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AI-BASED TRAINING TO ENHANCE TEACHERS' BEHAVIORAL INTENTIONS AND WILLINGNESS TO UTILIZE AI TECHNOLOGY IN CLASSROOM LEARNING

Fadhli Ranuharja[1], Willyansyah[2], Rizka Yani Marta[3], Ayu Hendra[4], Rudi Mulya[5], Igor Novid[6]

[1,4,5]Departemen Teknik Elektro, Fakultas Teknik, Universitas Negeri Padang, Padang, Indonesia
[2]Departemen Teknik Informatika, Fakultas Teknik, Universitas Negeri Riau, Riau, Indonesia
[3]Departemen Teknik Elektronika, Fakultas Teknik, Universitas Negeri Padang, Padang, Indonesia
[6]Department of Engineering Science, Graduate School of Engineering, Gifu University, Japan

[1]fadhliranu@ft.unp.ac.id, [2]willyansyah@gmail.com, [3]rizkayani@ft.unp.ac.id,
[4]ayuhendra@ft.unp.ac.id, [5]rudimulya@ft.unp.ac.id, [6]igornovid@gifu.ac.id

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Abstract

The technological transformation in educational media has driven significant changes in teaching and learning processes, particularly highlighted by the COVID-19 pandemic, which underscored the importance of adopting Artificial Intelligence (AI) as an assistive tool in developing more effective online learning materials. This community service program was conducted in collaboration with SMAN 3 Padang Panjang, involving 22 teachers from grades X to XII as participants. The program was designed in three main phases: (1) preparation and field observation, (2) field implementation, and (3) evaluation. Evaluation results indicate that teachers demonstrate high behavioral intention and willingness to use AI in their teaching practices. The average scores on the behavioral intention aspect suggest that teachers are inclined to recommend and intend to use AI in the future, while on the willingness-to-use aspect, teachers are willing to dedicate time to learning and overcoming challenges related to AI usage. These findings suggest that AI-based training is effective in enhancing teachers' readiness and commitment to integrating technology into the teaching process, thereby potentially strengthening educational quality in the digital era.

Keywords: Artificial Intelligence (AI), Teacher Training, Educational Technology, Teacher Intention

Abstrak

Transformasi teknologi dalam media pembelajaran telah mendorong perubahan signifikan dalam proses belajar mengajar, terutama diperkuat oleh pandemi COVID-19 yang menyoroti pentingnya adopsi teknologi Kecerdasan Buatan (Artificial Intelligence/AI) sebagai sarana asistensi dalam pengembangan bahan pembelajaran daring yang lebih efektif. Program pengabdian kepada masyarakat ini dilaksanakan melalui kerja sama dengan SMAN 3 Padang Panjang, melibatkan 22 orang guru dari jenjang kelas X hingga XII sebagai peserta. Kegiatan ini dirancang dalam tiga tahapan utama: (1) persiapan dan observasi lapangan, (2) implementasi lapangan, dan (3) evaluasi. Berdasarkan hasil evaluasi, ditemukan bahwa guru memiliki intensi perilaku dan keinginan yang tinggi untuk menggunakan AI dalam proses pengajaran mereka. Rata-rata skor pada aspek behavioral intention menunjukkan bahwa guru bersedia merekomendasikan dan berniat menggunakan AI di masa depan, sementara pada aspek willingness to use, guru bersedia meluangkan waktu untuk belajar serta menghadapi tantangan dalam menggunakan AI. Temuan ini mengindikasikan bahwa pelatihan berbasis AI efektif dalam meningkatkan kesediaan dan komitmen guru untuk mengintegrasikan teknologi ke dalam proses pembelajaran, sehingga berpotensi memperkuat kualitas pendidikan di era digital.

