedagogically relevant manner. Some participants were already familiar with general AI applications, but they had not yet used them systematically for PAI learning design. In particular, participants needed guidance on how to upload relevant learning sources, generate summaries from selected materials, create study guides, formulate quiz questions, and conduct question-and-answer activities based on verified sources. This condition is consistent with the concept of AI literacy, which includes the ability to understand AI functions, evaluate its outputs, use AI responsibly, and apply it appropriately in educational contexts (Chiu et al., 2024).

NotebookLM was selected as the main tool in this program because it has specific advantages for source-based learning. Compared with general AI tools such as ChatGPT, Gemini, Perplexity, or other conversational AI platforms, NotebookLM is more suitable for this activity because it allows users to

upload selected source materials and generate responses grounded in those materials. Google describes NotebookLM as an AI research and thinking tool that works based on user-provided sources, making it relevant for learning activities that require document-based interaction (Google, 2026). Yeo et al. (2025) also show that NotebookLM can transform academic texts into more engaging learning formats, including summaries and interactive discussions. This feature is particularly relevant for PAI because religious education requires careful attention to source validity, contextual accuracy, and alignment with approved teaching materials.

The novelty of this community service activity lies in the contextual optimization of NotebookLM for Islamic Religious Education. Previous AI literacy activities often focus on general digital skills or broad introductions to AI in education. In contrast, this program specifically introduced NotebookLM as a source-based AI tool for PAI learning. The activity emphasized not only how to operate the tool, but also how to use it responsibly for summarizing PAI materials, preparing study guides, developing source-based quizzes, creating discussion prompts, and supporting reflective learning. This makes the program different from general AI workshops because it connects AI-assisted learning with the ethical, pedagogical, and religious characteristics of PAI.

This activity also addressed the specific nature of Islamic Religious Education by emphasizing source verification, responsible interpretation, academic integrity, and the continued role of lecturers as ethical and pedagogical guides. In PAI learning, AI should not be positioned as a substitute for teachers, scholars, or authoritative religious references. Instead, it should be used as a supporting tool to help organize learning materials, stimulate discussion, and improve students' access to structured knowledge. Therefore, the workshop encouraged participants to review AI-generated outputs critically, compare them with uploaded sources, and adapt the results to the objectives of Islamic education. This approach is aligned with the principle of human-in-the-loop AI integration, in which technology supports instructional work while final judgment remains with educators (Ahmad et al., 2025; Miao & Holmes, 2023).

Based on these considerations, this community service activity aimed to optimize the use of NotebookLM for Islamic Religious Education at STAI Sirojul Falah Bogor. Specifically, the activity sought to strengthen participants' understanding of source-based AI, improve their practical ability to use NotebookLM for PAI learning materials, and build awareness of ethical AI use in Islamic education. The workshop was conducted on Friday, April 17, 2026, through a hybrid online and offline format. The expected contribution of this activity is the development of a practical training model for integrating AI tools into Islamic higher education in a way that is ethical, contextual, and aligned with the values of PAI.

2. Methods

This community service activity used a participatory workshop model combined with guided practice, reflective discussion, and output-based evaluation. The method was designed to ensure that participants did not only receive conceptual information about Artificial Intelligence (AI) and NotebookLM, but also practiced using the tool directly for Islamic Religious Education (PAI) learning materials. The activity was conducted in a hybrid online and offline format on Friday, April 17, 2026, at STAI Sirojul Falah Bogor.

The participants consisted of PAI lecturers, undergraduate students, and members of the academic community who were involved in or interested in Islamic Religious Education and educational technology. The exact number of participants was not fully documented in the available attendance record; therefore, this article reports participant involvement descriptively based on the documented workshop activities. The participant composition was relevant to the purpose of the program because the activity targeted users who were directly connected to teaching, learning, and developing Islamic education materials.

The implementation of the activity was organized into five stages: need assessment, material design, workshop implementation, evaluation, and follow-up.

