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Enhancing Mathematics Teachers' Competence through Training on Developing Interactive Learning Media Based on ClassPoint AI

[1]Anny Sovia, [2]Nurashri Partasiwi, [3]Leny Dhianti Haeruman, [4]Lukman El-Hakim, [5]Siska, [6]Haikal Dito Pratama

[123456]Prodi Pendidikan Matematika, Universitas Negeri Jakarta, Jakarta Timur, Indonesia
Email: [1]annysovia@unj.ac.id, [2]nurashripartasiwi@unj.ac.id, [3]dhiantileny@gmail.com, [4]lukman_hakim@unj.ac.id, [5]siskabirin@gmail.com, [6]haikal_1301622043@mhs.unj.ac.id

Abstract: This training program aimed to enhance the pedagogical competencies of Mathematics teachers at Madrasah Aliyah (Islamic Senior High Schools) in Jakarta Special Capital Region in utilizing ClassPoint AI technology to develop interactive learning media. The training methodology incorporated lecture-based instruction, live demonstrations, hands-on practice sessions, and group discussions. Participants comprised 26 mathematics educators affiliated with the Mathematics Subject Teachers' Forum (MGMP). Evaluation results demonstrated significant improvement in participants' mastery of ClassPoint features, with a mean satisfaction rating of 4.43 out of 5. Primary implementation challenges included technological infrastructure limitations and internet connectivity issues. The training successfully promoted technology integration in instructional practices, aligning with Sustainable Development Goal (SDG) 4 objectives regarding quality education. Recommendations for subsequent training iterations include the development of simplified installation modules and extension of program duration to optimize learning outcomes.

Keywords: ClassPoint AI; Interactive Learning Media; Mathematics Education; Teacher Competencies, Technology-based Training.

1. INTRODUCTION

The rapid development of technology, including artificial intelligence (AI), has brought significant changes to the field of education. These changes affect various aspects of learning, such as instructional materials, learning media, and digital reporting of learning outcomes. As a result, teachers are required to possess adequate technological literacy. Mastery of technology can assist teachers in improving instructional quality. Moreover, technology integration is essential to accommodate the learning characteristics of Generation Z students. According to Rosenberg, as cited in Huda (2020), technological advancement has led to shifts in the learning process, including transitions from classroom-based instruction to learning that can take place anytime and anywhere, as well as from printed materials to online systems.

Interaction between teachers and learners is no longer limited to face-to-face communication but is also

facilitated through digital communication media. These changes require teachers to adapt their instructional practices. Teachers must be able to utilize technology effectively in both instructional planning and implementation. This capability is essential to ensure meaningful learning experiences. One form of technology integration in education is the use of learning media. Appropriate learning media can increase student participation, learning motivation, and academic achievement (Yuliansah, 2019).

Presentation media such as PowerPoint are commonly used in classrooms. However, PowerPoint still has limitations in supporting interactive learning (Hashemi et al., 2012). Therefore, additional platforms are needed to enhance interactivity in presentation-based instruction. ClassPoint is a PowerPoint add-in designed to improve interactivity and student engagement during the learning process. Developed by Inknoe, ClassPoint enables teachers to create interactive quizzes, add annotations to slides, and collect students' responses in real time. With a single click, conventional PowerPoint slides can be transformed into interactive quizzes. This feature encourages active student participation during lessons.

Consequently, classroom instruction becomes more engaging and dynamic. In addition, ClassPoint is equipped with gamification features that integrate game elements into the learning process. Gamification has been shown to increase student motivation and learning outcomes (Hussein et al., 2023; Cakir & Korkmaz, 2019; Hürsen & Baş, 2019). ClassPoint also utilizes AI technology to generate assessment questions automatically based on Bloom's Taxonomy. This AI-based feature helps teachers create varied and structured evaluations efficiently (Azka, 2021). As a result, learning activities become more effective and enjoyable.

Despite the rapid development of educational technology, many teachers still face challenges in adopting technology and AI in classroom instruction. These challenges include limited access to training, inadequate infrastructure, and generational gaps (Ainiyah et al., 2024). Such conditions often result in teacher-centered instruction and low student engagement. Therefore, continuous training on technology-based instructional media is necessary to improve teaching quality. This initiative aligns with the Community Service Strategic Plan of Universitas Negeri Jakarta (UNJ) (Cahyana et al., 2021) and supports the achievement of Sustainable Development Goal (SDG) 4: Quality Education.

