



Mentoring on Artificial Intelligence-Based Edutainment Learning Media for Elementary School Teachers in Pariaman City

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ABSTRACT

ABSTRAK

Media pembelajaran edutainment (pembelajaran yang menyenangkan) berbasis Artificial Intelligence (AI) menjadi salah satu strategi untuk menjawab tantangan transformasi digital pendidikan dasar, namun penerapannya masih terkendala keterbatasan pelatihan guru. Program Kemitraan Masyarakat (PKM) ini bertujuan meningkatkan kompetensi pedagogik dan profesional guru Sekolah Dasar (SD) di Kecamatan Pariaman Selatan, Kota Pariaman, dalam merancang dan menerapkan media pembelajaran edutainment berbasis AI yang terintegrasi dengan penguatan Profil Pelajar Pancasila. Kegiatan melibatkan 30 guru SD mitra dan dilaksanakan melalui tahapan Preparation, Implementation, and Evaluation (PIE) yang meliputi sosialisasi, pelatihan, penerapan teknologi, pendampingan lapangan, dan evaluasi berkelanjutan selama delapan bulan. Data dikumpulkan melalui observasi, dokumentasi karya guru, dan catatan lapangan, kemudian dianalisis secara deskriptif kualitatif. Hasil kegiatan menunjukkan peningkatan pemahaman konseptual guru mengenai AI, keterampilan merancang media pembelajaran interaktif, serta kemampuan mengintegrasikan nilai Profil Pelajar Pancasila ke dalam skenario pembelajaran melalui simulasi peer teaching. Evaluasi formatif dan sumatif memperlihatkan peningkatan partisipasi, motivasi, dan kepercayaan diri guru dalam mengadopsi teknologi pembelajaran baru. Kegiatan ini menguatkan kapasitas guru menghadapi tuntutan Kurikulum Merdeka yang berorientasi deep learning dan membuka peluang keberlanjutan melalui forum diskusi pascakegiatan. Program pendampingan semacam ini direkomendasikan untuk direplikasi di wilayah lain dengan karakteristik kebutuhan guru yang serupa.

ABSTRACT

Artificial Intelligence (AI) based edutainment has emerged as a promising strategy to respond to the digital transformation of primary education, yet its implementation is often hindered by limited teacher training. This Community Partnership Program (PKM) aimed to strengthen the pedagogical and professional competence of elementary school teachers in South Pariaman Subdistrict, Pariaman City, in designing and applying AI based edutainment learning media integrated with the Pancasila Student Profile. The program engaged 30 partner teachers and was implemented through the Preparation, Implementation, and Evaluation (PIE) stages, comprising socialization, training, technology application, field mentoring, and continuous evaluation over eight months. Data were collected through observation, documentation of teachers' work, and field notes, then analyzed using a descriptive qualitative approach. The results indicate improved



conceptual understanding of AI, enhanced skills in designing interactive learning media, and greater ability to embed Pancasila Student Profile values into classroom scenarios through peer teaching simulations. Formative and summative evaluations revealed increased participation, motivation, and confidence among teachers in adopting new instructional technology. The activity strengthens teachers' readiness to meet the demands of the deep learning oriented Merdeka Curriculum and opens opportunities for sustainability through a post activity discussion forum. Similar mentoring programs are recommended for replication in other regions with comparable teacher development needs.

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Introduction

The digital transformation of the twenty-first century requires elementary school teachers not only to master subject matter but also to use technology strategically so that learning becomes more meaningful for students (Waldi et al., 2025). Technology has made possible a wide range of innovations in learning media, from e-learning platforms to interactive educational applications that make the learning environment more critical, interactive, and engaging (Reinita & Waldi, 2024). The development of Generative Artificial Intelligence (GenAI) has also brought considerable disruption to the delivery of instruction because of its capacity to produce creative content in the form of text, images, audio, and video, which can increase learning efficiency and open new possibilities for innovation in teaching and learning (Direktorat Jenderal Pendidikan Tinggi, Riset, dan Teknologi, 2024). In line with this, systematic reviews of teacher professional development show that strengthening digital competence is one of the main pillars of school innovation in the smart school era (López-Gómez et al., 2021; Salmerón Aroca et al., 2022).

