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UTILIZING ARTIFICIAL INTELLIGENCE (AI) FOR THE PREPARATION OF DAILY LESSON PLANS IN EARLY CHILDHOOD EDUCATION (ECE) IN GENTENG SUB-DISTRICT SURABAYA

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Abstrak: Perkembangan teknologi yang cukup pesat menuntut perlunya pengembangan bahan ajar melalui penyusunan rencana pembelajaran harian yang menarik dan relevan di PAUD Kecamatan Genteng Surabaya. Kurikulum yang diterapkan selama ini berbasis STEAM, tetapi pada praktiknya sebagian besar para guru PAUD masih belum memanfaatkan teknologi, khususnya AI-ChatGPT pada perencanaan pembelajaran. Berkaitan dengan kondisi tersebut, maka tujuan dari pengabdian masyarakat ini adalah meningkatkan kompetensi guru-guru PAUD dalam memanfaatkan ChatGPT dalam rangka penyusunan rencana pembelajaran harian. Pendekatan yang digunakan adalah Community Based Research melalui pelatihan dengan memadukan konsep dan praktik. Rancangan kegiatan pengabdian masyarakat dilakukan melalui tahapan persiapan, pelaksanaan, pendampingan, evaluasi dan monitoring serta pelaporan. Hasil dari pelatihan yang memadukan konsep dan praktik secara signifikan membantu meningkatkan pengetahuan dan keterampilan guru-guru PAUD pada penyusunan rencana pembelajaran dengan memanfaatkan AI-ChatGPT. Peningkatan pengetahuan didasarkan pada perolehan nilai diatas 60 meningkat 97,10% diikuti dengan penurunan standar deviasi rata-rata nilai dari 10,72 menjadi 8,22 yang merefleksikan bahwa peningkatan pengetahuan merata pada setiap peserta pelatihan. Para guru PAUD juga terampil memanfaatkan ChatGPT pada penyusunan rencana pembelajaran dengan tingkat persentase 60%. Berdasarkan hasil evaluasi tersebut maka pelatihan pemanfaatan AI-ChatGPT cukup efektif meningkatkan kompetensi para guru PAUD dalam merancang pembelajaran berbasis STEAM secara inovatif. Model pelatihan yang dilakukan secara praktis dapat diimplementasikan untuk memperkuat literasi digital yang mendukung kualitas perencanaan pembelajaran sejumlah PAUD.

Kata Kunci: Artificial Intelligence (AI), ChatGPT, Pendidikan Anak Usia Dini, rencana pembelajaran harian

Abstract: The rapid development of technology has created a need to improve teaching materials through the preparation of engaging and relevant daily lesson plans in Early Childhood Education (ECE) institutions in the Genteng Sub-district, Surabaya. Although a STEAM-based curriculum has been implemented, in practice, most ECE teachers have not yet used technology, particularly AI-based tools such as ChatGPT, in their lesson planning. Therefore, this community service program aims to enhance ECE teachers' competence in using ChatGPT to support the preparation of daily lesson plans. This community service program employed Community-Based Research through training that integrated conceptual understanding and hands-on practice. The program was designed through several stages, including preparation, implementation, mentoring, evaluation, and monitoring. The results show that the training significantly improved teachers' knowledge and skills in using AI-ChatGPT for lesson planning. The improvement in knowledge was indicated by a 97.10% increase in the proportion of participants scoring above 60, accompanied by a decrease in the standard deviation from 10.72 to 8.22, reflecting a more even distribution of learning gains. In addition, 60% of the teachers demonstrated adequate skills in using ChatGPT for lesson planning. Based on these evaluation results, the AI-ChatGPT training was found to be effective in enhancing ECE teachers' competence in designing innovative STEAM-based learning. The practical training model can be implemented to strengthen digital literacy and support the quality of lesson planning in ECE institutions.

Keywords: Artificial Intelligence (AI), ChatGPT, Early Childhood Education, daily lesson plans

Introduction

Early Childhood Education (ECE) serves as a crucial foundation for developing high-quality human resources from an early age, as mandated by Law No. 20 of 2003 on the National Education System. ECE plays an important role in fostering children's motor, emotional, cognitive, and spiritual development as preparation for higher levels of education (Selvia & Nurachadijat, 2023). Four key elements constitute the basic capital for character formation and cognitive development in early childhood (Fatmawati, Sakinah, & Astuti, 2019).