The first stage was need assessment. This stage was conducted through preliminary observation and informal discussions with the academic community at STAI Sirojul Falah Bogor before the workshop. The need assessment aimed to identify participants' familiarity with AI tools, their experience in using digital learning platforms, and the challenges they faced in developing PAI learning materials. The initial findings indicated that participants had not used AI tools systematically for PAI learning design. Several challenges were identified, including limited experience in using AI for summarizing religious education materials, difficulty organizing learning sources into structured study guides, and limited understanding of how to verify AI-generated outputs. These findings became the basis for designing a practical workshop focused on source-based AI use through NotebookLM.

The second stage was material design. The service team prepared workshop materials based on the results of the need assessment. The materials included: (1) introduction to AI in education; (2) ethical use of AI in Islamic Religious Education; (3) introduction to NotebookLM as a source-based AI tool; (4) demonstration of NotebookLM features, including source upload, AI-assisted summarization, study guide generation, quiz creation, and source-grounded question-and-answer interaction; and (5) practical application of NotebookLM for PAI learning materials. The team also prepared sample PAI texts, presentation slides, practice guidelines, and a simple output template to help participants produce summaries, study guides, quizzes, and discussion prompts.

The third stage was workshop implementation. The workshop was held from 08.00 to 12.30 WIB. The activity consisted of material presentation, live demonstration, guided practice, learning simulation, discussion, and reflection.

Table 1. The structure of the activity

Time	Session	Activity	Expected Output
08.00– 08.15	Opening and orientation	Opening remarks, introduction to the purpose of the activity, and explanation of the workshop flow	Participants understand the objectives and expected outputs of the workshop
08.15– 08.30	Initial reflection and need confirmation	Participants reflected on their prior experience in using AI tools for learning and teaching	Descriptive baseline of participants' AI familiarity
08.30– 09.15	AI and ethics in PAI learning	Presentation on AI in education, opportunities and risks, ethical use, source validation, and the role of educators in PAI Islamic education	Participants understand the ethical context of AI use in Islamic education
09.15– 10.00	Introduction to NotebookLM	Demonstration of NotebookLM features, including source upload, summarization, study guide, quiz, and source-grounded Q&A	Participants understand the basic features of NotebookLM
10.00– 11.15	Guided hands-on practice	Participants uploaded selected PAI materials and practiced generating summaries, study guides, quizzes, and discussion prompts	Participants produce AI-assisted learning outputs
11.15– 11.45	PAI learning simulation	Participants discussed how NotebookLM outputs could be adapted for PAI learning activities	Participants identify practical applications of NotebookLM in PAI learning

Time	Session	Activity	Expected Output
11.45– 12.15	Discussion and reflection	Participants discussed challenges, ethical considerations, and possible classroom applications	Reflection notes and participant feedback
12.15– 12.30	Closing	Summary of the activity, follow-up plan, and closing remarks	Participants receive direction for continued practice

The fourth stage was evaluation. Because the available documentation did not contain complete numerical data on participant attendance, pre-test scores, post-test scores, or satisfaction percentages, the evaluation was conducted descriptively using facilitator observation, participant reflection, discussion notes, and the outputs produced during the workshop. The evaluation focused on participants' ability to follow the NotebookLM demonstration, upload PAI-related sources, generate summaries, create study guide drafts, formulate source-based quiz questions, and develop discussion prompts. In addition, the evaluation also considered participants' awareness of source verification, academic integrity, and responsible AI use in Islamic education.

Table 1. Evaluation indicators

Evaluation Aspect	Data Source	Indicator
AI literacy	Initial reflection and discussion	Participants' understanding of AI opportunities, limitations, and ethical risks
NotebookLM understanding	Observation during demonstration	Participants' ability to identify and explain NotebookLM features
Source-based learning	Guided practice output	Participants' ability to upload sources and generate outputs based on PAI materials
Practical skill	Workshop outputs	Production of summaries, study guide drafts, quiz questions, and discussion prompts
Ethical awareness	Reflection and discussion	Awareness of source verification, academic integrity, and human judgment in PAI learning
Participant response	Discussion notes and facilitator observation	Participants' perceived relevance and applicability of NotebookLM for PAI learning

The data were analyzed using descriptive qualitative analysis. Data from facilitator observations, participant reflections, discussion notes, and workshop documentation were organized based on the evaluation indicators. The analysis focused on identifying participants' practical engagement, the types of outputs produced, the challenges encountered during the practice session, and the potential use of NotebookLM in PAI learning. Because complete quantitative evaluation data were not available, this article does not report percentage increases, average pre-test and post-test scores, or satisfaction levels. Instead, the results are presented as descriptive evidence of participant engagement and output-based achievement.