Effective learning stems from teachers' ability to create a learning atmosphere that is conducive, educative, and innovative (Rozhana & Anwar, 2022). One effort to modernize instruction in response to this need is the use of artificial intelligence in the learning process (Khomsah, 2024). Students' positive attitudes toward the use of AI indicate that integrating this technology can offer more personalized learning experiences, support learner autonomy, and provide timely feedback to students (Yuliani, 2024). The implementation of AI in elementary schools is also considered capable of offering more adaptive learning experiences (Putra, 2024) and of supporting the personalization of learning through fast and accurate feedback (Firdaus, 2024). Studies at the primary education level reinforce these findings by showing that the use of AI contributes to the quality of teaching and learning when it is supported by adequate teacher readiness (Putra et al., 2024; Zahara et al., 2023).



Teacher readiness is a critical issue because the mastery of digital technology among elementary school teachers in Indonesia generally remains uneven and depends heavily on the availability of continuous training (Dede et al., 2021). Previous research has shown that training programs have a positive and significant effect on teachers' digital literacy, particularly when the training actively engages and motivates participants rather than merely delivering content in a one-way manner (Butar Butar et al., 2024). Limited access to training is also experienced by elementary school (Sekolah Dasar, SD) teachers in Pariaman City, West Sumatra Province. The partner situation analysis revealed that elementary school teachers in South Pariaman Subdistrict still have limited training and professional development in designing innovative technology-based learning media, even though the supporting facilities and infrastructure at the partner site essentially meet the requirements. Teachers also face difficulties in developing learning media that conform to curriculum standards while accommodating the diverse abilities and learning styles of students in the classroom.

This problem becomes more pressing given that the Merdeka Curriculum policy promotes the strengthening of the Pancasila Student Profile as the main orientation for students' character formation (Maruti et al., 2023; Mery et al., 2022). Unfortunately, the implementation of the Pancasila Student Profile in many schools is still regarded as symbolic because of teachers' limited pedagogical understanding of how to integrate it into everyday classroom practice (Pratiwi et al., 2023). At the same time, national education policy is moving toward a deep learning approach that emphasizes meaningful understanding, critical thinking, and the connection of subject matter to students' real-life contexts (Muvid, 2024; Mutmainnah et al., 2025). Teachers are therefore expected to design learning scenarios that combine technology, content, and pedagogy simultaneously so that these goals can be achieved optimally.

Similar programs that use AI applications to help elementary school teachers prepare instructional materials have been carried out in several areas of West Sumatra (Ningrum & Gistituati, 2024). However, most of these programs focused on the technical aspects of preparing instructional materials and did not specifically link the use of AI to the strengthening of Pancasila Student Profile values. On this basis, the present Community Partnership Program (Program Kemitraan Masyarakat, PKM) was designed to provide mentoring in the implementation of AI-based edutainment learning media for elementary school teachers in South Pariaman Subdistrict, Pariaman City. The program follows up on the team's earlier research on flipped learning-based digital learning media developed in the context of Pancasila and civic education in elementary schools (Reinita & Walidi, 2024; Walidi et al., 2025). It aimed to improve teachers' pedagogical and professional competence in



designing AI-based edutainment learning media and in integrating such media with the strengthening of students' Pancasila Student Profile, so that the work of the community service team could be used directly by the target community and yield publishable scholarly outputs.

Implementation Method

This mentoring program adopted the Preparation, Implementation, and Evaluation (PIE) approach, adapted to the specific needs of the partner elementary school teachers in South Pariaman Subdistrict, Pariaman City. Such a staged approach is consistent with the recommendation that effective teacher professional development programs should be structured, continuous, and grounded in the actual needs of the field (Dede et al., 2021; Salmerón Aroca et al., 2022).

The target participants were 30 elementary school teachers in South Pariaman Subdistrict, recruited through coordination with the Institute for Research and Community Service (Lembaga Penelitian dan Pengabdian kepada Masyarakat, LP2M) of Universitas Negeri Padang and the partner school, SD Negeri 01 Pauh Kuraitaji, which served as the main site of the program. Participants were selected on the basis of a situation analysis showing that teachers in the area had received limited training in instructional technology, even though the available facilities and infrastructure were essentially adequate for conducting the training.