2. METHOD

This training program is part of a Community Service initiative aimed at equipping senior high school teachers (MA level) in the Special Region of Jakarta with the skills to design engaging presentation media using ClassPoint. The training includes several key activities: introducing ClassPoint to the teachers; explaining its various features and their functions; guiding teachers to explore and try out these features; conducting hands-on practice in designing compelling presentation materials using ClassPoint; and assigning tasks followed by an evaluation. The method applied in this community service activity combines theoretical instruction and practical application. Theoretical concepts are delivered through lectures by subject-matter experts, while the practical component is conducted in groups, accompanied by two faculty members from the Mathematics Department, Faculty of Mathematics and Natural Sciences, Universitas Negeri Jakarta (UNJ).

The training involves both lecture and demonstration methods. Initially, participants will be introduced to the theoretical foundations related to the focus areas of the training. Participants will then engage in individual or group practice based on the material provided, followed by discussion sessions with the resource persons to reflect on the outcomes of the practice sessions. To support the training implementation, several instructional methods are employed: (a) the lecture method, used to convey fundamental concepts and training materials; (b) the question-and-answer method, which facilitates participant engagement during both the theoretical and practical phases of the training; (c) the simulation method, which allows participants to apply the concepts learned in practical scenarios; and (d) the discussion method, which encourages participants to engage in reflective dialogue after completing the practical tasks.

To accommodate participants who may face difficulties in understanding the training content, a comprehensive training module is provided. This module covers all aspects of ClassPoint, from installation to the operation of all available features. The training is designed to ensure participants fully understand the materials, assess their level of proficiency, and develop the required competencies. Additionally, students are involved in the training process to assist with technical issues that may arise during the sessions.

3. RESULT AND DISCUSSION

The Community Service activity was conducted in a face-to-face session on Thursday, July 3, 2025, at the

Dewi Sartika Building, Campus A, Universitas Negeri Jakarta, 6th Floor, Room 1 No. 608. This was followed by an online session on July 17, 2025, intended as a follow-up and in-depth reinforcement of the training material. The training was attended by 26 Madrasah Aliyah teachers from various regions within the Special Capital Region of Jakarta. The primary focus of this activity was to enhance teachers' understanding and skills in designing interactive and engaging instructional presentation media using the ClassPoint application. The use of ClassPoint is expected to support more effective and participatory learning processes while improving the quality of instructional delivery in classrooms (Akram & Abdelrady, 2023).
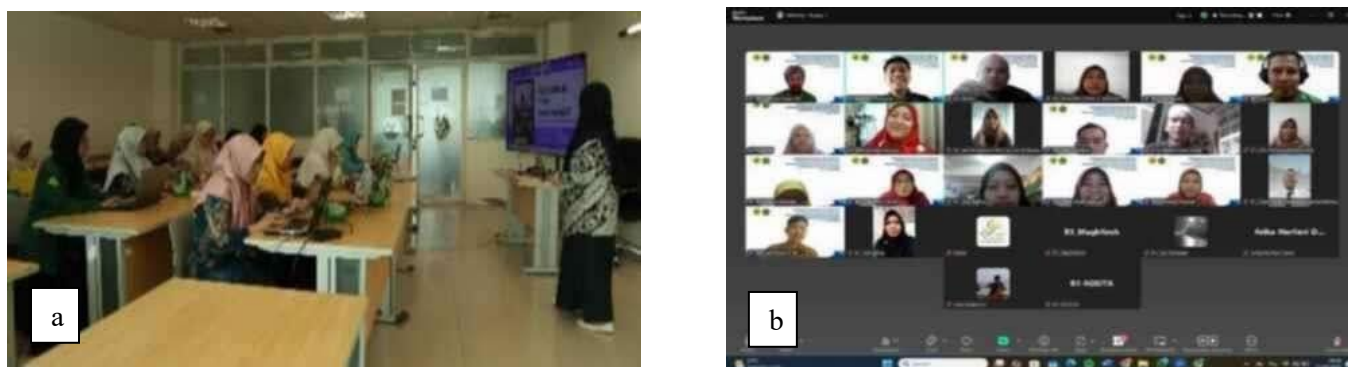

Figure 1. Training Phase (a. Offline Training; b. Online Training)

The training systematically introduced various ClassPoint features and demonstrated how they can support classroom instruction. The main focus was on the use of interactive features and the application of ClassPoint AI as a tool for automatic question generation. The material was delivered in a hands-on, application-oriented manner, allowing participants not only to understand the functions of ClassPoint but also to immediately practice their use to improve both presentation quality and student engagement during lessons (Akram, 2022).

