



Strengthening Knowledge of AI-based applications to facilitate the preparation of learning media for teachers at TKIT Mekar Insani Minggiran Yogyakarta.

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ARTICLE INFO	ABSTRACT
Article history Received : 10-12-2024 Revised : 27-12-2-24 Accepted : 30-12-2024	<i>Artificial intelligence (AI) technologies offer transformative opportunities in educational settings, particularly for teachers who are preparing interactive learning materials for early childhood education (ECE). However, challenges persist in their implementation, such as limited teacher knowledge, infrastructure barriers, and ethical concerns. This study aims to enhance teachers' knowledge at TKIT Mekar Insani, Yogyakarta, by providing training through mini workshops and supporting resources, such as refurbished computers. The program involved 25 teachers and included pre- and post-training evaluations. Results indicate a significant increase in teachers' ability to use AI-based tools, demonstrated by the production of engaging learning materials and improved confidence in integrating technology into their pedagogy. This initiative highlights the importance of bridging technology gaps in educational institutions and fostering continuous professional development.</i>
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A. INTRODUCTION

The rapid advancement of Artificial Intelligence (AI) technology has introduced transformative solutions across various sectors, including education. Early childhood education, in particular, benefits significantly from AI-driven tools that enable the creation of engaging and interactive learning materials. Teachers can now utilize multimedia content such as videos, animations, and audio to enhance the learning experience for young children, fostering their interest and active participation. However, the successful adoption of such technology requires teachers to possess adequate knowledge and skills in utilizing AI-based applications.

At TKIT Mekar Insani, located in Suryodiningratan, Yogyakarta, teachers face challenges in keeping up with technological advancements. Many of them lack updated knowledge of Information Technology (IT), partly due to limited access to resources and their busy schedules. This has resulted in suboptimal preparation of learning media and limited integration of technology into their teaching practices. A survey and interviews conducted



with the school principal highlighted these issues, emphasizing the need for targeted interventions to bridge the knowledge gap among teachers.

Various studies have demonstrated the importance of integrating AI in early childhood education (Shengquan Yu, 2021)) emphasized the role of AI in simplifying the creation of interactive content for teaching, enabling teachers to develop innovative educational approaches. (Lutfin et al., 2024) explored the use of AI as a tool for improving teachers' digital literacy and fostering collaboration among educators. (Rochim, 2024) also highlighted how AI-based tools streamline lesson planning and foster creativity among educators. Meanwhile, (Eka Meiliawati & Wawan Sugiarto, n.d.) discussed the potential of AI in creating dynamic and interactive learning environments for young learners. These findings align with the challenges faced by TKIT Mekar Insani, where teachers require support to adopt and implement AI tools effectively.

To address this issue, the community engagement initiative proposed two main solutions. First, a half-day mini-workshop was conducted to equip teachers with practical knowledge and skills in utilizing AI-based applications. This workshop aimed to familiarize teachers with AI tools and demonstrate their application in developing learning materials. Second, the initiative provided a donation of refurbished computers from the university's laboratory to facilitate hands-on practice with the tools introduced during the workshop. This combination of training and resource provision is expected to empower teachers at TKIT Mekar Insani to integrate AI technology into their teaching methods effectively.

The primary objectives of this community engagement activity were to enhance the knowledge and skills of teachers in utilizing AI applications and to provide the necessary infrastructure to support these practices. The anticipated outcomes include increased teacher competency in preparing interactive learning materials and improved student engagement in the learning process. By addressing these challenges, this initiative aims to contribute to the broader goal of advancing the quality of early childhood education through technological innovation.

B. LITERATURE REVIEW

Numerous studies have identified effective AI applications that support teachers in developing learning media. For instance, AI-based tools such as adaptive learning platforms and learning analytics enable educators to personalize students' learning experiences (Ng et al., 2023; Rachmadtullah et al., 2024). Moreover, digital competencies involving AI, such as mastery of automated learning platforms and intelligent assessment systems, are considered essential 21st-century skills for teachers (Fitria, 2021). However, a significant challenge lies in the lack of training and AI literacy among educators, which often limits the optimal utilization of these technologies.

Although the benefits of AI in education are widely recognized, further research is needed to explore the most effective ways to enhance teachers' knowledge of AI-based applications. Studies investigating professional development and training approaches for educators in utilizing AI are crucial to ensuring the effective integration of these technologies into daily teaching practices (Ng et al., 2023; Nur Solihat et al., 2024). With the support of appropriate educational policies, strengthening AI literacy among teachers can pave the way for more inclusive and innovative educational transformations.