Kata kunci: Kecerdasan Buatan (AI), Pelatihan Guru, Teknologi Pendidikan, Intensi Guru

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INTRODUCTION

The digital transformation driven by advancements in information technology has significantly impacted various aspects of life, including education (Ellström et al., 2022; Feliciano-Cestero et al., 2023). In the globalized era, educational institutions must adapt quickly to these changes to produce graduates equipped to face the increasingly complex world. In this context, Artificial Intelligence (AI) technology has emerged as a tool with the potential to revolutionize learning processes (Chiu et al., 2023; Lameras & Arnab, 2022; Ouyang & Jiao, 2021). AI can enhance the effectiveness of teaching and learning processes and support the development of more engaging and interactive instructional materials. The implementation of AI in education aligns with the fourth goal of the Sustainable Development Goals (SDGs) (Astutik et al., 2023; Islam et al., 2022; Rusydiana, 2024), which seeks to ensure inclusive, equitable, and quality education and promote lifelong learning opportunities for all.

One of the latest innovations in AI is Generative Artificial Intelligence, capable of creating new content based on existing data. This technology functions as an assistant in developing teaching materials, such as learning modules, interactive quizzes, and presentation content (Babl & Babl, 2023; Kelly et al., 2023; Yu & Guo, 2023) . By leveraging Generative AI, teachers can produce content tailored to students' needs, facilitating a more personalized and relevant learning experience. However, applying this technology in education remains relatively new and requires a deep understanding to integrate it effectively into teaching practices (Cooper, 2023; García-Peñalvo et al., 2024; Lodge et al., 2023)

Despite AI's immense potential, its use and understanding among teachers in Indonesia are still limited (Jayadi, 2023; Lodge et al., 2023; Ramli et al., 2023). Many teachers feel they lack the knowledge and skills necessary to apply this technology in the learning process. Studies (Sabry et al., 2020; Saghiri et al., 2022) indicate that the primary barriers teachers face in adopting AI technology include insufficient training, limited access to technological resources, and a lack of understanding of the tangible benefits AI can bring to teaching (Ranuharja et al., 2024).

Based on observations and interviews, SMAN 3 Padang Panjang was selected as the community service partner. Observations and interviews with several teachers revealed that although they recognize the importance of technology in education, many do not fully understand how to utilize AI optimally. Some teachers expressed confusion about integrating this technology into the existing curriculum and doubts about its effectiveness in improving student learning outcomes. This highlights the need for targeted interventions to support teachers in understanding and using AI in their teaching.

This community service program aims to provide relevant training to teachers at SMAN 3 Padang Panjang. The training will not only provide foundational knowledge about AI technology but also practical skills for using Generative AI to develop innovative teaching materials. Through this approach, it is hoped that teachers can overcome existing barriers and begin integrating AI technology into their teaching processes, thereby contributing to the broader achievement of SDG goals (Ranuharja et al., 2023; Samala et al., 2022).

The outcomes of this training program have resulted in a positive shift in teachers' interest in and attitudes toward using AI technology, as well as an improvement in classroom learning quality. By effectively harnessing AI's potential, SMAN 3 Padang Panjang is expected to adapt to contemporary demands, provide an enhanced learning experience for students, and support the achievement of quality education as a global objective.

METHODS

This training is part of the Community Partnership Program (PKM) funded through the Annual Work and Budget Plan (RKAT) of Universitas Negeri Padang for 2024. Aiming to support quality education at the school level, this PKM program is designed to deliver a positive and sustainable impact through collaboration with SMAN 3 Padang Panjang. The RKAT 2024 funding ensures that this initiative is adequately resourced, from the provision of training facilities and relevant equipment to the presence of expert trainers in their fields.

The training on instructional material development for teachers at SMAN 3 Padang Panjang was conducted on September 11, 12, and 13 in the school's computer and multimedia lab. Located on Jalan RPH Silaing Bawah, West Padang Panjang, this school was chosen as a training partner due to its reputation as a leading educational institution in the region. With the school's strong commitment to improving teaching quality through technology, this training aims to enhance teachers' skills in creating interactive and effective technology-based instructional materials.