The fifth stage was follow-up. After the workshop, participants were encouraged to continue practicing NotebookLM by applying it to their own PAI learning materials. The follow-up plan included sharing digital guidelines, providing practice templates, encouraging discussion among participants, and recommending the development of a small learning community or AI discussion group at STAI Sirojul Falah Bogor. This follow-up stage was important to ensure that the workshop did not stop at one-time exposure, but continued as a process of strengthening digital literacy and responsible AI use in Islamic higher education.

The main outputs of the activity included AI-assisted summaries of PAI materials, study guide drafts, source-based quiz questions, discussion prompts, and a simple NotebookLM practice guide. These outputs served as evidence of participants' practical engagement with the tool and became the

basis for evaluating the success of the activity. Therefore, the success of the community service program was assessed not from participant numbers alone, but from the documented process, participant engagement, practical outputs, and reflective understanding of ethical AI use in Islamic Religious Education.

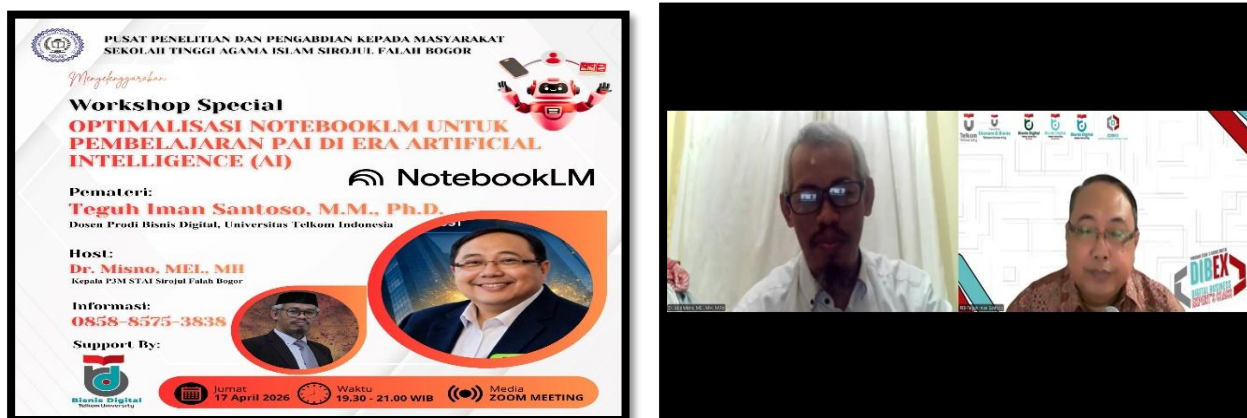


Figure 1. PKM Activity Poster

3. Results and discussion

The results of this community service activity are presented using a descriptive approach because the available documentation did not include complete quantitative data, such as the exact number of participants, pre-test scores, post-test scores, satisfaction survey results, or a formal digital literacy measurement. Therefore, this section does not claim measurable improvement in participants' digital literacy or classroom engagement. Instead, the findings are reported based on documented workshop activities, facilitator observation, participant practice, discussion notes, and the learning outputs produced during the training.

The workshop was implemented as a hybrid online and offline activity at STAI Sirojul Falah Bogor on Friday, April 17, 2026. The activity introduced NotebookLM as a source-based AI tool to support Islamic Religious Education (PAI) learning. The results are organized into three main forms of evidence: evaluation documentation status, participant learning outputs, and reflective responses from the workshop discussion.

The first result concerns the availability of evaluation data. Although the workshop included explanation, demonstration, guided practice, and discussion, the available documentation did not contain complete numerical evaluation data. For this reason, the results are not presented as statistical improvement, but as descriptive evidence of participant engagement and output-based achievement.