In the city of Surabaya, ECE is supported by the local government through the "Bunda PAUD" program, including in Genteng Sub-District, which has 22 integrated ECE Centers. However, ECE institutions in this sub-district face a major challenge in the form of a digital literacy gap among teachers, particularly between senior and junior teachers (Roshonah et al., 2021). Most senior teachers are over 50 years old and still rely on conventional teaching and administrative methods, while only about 42% of teachers have mastered using digital technology to support the Science, Technology, Engineering, Arts, and Mathematics (STEAM) curriculum. This situation results in less interactive learning processes and inefficiencies in the preparation of daily lesson plans. In fact, young children tend to prefer exploratory and hands-on learning experiences (Ardiyanti & Khairiah, 2021; Arisanti, Habiby, & Muttaqin, 2024). This conventional learning condition is illustrated in Figure 1.

Figure 1. Learning and Teaching in ECE

In contrast, relatively younger ECE teachers have begun to use technology to prepare lesson plans more quickly and innovatively (Kurnia, Solfiah, Rusandi, & Pernantah, 2022; Yutanto et al., 2023). Manually prepared daily lesson plans are time-consuming and have limitations in terms of data storage, security, and the effectiveness of communication with students' parents (Yudha et al., 2025). This gap affects both the quality of learning and the efficiency of ECE administration. Based on these conditions, training in the use of artificial intelligence-based technologies, such as ChatGPT is needed.

Artificial Intelligence (AI) refers to the process of designing machines as technologies that emulate human-like thinking (Kalantzis & Cope, 2024; Nugroho, Hadi, Rudjiono, Zainudin, & Priyadi, 2025). One form of AI introduced to ECE teachers in Genteng Sub-District is the Chat Generative Pre-Trained Transformer, known as ChatGPT, an AI-based agent capable of interacting with users and assisting them in completing various tasks (Faiz & Kurniawaty, 2023). Based on previous studies, ChatGPT has shown strong potential to advance the work of

academics and librarians through new approaches (Lund & Wang, 2023).

Several previous studies have also conducted training programs to improve ECE teachers' digital literacy using the Canva application and have shown that it helps teachers design teaching materials (Hasiana, 2024; Yuliastri et al., 2025). However, the use of Canva tends to focus mainly on the visual presentation of thematic materials and has not yet moved toward integrated technology use. In this regard, lesson planning involves advanced content development through ChatGPT. This technology emphasizes improved accuracy and focuses on communication practices (Alm, 2024), which is expected to enable ECE teachers to more easily prepare lesson plans as part of their daily teaching and learning activities (Wilcent et al., 2025).

Based on the issues identified in the background, this community service program aims to improve the knowledge and skills of ECE teachers in Genteng Sub-District, Surabaya, in using ChatGPT to prepare daily lesson plans based on the STEAM curriculum. The aim of this program is also aligned with the National Sustainable Development Goals (SDGs), which include quality education by increasing access to technology-based learning and promoting educational innovation through AI.

Method

The implementation of the community service program for ECE teachers in Genteng Sub-District, Surabaya, was based on the Community-Based Research (CBR). This method involves collaboration among community partners, researchers, and other stakeholders to enhance knowledge and skills in using ChatGPT as an AI tool for developing daily lesson plans (Chakona, 2025; Demange, Henry, & Preau, 2012; Gradini & Zulmaulida, 2022). The community partners in this program were ECE teachers affiliated with the Integrated ECE Posts. The key stakeholders included the Working Group of Integrated ECE Post Head, ECE, ECE school principals, the Head of Sub-District, and other relevant officials. The partners' involvement includes providing student data at each integrated service post and STEAM-based learning materials. The partners' communication and active participation at every stage of the community service activities are essential to achieving the program's goals.

The community service activity in ECE centers within Genteng Sub-District was conducted as a training program on using ChatGPT to develop daily lesson plans based on the STEAM curriculum. The program began with the preparation phase, during which the team coordinated with the Working Group of Integrated ECE Post board in Genteng Sub-District, Surabaya. This coordination involved site observations at ECE centers and interviews with the Working Group of Integrated ECE Post Head to identify the needs and wants of the community partners, which served as the foundation for formulating the problems faced by ECE teachers and administrators. Based on the identified problems, the community service team proposed a solution to partners: a training program on using AI, specifically ChatGPT, to prepare daily lesson plans. Upon agreement with the partners, the team proceeded to the second stage: implementing the training. The third stage involved hands-on assistance with ChatGPT, particularly in crafting effective prompts to generate STEAM-based daily learning materials. The

assistance included technical guidance during the training sessions and ongoing support through both online and offline consultations after the training.