C. METHODS

This activity aims to equip teachers with the skills and tools needed to effectively integrate AI applications into their teaching methods. The methods used in this initiative are carefully designed to ensure practical training and provision of resources that will facilitate the long-term use of AI in the classroom. The main methods used are as follows:

a. Mini-Workshop Training:

A half-day mini-workshop was organized for the teachers at TKIT Mekar Insani. This workshop focused on providing practical knowledge of AI-based applications, specifically designed to assist teachers in creating engaging and interactive learning materials. The session allowed teachers to familiarize themselves with the tools and gain hands-on experience in applying AI technologies to their teaching practices.

b. Provision of Computer Equipment:

In addition to the workshop, refurbished computers from the university's laboratory were donated to TKIT Mekar Insani. These computers were intended to support the teachers in their practice of AI tools and enable them to integrate technology into their classroom activities. The donated computers also provided an opportunity for students to be introduced to information technology in a practical setting.

c. Guidance and Evaluation:

Before and after the workshop, evaluations were conducted to assess the impact of the training and the provision of computer resources. Teachers completed questionnaires that measured their confidence and competence in using AI-based applications. This evaluation allowed the team to gauge the effectiveness of the intervention and determine areas for improvement.

D. RESULTS AND DISCUSSION

The community engagement initiative aimed to address the challenges faced by teachers at TKIT Mekar Insani in integrating AI-based tools into their teaching practices. The activities were designed to enhance teachers' knowledge of AI applications and provide the necessary infrastructure for their effective use. This section discusses the sequence of activities carried out, the outcomes achieved, and the impact on the teachers and students involved.

a. Mini-Workshop Training

A half-day mini-workshop was conducted with the participation of 25 teachers from TKIT Mekar Insani. The workshop focused on introducing the teachers to AI-based applications that could assist in creating interactive and engaging learning materials. During the session, teachers were provided with hands-on experience, learning how to utilize tools for generating multimedia content such as videos, animations, and quizzes.

The workshop received positive feedback from the teachers, who expressed that the tools were not only easy to use but also enhanced their ability to present lessons in a more dynamic and engaging manner. Teachers reported feeling more confident in their ability to incorporate multimedia elements into their teaching materials, which they believed would help improve student engagement and motivation.



Figure 1. Delivery of Material by the PkM Team

b. Provision of Refurbished Computers

In addition to the training workshop, refurbished computers from the university's laboratory were donated to TKIT Mekar Insani to facilitate further practice and support the teachers in utilizing the AI applications they had learned about. These computers provided the teachers with the necessary resources to continue exploring and applying the tools in their teaching practices.

The donation of computers enabled teachers to integrate technology more effectively into their daily activities, providing a dedicated space for lesson preparation and digital activities. It also allowed teachers to introduce basic IT skills to their students, creating a more technology-integrated learning environment.

c. Evaluation and Feedback

Before and after the mini-workshop, evaluations were conducted to measure the effectiveness of the training and the donation of computers. A questionnaire was distributed to the teachers to assess their confidence in using AI tools, their perceptions of the usefulness of the training, and their expectations for future technology integration in the classroom.

The evaluation results indicated a significant increase in teachers' confidence and competence in using AI applications. Many teachers reported that they now felt more comfortable integrating technology into their lesson planning and were eager to continue using AI tools in their future teaching. The feedback also revealed a positive shift in the teachers' attitudes towards technology, with many expressing a desire for further training and more resources to continue improving their skills.



Figure 2. Filling out the pre-test and post-test



E. CONCLUSION

The results of this community engagement activity demonstrate the significant impact that targeted training and resource provision can have on teachers' ability to adopt and utilize AI-based tools. The combination of hands-on training, access to necessary technology, and ongoing support has empowered the teachers at TKIT Mekar Insani to enhance their teaching practices and foster a more engaging learning environment for their students. The initiative not only addressed the immediate technological gaps but also created a foundation for continued growth and innovation in the use of technology in early childhood education.

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G. AUTHOR CONTRIBUTIONS

List the contributions Arita Witanti : AW, Triana Noor Edwina : TN, Nana Apriana : NA: Activity implementation: AW,TN,NA. Article preparation: AW,NA.

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