The Preparation stage included finalizing the activity schedule with the partner, coordinating permits with LP2M UNP, recruiting participants, and holding a socialization session on the planned series of activities to be carried out over eight months. The Implementation stage consisted of five core activities: (1) improving teachers' knowledge of the concepts and challenges of AI in education; (2) developing teachers' skills in designing AI-based learning media directed toward building Pancasila Student Profile values; (3) a workshop on integrating AI-based learning media into Pancasila Student Profile learning scenarios; (4) evaluation of assignments through simulation and peer teaching; and (5) a comprehensive evaluation of the program (Table 1). The instruments and supporting tools included the activity rundown, the resource persons' presentation materials, examples of AI-based learning media, and field mentoring observation sheets.

The materials and equipment comprised computers or laptops, an internet connection, and several generative AI applications that have been widely adopted in similar training programs in various regions to help teachers prepare teaching materials and interactive learning media (Adiningsih et al., 2024; Nurul Anwar, 2024; Yakob et al., 2024). These applications were



chosen because they are easily accessible to teachers who are new to technology and suit the needs of developing edutainment learning media at the elementary school level.

Table 1. Stages of the Mentoring Program

Activity Sequence	Topic	Description of Activities
Activity 1	Improving knowledge of AI	The resource person presented material on current problems and challenges in education, including issues related to Artificial Intelligence.
Activity 2	Improving teachers' skills in creating AI-based learning media	Presentation of material on AI-based learning media, followed by guidance for teachers on integrating such media into the development of Pancasila Student Profile values.
Activity 3	Integrating learning media to build the Pancasila Student Profile	Workshop on implementing AI-based learning media to build the Pancasila Student Profile in elementary schools.
Activity 4	Evaluation of participants' assignments	The community service team and the resource persons reviewed the teachers' AI-based learning media and their simulations/peer teaching and provided reinforcement.
Activity 5	Program evaluation	The community service team continuously monitored the progress of the learning process through direct observation and with the assistance of the community service partners.

Data were collected through direct observation during the training and mentoring sessions, documentation of teachers' products in the form of AI-based learning media, and field notes from mentoring visits. The Evaluation stage was conducted at three points: an initial evaluation to measure participants' baseline abilities, a process evaluation to assess teachers'



ability to develop AI-based learning scenarios, and a final or summative evaluation to determine the attainment of the program's target outputs. The data were analyzed descriptively and qualitatively by grouping teachers' achievements into three categories, namely conceptual understanding, technical skills, and the ability to integrate character values, and then interpreting them to identify patterns of change in teachers' competence before and after the mentoring.

Field mentoring consisted of two visits by the community service team, the first two weeks after the training and the second in the following month, to ensure that the AI-based learning media were implemented according to the scenarios designed together with the teachers. Program sustainability was supported by establishing a post-activity discussion forum through which teachers and the community service team could remain in contact about the progress of implementing AI-based edutainment learning media in their respective classrooms.

Results and Discussion

The PKM program involved 30 elementary school teachers in South Pariaman Subdistrict and ran for eight months through the five core activities summarized in Table 1. The outcomes of each stage are described under two main foci: the improvement of teachers' knowledge and skills in using AI, and the integration of AI-based learning media into the strengthening of the Pancasila Student Profile.

Improving Teachers' Knowledge and Skills in Using AI

In the initial evaluation, most participating teachers reported that they knew the term AI only in general terms and had never applied it directly in developing learning media. This condition is consistent with findings that many elementary school teachers are aware of certain AI platforms but rarely use them because their technical proficiency is still low (Putra et al., 2024; Zahara et al., 2023). After participating in Activities 1 and 2, which consisted of material presentations and technical training, the teachers demonstrated a better conceptual understanding of AI-related educational challenges as well as an initial ability to use generative AI applications to produce text, images, and interactive teaching materials.

This improvement is in line with findings that the effectiveness of training in developing teachers' digital literacy depends largely on participants' engagement and motivation; consequently, approaches that combine conceptual explanation with hands-on practice have a greater impact than one-way training (Butar Butar et al., 2024). TPACK-based professional development models likewise emphasize that teachers' technological mastery should be built



gradually through the integration of content, pedagogical, and technological knowledge (Sun et al., 2023), while feedback-based reflective approaches have been shown to strengthen teachers' confidence in adopting new technology (Hsia et al., 2023). The mentoring in this program revealed a similar pattern: teachers became more confident in designing learning media once they had the opportunity to practice directly under instructor guidance, rather than merely receiving theoretical explanations.