Table 3. Availability of Evaluation Evidence

Evaluation Component	Availability in Documentation	Explanation
Number of participants	Not fully documented	The exact number of lecturers, students, and community participants was not available in the attendance record used for this report
Pre-test score	Not available	The available documentation did not include numerical baseline scores before the workshop
Post-test score	Not available	The available documentation did not include numerical scores after the workshop

Evaluation Component	Availability in Documentation	Explanation
Percentage of digital literacy improvement	Not available	Improvement could not be calculated because pre-test and post-test data were not available
Satisfaction survey	Not available	No percentage-based satisfaction questionnaire was documented
Participant output	Available descriptively	Participants practiced generating AI-assisted outputs during the workshop
Workshop documentation	Available	The activity was documented through poster, presentation slides, and workshop activity photographs
Reflection discussion	and Available descriptively	Participant responses were collected through discussion and reflection during the session

Based on Table 3, the article avoids unsupported quantitative claims. Statements such as “the workshop yielded measurable improvements” and “classroom engagement increased noticeably” were not retained because they require numerical evidence. Instead, the findings focus on what could be observed and documented during the workshop, particularly the ability of participants to practice using NotebookLM and produce AI-assisted learning materials.

The second result concerns the practical outputs produced during the guided practice session. During the workshop, participants were introduced to several NotebookLM features, including source upload, AI-assisted summarization, study guide generation, quiz development, source-grounded question-and-answer interaction, and discussion prompt generation. These activities were directly connected to PAI learning materials so that participants could understand how AI tools may support religious education without replacing the role of lecturers, teachers, or authoritative references.

Table 4. Descriptive Achievement of Participant Outputs

Output Type	Evidence from Workshop Practice	Description
PAI source upload	Participants practiced uploading selected PAI learning materials into NotebookLM	This activity introduced participants to source-based AI interaction
AI-assisted summary	Participants generated summaries from uploaded learning materials	The summaries helped transform longer PAI materials into shorter and more structured learning content
Study guide draft	Participants practiced creating study guides based on uploaded sources	The study guides could be adapted for independent learning or classroom preparation
Source-based quiz questions	Participants generated quiz questions from PAI materials	The quiz drafts may be used as formative assessment tools after being reviewed by lecturers
Discussion prompts	Participants formulated prompts and questions grounded in uploaded materials	The prompts supported reflective discussion and source-based inquiry in PAI learning
Ethical review of AI output	Participants discussed the need to verify AI-generated content	This reinforced the importance of source validation and human judgment in Islamic education

The outputs in Table 4 show that the workshop produced practical learning artifacts. However, because the documentation did not record the number of participants who completed each output, the

findings are reported descriptively rather than numerically. The main evidence of success was the documented process of guided practice and the production of AI-assisted learning materials, including summaries, study guide drafts, quiz drafts, and discussion prompts.

The third result concerns participants’ reflective understanding of NotebookLM as a source-based AI tool. Through discussion and reflection, participants recognized that NotebookLM differs from general AI chatbots because it allows users to work with uploaded sources. This feature was considered relevant for PAI learning because religious education materials require careful attention to source validity, contextual accuracy, and ethical interpretation. Participants also discussed that AI-generated outputs should not be used automatically without review. Lecturers and students still need to compare the outputs with the uploaded sources, revise inaccurate explanations, and ensure that the material remains consistent with Islamic educational values.

Table 5. Reflection-Based Findings from the Workshop

Reflection Theme	Descriptive Finding	Implication for PAI Learning
Source-based use	AI Participants became familiar with the idea that AI responses can be generated from uploaded learning materials	NotebookLM can support more controlled and source-grounded learning activities
Efficiency preparing materials	in Participants observed that summaries, study guides, and quizzes could be generated more quickly	Lecturers may use NotebookLM as an initial support tool for preparing teaching materials
Need verification	for Participants acknowledged that AI outputs still require human review	Source validation remains essential in Islamic Religious Education
Ethical awareness	AI Discussion emphasized academic integrity, responsible use, and the role of educators	AI should support, not replace, the pedagogical and ethical role of lecturers
Contextual adaptation	Participants noted that AI-generated outputs must be adjusted to learning objectives and religious values	PAI materials require contextual and value-based interpretation