The fourth stage of the community service program was evaluation and monitoring, carried out in two forms. The first was a direct evaluation through observation during training sessions, aimed at assessing improvements in ECE teachers' skills in using ChatGPT. The evaluation scale consisted of two categories: proficient and less proficient. The proficient category includes the ability to open and access ChatGPT without guidance, write prompts, modify prompts, understand the outputs generated by prompts, use ChatGPT results for STEAM-based daily lesson plans, and experience no significant technical difficulties during use. The second form was indirect evaluation using pre-tests and post-tests to measure the increase in participants' knowledge. The minimum average score required for both tests was 60. At the end of the program, participants were also asked to complete a questionnaire using a Likert scale (1-5), where a score of one indicated 'very poor' and a score of five indicated 'excellent'. The measurement instruments include participant satisfaction with the training, covering both the materials and the quality of the speakers. Evaluation of technology acceptance behavior includes perceived usefulness, perceived ease of use, attitude, behavioral intention, and actual usage behavior toward ChatGPT. The final stage of the community service program was reporting, which included documentation, outputs, budget utilization, and the preparation of a written report. The sequence of community service activities is illustrated in Figure 2.

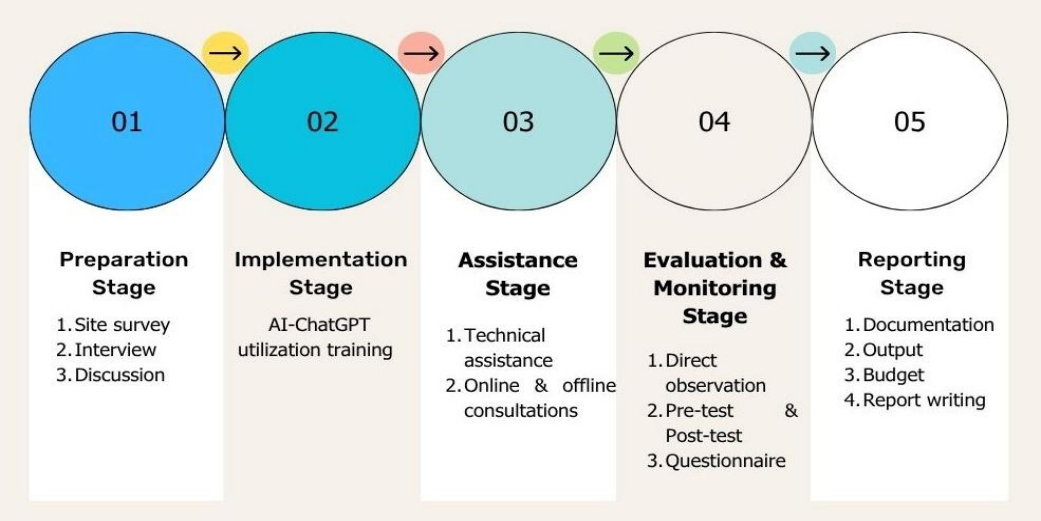

Figure 2. Stages of Community Service Implementation

Results and Discussion

Based on the results of observations and interviews with the partner institution, the community service team identified the core issues and proposed a solution, which was approved in the form of a training program on developing daily lesson plans using ChatGPT. The training was held on Monday, July 7, 2025, from 09.00-12.00 WIB, at Hotel Sahid Surabaya, located on Jalan Sumatera No. 1-15, Pacar Keling, Tambaksari, Surabaya. The event was attended by ECE

teachers and management staff. A total of 69 ECE teachers and principals, representing 72% of the total ECE educators, participated in the training. Additionally, the event was attended by the Sub-District Head and her staff (five people in total), as well as five female village heads from the Genteng Sub-District in Surabaya. However, 69 participants actively engaged throughout the training session. The majority of the participants were over 50 years old (49 people), while the remaining 20 were under 50 years old. The training activity also involved two students from the Faculty of Engineering and Design and four lecturers.

Participants were asked to complete a pre-test for the training session, followed by the delivery of the material and hands-on practice. The concepts covered generally included an introduction to AI, the benefits of AI for educators, and the types of AI that ECE teachers can utilize, particularly ChatGPT. The next part of the session focused specifically on how to access ChatGPT, tips for crafting effective prompts, using ChatGPT to design lesson plans based on the STEAM curriculum, and employing ChatGPT to create songs, stories, and images. These concepts were delivered by the lecturer team over approximately 1.5 hours, with the remaining time dedicated to practical activities. The training activities are illustrated in Figure 3.

Figure 3. Presentation of AI-ChatGPT Concepts

Participants also engaged in hands-on practice with ChatGPT to develop daily lesson plans that create engaging, interactive teaching materials. The practical session began with steps to access the application, including logging in with participants' own accounts to ensure prompts and results were saved. It then continued with the use of prompts as effective command sentences for structuring daily lesson plans, including the appropriate formatting. The requested outputs included PDF documents, tables, graphs, and images. Participants also practiced creating engaging songs with audio and composing structured narratives. At the end of the practical session, several participants were asked to complete a post-test and questionnaire to evaluate the overall effectiveness of the training program. The series of ChatGPT-based practical activities is illustrated in Figure 4.