Before the training, comprehensive preparation was carried out to ensure the program's success. The implementation team conducted preliminary observations and surveys to understand the specific needs of the teachers at SMAN 3 Padang Panjang. Additionally, intensive communication was maintained with the school, particularly with the vice principal in charge of the curriculum, to align the training plans with curriculum needs and the readiness of the school's facilities.

Upon reaching an agreement, the school submitted a partnership request letter to the Institute for Research and Community Service (LPPM) of Universitas Negeri Padang, which served as the primary attachment to the PKM activity proposal. After the proposal was approved, the service team began planning the program, including developing the training plan, procuring the necessary equipment and materials, and selecting qualified trainers. An evaluation framework was also designed to comprehensively measure the effectiveness of the training. The detailed steps of the community service implementation are illustrated in the figure below.

Figure 1. SMAN 3 Padang Panjang

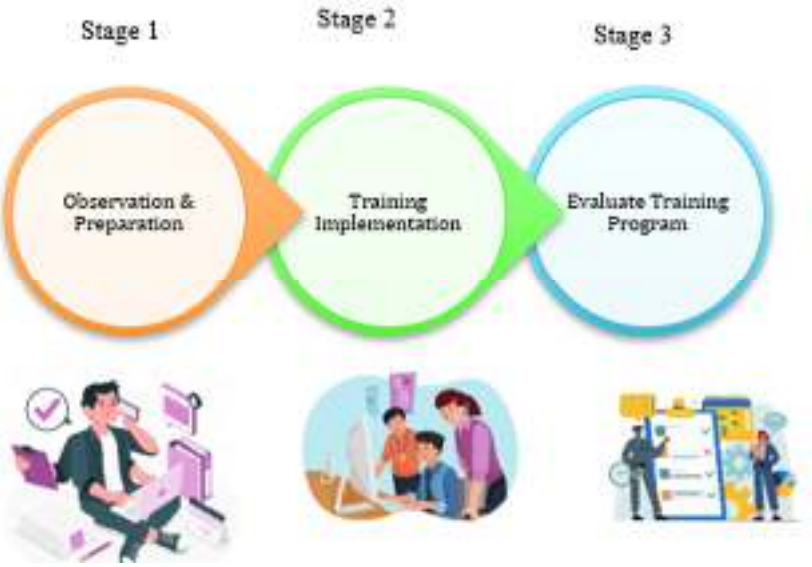

Figure 2. Community services stage step by step

The figure above illustrates the three main stages in implementing the instructional material development training for teachers at SMAN 3 Padang Panjang. Stage 1 is Observation and Preparation, where the service team conducted needs assessments, surveys, and coordination with the school to ensure readiness for the training. These preparatory steps were aimed at tailoring the training to the specific needs of the teachers at the school. Stage 2 is Training Implementation, during which teachers participated in training sessions in the school's computer and multimedia lab. In this stage, participants were provided with materials and guidance on creating technology-based instructional resources. Expert trainers offered insights into techniques and strategies for developing interactive teaching materials.

Stage 3 is Training Evaluation, where the service team assessed the training's effectiveness. This evaluation was designed to measure the extent to which the training improved teachers' competencies in using technology as a teaching medium, as well as to gather feedback for future program development. To assess the program's success, a survey was conducted using an adapted technology acceptance model, focusing on Willingness to Use AI (WU) and Behavioral Intention (BI) to adopt AI. Statistical analysis, such as mean value measurement, was used to evaluate the success of this community service activity. Further success indicators are presented in the following table.