The discussion also showed that the use of NotebookLM in PAI has specific pedagogical relevance. Unlike general learning materials, PAI content requires careful treatment because it involves religious concepts, moral values, and interpretive sensitivity. Therefore, the workshop emphasized that NotebookLM should be used as a supporting tool for organizing and exploring learning materials, not as an authoritative source of religious interpretation. This distinction is important because AI tools may generate incomplete or decontextualized explanations if users do not provide appropriate sources or fail to verify the outputs.

From the perspective of community service implementation, the activity contributed to participants’ initial exposure to AI-assisted PAI learning. Participants were introduced to the practical use of NotebookLM and practiced producing learning outputs based on uploaded materials. The workshop also encouraged participants to think critically about the ethical use of AI, especially in relation to source verification, academic integrity, and the role of human judgment. These findings suggest that AI training for PAI should combine technical practice with ethical and pedagogical reflection.

Nevertheless, this activity has several limitations. First, the exact number and composition of participants were not fully documented. Second, the activity did not produce complete pre-test and post-test data, so improvement in understanding could not be calculated. Third, the workshop did not include a formal satisfaction survey, so participant satisfaction could not be reported in percentages. Fourth, the number of participants who successfully completed each output was not recorded. Because of these

limitations, the findings should be interpreted as descriptive evidence of workshop implementation rather than as quantitative evidence of measurable learning improvement.

Future community service activities should include a more systematic evaluation design. At minimum, the implementation team should prepare an attendance record, participant profile form, pre-test and post-test instruments, participant satisfaction questionnaire, output assessment rubric, and documentation of participant products. These instruments would allow future reports to present stronger evidence, such as average score improvement, percentage of participants who completed each output, satisfaction level, and examples of participant products. With these improvements, future NotebookLM training for Islamic Religious Education can be evaluated more objectively and reported more convincingly in community service journals.