Beyond technical skills, the program also contributed to the development of teachers' digital competence more broadly. A systematic review of school innovation in the digital era identifies teachers' digital competence as one of the main pillars of successful learning transformation (López-Gómez et al., 2021). Teachers who had previously been passive toward technology began to show initiative in exploring AI applications independently outside the training sessions, particularly to prepare illustrated teaching materials and interactive presentations. A similar pattern has been reported in comparable training programs in other regions (Adiningsih et al., 2024; Darnawati et al., 2025).

Integrating AI-Based Learning Media into the Strengthening of the Pancasila Student Profile

Activity 3, a workshop on integrating AI-based learning media into the development of the Pancasila Student Profile, was a key stage of the program. Teachers were guided not only to use AI as a content creation tool but also to connect it with the cultivation of character values such as independence, mutual cooperation (gotong royong), and critical thinking, which are core dimensions of the Pancasila Student Profile (Maruti et al., 2023; Mery et al., 2022). The mentoring results showed that teachers were able to design learning scenarios that combined AI-based media with collaborative student activities. In the early stages, however, some teachers still required intensive mentoring to ensure that the integration of character values was not merely symbolic, a problem frequently found in the implementation of the Pancasila Student Profile in many schools (Pratiwi et al., 2023).

In Activity 4, teachers conducted simulations and peer teaching using the AI-based learning media they had designed. The community service team and the resource persons provided reinforcement on the teachers' products, and the results showed improvements in the teachers' ability to explain subject matter, encourage student participation, and form responsible learning groups. This finding is relevant to the concept of deep learning, which emphasizes meaningful understanding and students' active engagement in the learning process rather than surface-level memorization (Muvid, 2024; Mutmainnah et al., 2025).



Activity 5, the comprehensive evaluation, showed that the community service team continuously monitored the implementation of the learning media in schools through direct observation and with the assistance of the community service partners. Overall, the program's target outputs were well achieved, as indicated by the completion of the final report and a scholarly manuscript for an accredited journal, the production of AI-based learning media by the teachers, and the establishment of a post-activity discussion forum to sustain the program. These achievements support the argument that continuous mentoring through a cycle of preparation, implementation, and evaluation is more effective in building teacher readiness than one-off face-to-face training (Dede et al., 2021; Salmerón Aroca et al., 2022).

With regard to limitations, the program faced challenges arising from differences in internet access and devices among participants, so some teachers needed additional time during the field mentoring sessions before they could operate AI applications independently. This is consistent with reports from similar training programs that infrastructure constraints and limited time are the main obstacles to the optimal use of AI by teachers in regional areas (Firdaus, 2024; Nurul Anwar, 2024). Going forward, the program will be sustained through online mentoring in the established discussion forum, so that teachers continue to receive support after the face-to-face activities have ended and the program continues to contribute to the pedagogical and professional competence of elementary school teachers in South Pariaman Subdistrict (Khomsah, 2024; Yuliani, 2024).

Conclusion

This Community Partnership Program, which provided mentoring in the implementation of Artificial Intelligence-based edutainment learning media, succeeded in improving the pedagogical and professional competence of 30 elementary school teachers in South Pariaman Subdistrict, Pariaman City. Through the Preparation, Implementation, and Evaluation stages carried out over eight months, the teachers showed improved conceptual understanding of AI, stronger technical skills in designing interactive learning media, and the ability to integrate Pancasila Student Profile values into learning scenarios through simulation and peer teaching. The program confirms that structured and continuous mentoring, rather than one-way training, is the key to strengthening teachers' readiness to meet the demands of the deep learning-oriented Merdeka Curriculum. Sustaining the program through the post-activity discussion forum is expected to extend its impact and open opportunities to replicate similar programs in other regions where teachers have comparable needs. Future community service



research should measure the long-term impact of the program on classroom practice and on student learning outcomes using more rigorous measures.

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