Table 1. Success Indicators of the Training in the Post-Test

No	Mean	Category
1	1,00 - 1,80	Very Low
2	1,81 - 2,60	Low
3	2,61 - 3,40	Moderate
4	3,41 - 4,20	Hight
5	4,21 - 5,00	Very High

RESULTS AND DISCUSSION

Result

Observation and Preparation

The preparation phase for the training at SMAN 3 Padang Panjang began with an in-depth observation, where the team conducted a thorough assessment of the school's current conditions and specific needs. Following this, a survey was carried out using questionnaires to identify the specific requirements of the teachers. Communication played a crucial role in this phase, as the team coordinated with the vice principal to gather information on the ongoing teaching processes, the media and technology used, and the challenges faced by educators. Based on this information, the team developed a three-day training schedule to ensure an effective program. Expert speakers were identified and invited to deliver training materials, ensuring participants received high-quality insights. Finally, the UNP Community Service and Research Institute (LPPM UNP) was responsible for procuring equipment and fulfilling all participant needs, ensuring every aspect of the training was meticulously prepared.

Training Implementation

The training at SMAN 3 Padang Panjang was conducted over three days with high enthusiasm from participants. On the first day, participants were introduced to the concept of Artificial Intelligence (AI) in education, where they gained an understanding of the potential and benefits of this technology in enhancing teaching and learning processes. The second day focused on instructional material design techniques using AI applications, where participants learned how to utilize various tools to create more interactive and engaging content. On the final day, participants engaged in hands-on practice in developing learning materials, applying the knowledge acquired in previous sessions. This activity not only enhanced teachers' skills but also motivated them to integrate technology into their daily teaching practices.

Figure 3. Practical Training on Developing Learning Materials Using AI

Evaluation

The evaluation of this program was conducted through a survey of teacher perceptions at SMAN 3 Padang Panjang, involving a total of 22 participants. The survey was administered on the final day of the training in the form of a Google Form link shared with the participants. It consisted of eight questions based on the Technology Acceptance Model (TAM), with four items each measuring Willingness to Use (WU) and Behavioral Intention (BI). The statistical analysis of respondent distribution is presented in Table 2. The evaluation of this program was conducted through a survey of teacher perceptions at SMAN 3 Padang Panjang, involving a total of 22 participants. The survey was administered on the final day of the training in the form of a Google Form link shared with the participants. It consisted of eight questions based on the Technology Acceptance Model (TAM), with four items each measuring Willingness to Use (WU) and Behavioral Intention (BI). The statistical analysis of respondent distribution is presented in Table 2.

Table 2. Respondent's Data

	F	**Percentage %**
Gender		
Male	9	40,91
Female	13	59,09
Total	22	100
Age		
17-20 Yo	0	0
21-25 Yo	0	0
26-30 Yo	1	4,54
31-35 Yo	3	13,64
>35 Yo	18	81,82
Total	22	100
Teaching Experiences		
1-5 Yo	3	13,63
5-10 Yo	1	4,55
>10 Yo	18	81,82
Total	22	100
Experience in using AI		
1 Never	3	13,63
2 Seldom	1	4,55
3 Sometimes	10	45,45
4 Frequently	7	31,82
5 Always	1	4,55
Total	22	100

Table 2 provides the distribution of respondent characteristics based on gender, age, teaching experience, and experience with AI usage. In terms of gender, the respondents comprised 9 males (40.91%) and 13 females (59.09%). Regarding age, the majority of respondents were over 35 years old, totaling 18 individuals (81.82%), with the remainder falling within the age ranges of 26–30 years (4.55%) and 31–35 years (13.64%). None of the respondents were under 25 years old. In terms of teaching experience, most respondents had more than 10 years of experience, totaling 18 individuals (81.82%). A smaller portion had between 1–5 years (13.64%) and 5–10 years of teaching experience (4.55%). Experience with AI among respondents varied. Three individuals (13.64%) reported never having used AI, while one person (4.55%) reported using it regularly. The majority of respondents used AI occasionally,

totaling 10 individuals (45.45%), and 7 others (31.82%) reported frequent use of AI in their activities.