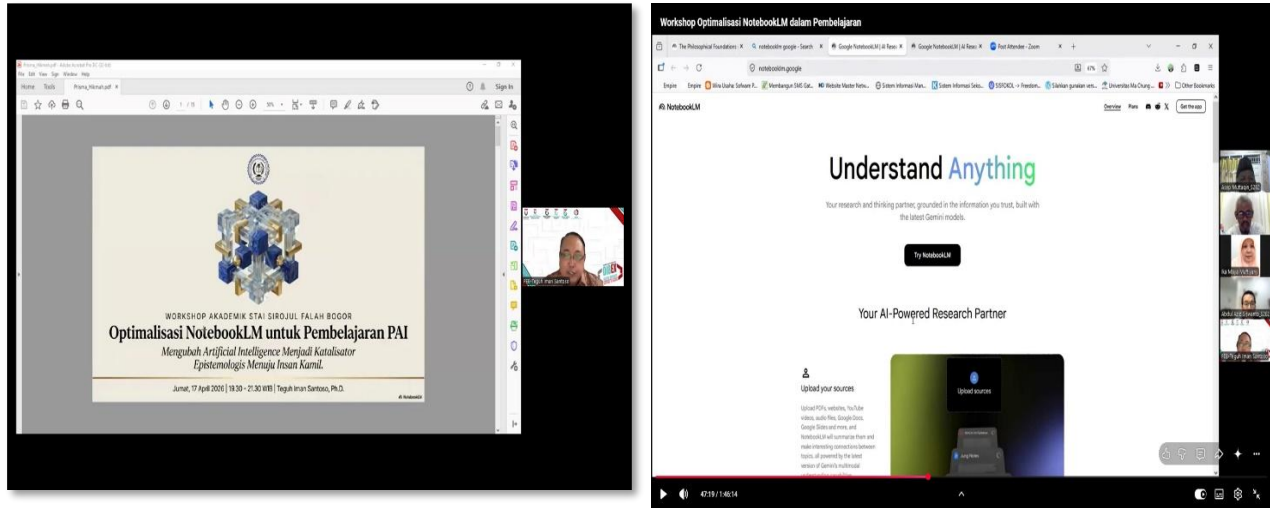


Figure 2. Slide Presentation

The findings of this community service activity indicate that NotebookLM has practical relevance for supporting Islamic Religious Education (PAI), particularly when it is introduced through guided practice and ethical reflection. Although the activity did not provide complete quantitative evaluation data, the workshop documentation and participant practice show that NotebookLM can be used as a supporting tool for organizing PAI materials, generating learning summaries, preparing study guides, developing quiz drafts, and creating source-based discussion prompts. The discussion of these findings can be organized into four analytical themes: NotebookLM as source-grounded AI for PAI learning, digital literacy strengthening, ethical AI use in Islamic Religious Education, and institutional challenges for sustainable adoption.

First, NotebookLM is relevant for PAI learning because it operates as a source-grounded AI tool. Unlike general AI chatbots that may generate responses based on broad model knowledge, NotebookLM enables users to upload selected materials and interact with those sources through summaries, questions, and learning prompts. This characteristic is important for PAI because religious education requires careful attention to source validity, contextual accuracy, and consistency with approved learning materials. In this workshop, participants were introduced to the idea that AI should not be treated as an independent religious authority, but as a tool for organizing and exploring learning materials. By uploading PAI-related sources, participants could generate summaries, study guides, and questions that were more closely connected to the materials being studied. This source-grounded feature makes NotebookLM more appropriate for PAI contexts than general AI tools when the learning objective is to work with specific lecture notes, modules, or religious education texts.

Second, the workshop contributed to the strengthening of participants' digital literacy, although the level of improvement could not be calculated quantitatively due to the absence of pre-test and post-

test data. Digital literacy in this activity was not limited to the ability to operate a digital tool. It also included the ability to select relevant sources, upload materials, generate AI-assisted outputs, review the accuracy of results, and adapt outputs to PAI learning objectives. The practical session moved participants from merely knowing about AI to trying AI-assisted learning design through NotebookLM. This transition is important because many AI literacy programs stop at awareness, while this activity emphasized direct application. Participants practiced producing learning outputs such as summaries, study guide drafts, quiz items, and discussion prompts. These outputs became descriptive evidence that the activity supported initial digital skill development in the context of Islamic education.

Third, the use of AI in Islamic Religious Education requires strong ethical awareness. PAI is not only a knowledge-based subject, but also a value-based and character-forming field. Therefore, AI-generated outputs must be treated carefully. The workshop emphasized that NotebookLM outputs should be verified, compared with uploaded sources, and reviewed by lecturers or competent educators before being used in learning activities. This is important because religious concepts may involve interpretive differences, contextual meanings, and sensitivity to doctrinal accuracy. AI may help summarize or organize materials, but it cannot replace the role of teachers, lecturers, ustaz, or scholars in providing moral guidance, contextual explanation, and pedagogical judgment. In this sense, the ethical use of AI in PAI should be based on source verification, academic integrity, responsible interpretation, and human oversight.

Fourth, the adoption of NotebookLM in Islamic higher education requires institutional support. The workshop showed that technical introduction alone is not sufficient for sustainable AI integration. Several factors may influence adoption, including access to devices, internet connection, lecturer readiness, student digital skills, curriculum alignment, and institutional policy on AI use. Without follow-up support, participants may return to conventional practices after the workshop. Therefore, STAI Sirojul Falah Bogor and similar institutions need to consider follow-up mentoring, digital learning communities, AI usage guidelines, and integration of AI literacy into relevant courses. Institutional support is also needed to ensure that AI use remains aligned with academic standards and Islamic educational values.

Overall, the workshop suggests that NotebookLM can support PAI learning when it is used as a source-based, ethically guided, and pedagogically controlled tool. The success of the activity was not primarily shown by numerical improvement, but by the documented process of introducing participants to source-based AI practice and encouraging them to reflect on its ethical implications. The main implication is that AI integration in PAI should not be framed merely as technological modernization. It should be understood as a pedagogical and ethical process that requires source control, teacher guidance, digital literacy, and institutional readiness. Future programs should include more systematic evaluation instruments, such as attendance records, pre-test and post-test scores, product assessment rubrics, and participant satisfaction surveys, so that the impact of AI training in PAI can be measured more objectively.