Figure 4. AI-ChatGPT Utilization Practice

During the training activities, participants also received guidance through technical assistance, particularly in formulating prompts. ECE teachers were supported in developing lesson plans by reviewing the alignment of each instructional syntax with the STEAM curriculum. Ongoing support was provided by distributing AI utilization modules to the Working Group of Integrated ECE Post Head and maintaining direct communication via mobile phone and WhatsApp application.

The community service team subsequently analyzed the evaluation results. Based on direct observations, 42 out of 69 participants (60%) were able to use ChatGPT fluently, particularly in formulating prompts for a daily lesson plan in ECE. Participants were also actively engaged in asking questions during both practice sessions and mentoring activities, creating a communicative and fairly warm atmosphere. Indirect evaluations-through pre-test, post-test, and questionnaires-were analyzed descriptively. The results of the descriptive analysis of the pre-test and post-test are presented in Table 1.

Table 1. Pre-Test and Post-Test Results

No.	Descriptive Analysis	Pre-Test	Post-Test
1	Average score	42.61	76.96
2	Standard deviation	10.72	8.22
3	Minimum score	30.00	50.00
4	Maximum score	60.00	100.00
5	Participants who scored below 60	88.41%	2.90%
6	Participants who scored above 60	11.59%	97.10%

Source Data Processed, 2025

Based on the data analysis presented in Table 1, the level of knowledge among ECE teachers regarding the use of AI-ChatGPT increased significantly. The mean score showed a notable improvement of 34.35 points. The lowest score increased from 30 to 50, and the maximum score rose by 40 points. The number of participants scoring below 60 was reduced to 3%, meaning 97% of the training participants scored above 60. The increase in the mean, minimum, and maximum post-test scores indicates a significant improvement in participants' knowledge and skills in understanding and using AI-ChatGPT. The standard deviation decreased from 10.72 to 8.22, reflecting a more even distribution of participant scores after the training. This result suggests an increase in participants' knowledge, with scores becoming more. The

reduction in standard deviation reflects a more homogeneous mastery of the material, categorized as good.

The evaluation of the community service activities was rated positively on a five-point scale, with an average total score of 4.40. The evaluation covered the organization of the activities, catering, materials, and speakers. The breakdown of the average scores for each element is presented in Table 2.

Table 2. Evaluation Results of the Community Service Activities

No.	Evaluation Indicators	Average Score
1	Activities organization	4.44
2	Catering	4.16
3	Materials	4.44
4	Speakers	4.54
	Average Total	4.40

Source Data Processed, 2025

Based on Table 2, the evaluation indicator for the speakers received the highest average score of 4.54. The quality of the speakers' delivery of the material was rated excellent by a number of training participants. The delivery of the material using vocabulary that was easily understood was highly appreciated. Several participants suggested that the training program should continue in the future. However, the lowest score was on the catering indicator, with an average score of 4.16. This suboptimal score highlights the need for the community service team to consider the participants' preferences when selecting the catering menu. Overall, both direct and indirect evaluations showed positive responses from ECE teachers in the Genteng Sub-District of Surabaya. The majority of training participants reported that the program not only enhanced individual knowledge but also improved the quality of ECE through the integration of AI technology into teaching and learning activities. The overall implementation of the program, including documentation, financial accountability, publication, and report writing, was submitted to the Ministry of Higher Education, Science, and Technology through the Research and Community Service Center at University of Hayam Wuruk (UHW) Perbanas.

Conclusion

The community service program demonstrated a positive and meaningful impact on improving the knowledge and skills of ECE teachers in Genteng Sub-District, Surabaya, particularly in developing daily lesson plans using AI-ChatGPT aligned with the STEAM curriculum. The results indicate that integrating AI-supported training and mentoring enabled teachers, especially senior educators, to overcome digital literacy barriers, enhance creativity in designing engaging learning media, and adopt more interactive teaching approaches. The collaborative learning environment also facilitated the exchange of teaching experiences across ECE posts, contributing to pedagogical improvement. Furthermore, evaluation feedback indicates high participant engagement and motivation, underscoring the need for periodic, practice-oriented training. To ensure sustainability and long-term impact, continuous monitoring of AI-ChatGPT utilization in lesson planning is recommended. Future initiatives should also

expand AI adoption beyond instructional design to include ECE administrative tasks, thereby supporting ongoing professional development and efficient educational management in response to technological advancements.

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