In the initial session, the trainer presented key features of ClassPoint, including the leaderboard, AI quiz generator, annotation tools, digital whiteboard, name picker, and interactive quiz features. These features can be used to design gamified learning experiences, generate AI-based quizzes, and conduct interactive assessments. The trainer also demonstrated practical examples of how these features can be integrated into classroom instruction to increase student engagement and facilitate real-time feedback. This session helped participants understand the pedagogical potential of ClassPoint beyond its technical functions.

Figure 3. Introduction of Tools and Functions of ClassPoint

The leaderboard is useful for displaying student rankings based on earned stars in gamified lessons. The AI quiz generator automatically creates questions by analyzing slide content, aligning with Bloom's Taxonomy levels, and supporting language customization. Integrating AI in educational tools such as ClassPoint aligns with current trends in personalized and intelligent learning (Abbes et al., 2024).
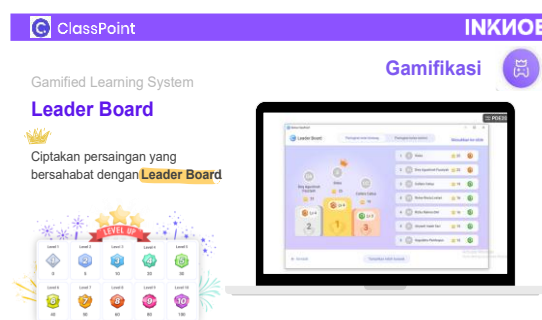

Figure 4. Leader board

ClassPoint's interactive quiz features include multiple choice, word cloud, short answer, slide drawing, image upload, fill in the blanks, audio recording, and video upload (Azka, 2021). These features enable dynamic student participation and support differentiated assessment strategies by allowing learners to respond through multiple modes of expression. In addition, the real-time interaction facilitated by ClassPoint helps teachers monitor students' understanding and provide immediate feedback during the learning process.

Prior to and after the training, participants completed questionnaires to assess baseline knowledge and post-training learning outcomes. The pre-training questionnaire provided a general overview of participants' initial conditions, while the post-training questionnaire assessed the achievement of training objectives. The comparison of pre- and post-training results was used to determine the effectiveness of the training program in improving participants' knowledge and skills.

Figure 5. AI quiz Generator and It's Examples

The pre-training questionnaire results yielded an overall mean score of 2.94, indicating that participants' initial readiness and perceived competence were at a moderate to low level prior to the training. Most participants reported insufficient prior knowledge of the training material and limited references for developing teaching materials, suggesting a clear need for capacity building. Participants also largely disagreed with the statement that their current teaching methods did not require updates, reflecting an openness to instructional improvement and innovation. In contrast, strong agreement was expressed regarding the importance of engaging delivery techniques, highlighting participants' expectations for interactive and effective training approaches. Overall, these findings justify the necessity of the training and provide a strong baseline for evaluating post-training improvements.

The post-training questionnaire consisted of 18 statements evaluating participants' perceptions of the training. The results yielded an overall mean score of 4.35, indicating a very positive evaluation of the program. High ratings were observed for gains in new knowledge, relevance to teachers' professional competence, and motivation for follow-up training (mean scores $\geq$ 4.55), suggesting that the training effectively enhanced participants' understanding of AI integration in education and supported ongoing professional development. In addition, aspects related to clarity of instruction, ease of understanding, and face-to-face interaction were consistently rated highly (mean scores > 4.40), reflecting the effectiveness of the instructional delivery. However, lower scores for software accessibility (3.45) and critical thinking stimulation (4.10) indicate areas for improvement, particularly in technical support and the inclusion of more authentic classroom scenarios.

Overall, the findings demonstrate that while the training was well received, targeted refinements are needed to further optimize its impact. A comparison between the pre-training and post-training questionnaire results