4. Conclusions

This community engagement initiative demonstrates that NotebookLM can be effectively integrated into Islamic Religious Education to enhance comprehension, streamline instructional design, and foster active learning. By equipping faculty and students with practical AI competencies, the project successfully advanced digital literacy and promoted ethical, purpose-driven technology use. The resulting pedagogical innovations—automated summarization, dynamic study guides, interactive quizzes, and source-grounded discussions—contribute to a more responsive and effective learning environment. Looking ahead, this model offers a scalable framework for other Islamic higher education institutions, strengthening digital competencies while encouraging sustainable, values-aligned AI integration in religious studies.

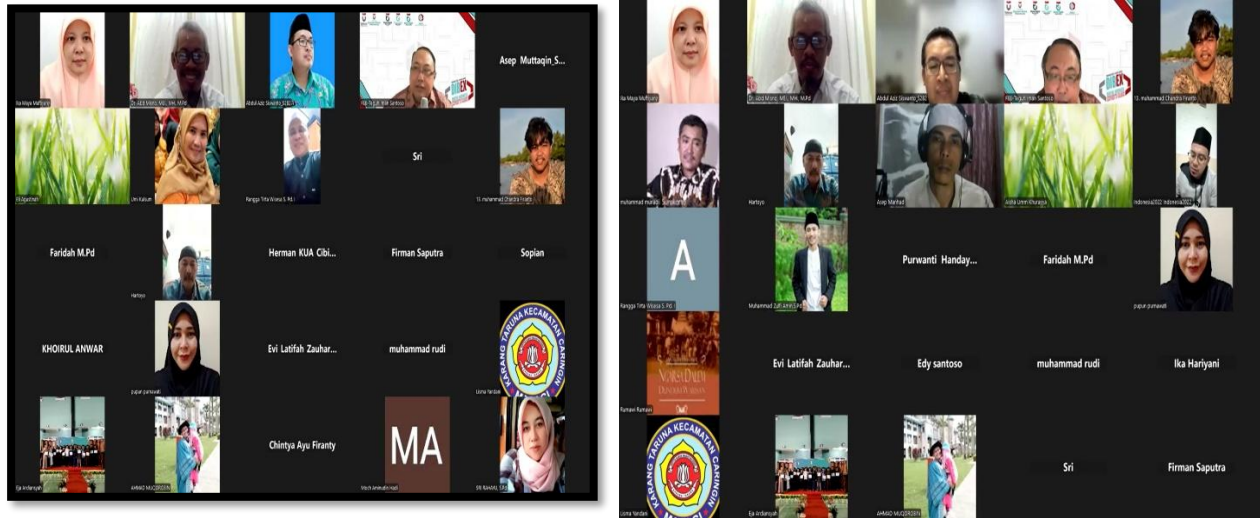


Figure 3. Workshop Activity

5. Recommendations

- a. Sustain Institutional Training: Regular workshops and follow-up mentoring will help normalize AI use and build long-term user independence.
- b. Curriculum Integration: Islamic higher education programs should embed AI competencies directly into PAI coursework, treating technology as a structural component rather than an optional add-on.
- c. Expand Digital Access: Institutions must ensure reliable internet connectivity and adequate device availability to guarantee equitable AI participation across all student and faculty groups.
- d. Establish Digital Learning Communities: Campus-based AI user networks will encourage peer collaboration, resource sharing, and continuous instructional improvement.
- e. Prioritize Ethics & Critical Literacy: Training must consistently reinforce source validation, data privacy, and the ethical application of AI ensuring technology serves academic rigor and character development rather than replacing them.

Implementing these recommendations will not only elevate current PAI instruction but also lay the groundwork for ethically grounded, AI-enhanced Islamic education in the years ahead.

6. Authors Note

The authors declare that there is no conflict of interest regarding the publication of this article. Authors confirmed that the paper was free of plagiarism.

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