shows a clear improvement in participants' perceptions and learning outcomes. Prior to the training, the overall mean score was **2.94**, indicating limited prior knowledge, insufficient references, and a strong need for instructional updates. In contrast, the post-training evaluation yielded a substantially higher overall mean score of **4.35**, reflecting very positive perceptions of the training quality and outcomes. This improvement suggests that the training successfully addressed participants' initial gaps in knowledge and professional competence. Moreover, participants' strong receptiveness to interactive delivery methods is consistent with previous findings that interactivity and gamification enhance motivation and knowledge retention in learners (Tiansoodeenon & Prasongngern, 2025; Rolle, 2024).
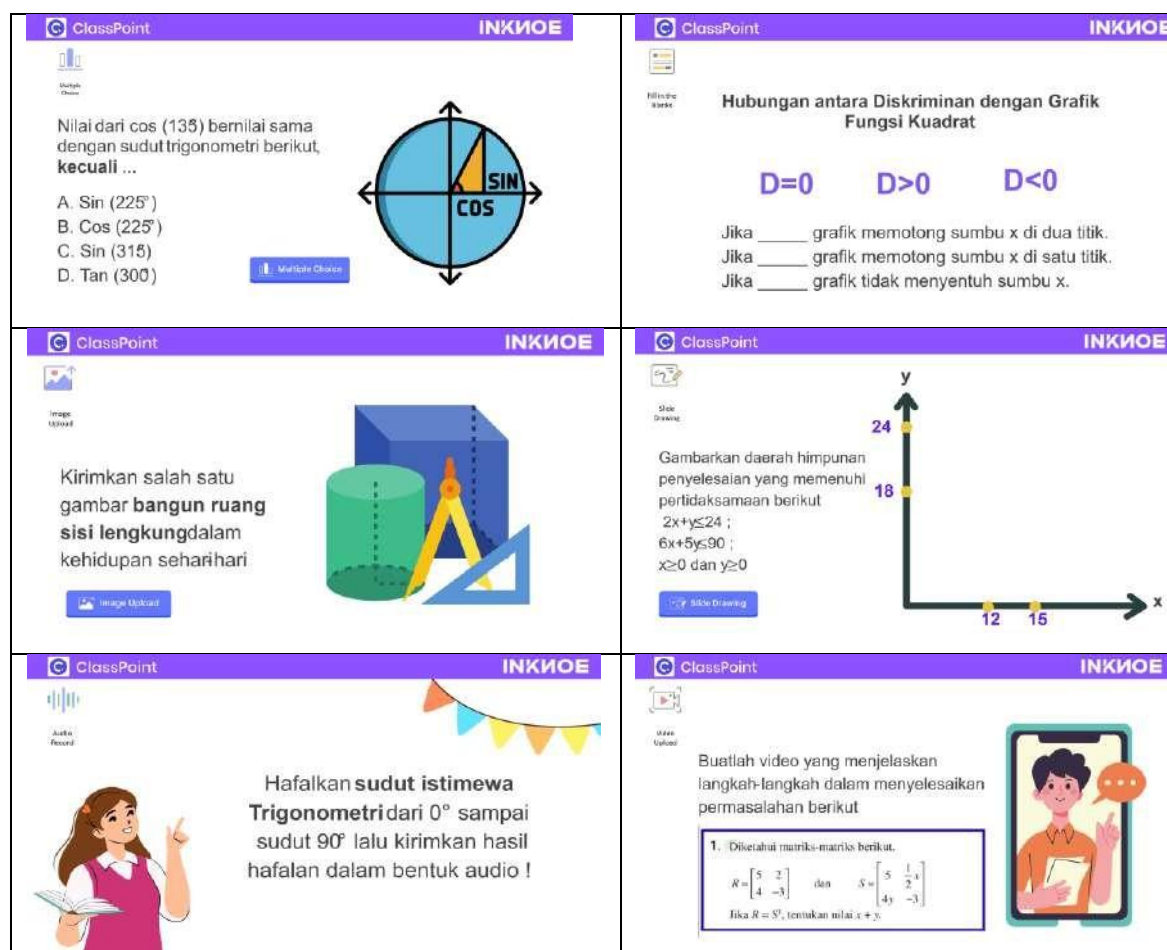

Figure 6. Examples of Interactive Quiz

At the end of the program, participants completed a practical task to design instructional media using ClassPoint, and the submitted work demonstrated a strong understanding of the training material through effective use of various interactive features. Overall, the training was successful in providing valuable insights, although several technical and logistical aspects still require improvement to optimize the learning experience.

This initiative reflects the commitment of the Faculty of Mathematics and Natural Sciences (FMIPA), Universitas Negeri Jakarta (UNJ), to enhancing instructional quality in Indonesia by empowering teachers to integrate interactive presentation technologies, while also aligning with the Sustainable Development Goals (SDGs), particularly Goal 4: Quality Education.

4. CONCLUSION

This training effectively enhanced teachers' competencies in using ClassPoint AI to create interactive learning media. Its success was supported by the active involvement of the Mathematics MGMP for Madrasah Aliyah, ensuring the training's relevance to madrasah needs. The blended approach—combining theory, practice, and reflection—facilitated sustainable skill development. The outcomes align with SDG 4 by promoting educational technology integration, improving digital literacy, and reducing resistance to new tools. The initiative also supports the TPACK framework's implementation in resource-limited madrasahs. For sustained impact, post-training support such as refresher workshops and digital resource repositories is recommended.

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CONFLICT OF INTERESTS

The authors declare that there are no conflicts of interest, whether financial, professional, or personal, that could have influenced the content or outcomes of this work.

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