Table 3. Behavioral Intention to Use AI (BI)

No	Questionaire Item	*Mean*	*SD*
1	I will recommend the use of AI to my colleagues	4,64	0,58
2	I am willing to try various AI features in the teaching process	4,59	0,59
3	I frequently use AI in teaching when it is available	4,36	0,58
4	I intend to use AI in teaching in the future	4,64	0,58

Based on the analysis of behavioral intention to use AI in teaching, respondents demonstrated a strong and positive inclination toward adopting this technology. The mean scores for each statement above 4 (out of 5) indicate that, overall, respondents have a high intention to integrate AI into the learning process. The statements with the highest mean scores are “I intend to use AI in teaching in the future” and “I will recommend the use of AI to my colleagues,” both with a mean of 4.64. This suggests that respondents are not only open to using AI but are also committed to recommending its use to colleagues, signaling potential for widespread adoption within their educational environment.

However, while respondents generally intend to use AI, the statement “I frequently use AI in teaching when it is available” had a slightly lower mean score of 4.36. This may suggest that the availability or accessibility of AI in educational settings could influence its frequency of use. Additionally, the low standard deviation values for each item (around 0.58-0.59) indicate consistency in responses across participants, reinforcing the conclusion that there is a relatively shared perspective among them regarding the potential of AI in teaching. Overall, this data reveals a strong, positive intention and potential acceptance of AI in future educational practices.

Table 4. Wilingness to Use AI (WU)

No	Questionaire Item	*Mean*	*SD*
1	I am willing to spend time learning to use AI	4,59	0,59
2	I am willing to invest in devices that support AI for teaching	4,32	0,72
3	I am willing to change my teaching methods to integrate AI	4,36	0,58
4	I am willing to face technical challenges in using AI	4,32	0,65

Based on the analysis of Table 4, which presents data on the Willingness to Use AI in Teaching, it can be concluded that respondents generally have a strong desire to utilize AI in their teaching activities. The highest mean score was recorded for the statement "I am willing to take time to learn how to use AI," with an average of 4.59, indicating that time for learning the technology is not seen as a barrier for them. Conversely, the statements "I am willing to invest in AI-supporting devices for teaching" and "I am willing to face technical challenges to use AI" have slightly lower mean scores, at 4.32 each. This suggests that, while respondents show a willingness to invest in equipment and to overcome technical challenges, these aspects may still pose some concerns for a portion of them.

The relatively low standard deviation values (ranging from 0.58 to 0.72) demonstrate consistency in responses, indicating that most respondents share similar views regarding their willingness to use AI in support of teaching. This consistent inclination highlights a positive

outlook among educators toward adopting AI technology in educational settings, though considerations related to cost and technical difficulties may still require further support.

Discussion

The majority of teachers display a highly positive behavioral intention towards utilizing AI in teaching processes. Analysis of these behavioral intentions reveals that most teachers intend to use AI in the future and are even willing to recommend this technology to their colleagues. The statements "I intend to use AI in teaching in the future" and "I will recommend the use of AI to my colleagues" received the highest average scores of 4.64, reflecting a strong enthusiasm for AI adoption. The consistently high mean scores across all items in this category indicate that AI-based training has successfully fostered awareness and commitment among teachers regarding the potential of AI to enhance teaching quality.

In terms of willingness to adopt AI, teachers show a commendable readiness to invest time in learning this new technology. This is evidenced by the statement "I am willing to take the time to learn how to use AI," which achieved a high mean score of 4.59. However, some concerns were noted regarding the investment in necessary supporting devices and readiness to tackle technical challenges, with both items scoring a mean of 4.32. These findings suggest that, despite positive intentions, additional support, such as access to technological resources and further training, may be needed to enhance teachers' technical preparedness for AI use.

CONCLUSION

Overall, the effectiveness of AI-based training in boosting teachers' interest and competence appears significant. The consistency in teacher responses (indicated by low standard deviation) and high average scores across all items suggest that most teachers share a similar perspective on the benefits of AI in education. This training has not only increased interest and positive attitudes toward AI but has also enhanced teachers' understanding and technical skills in integrating this technology into their classrooms. These findings underscore that AI training programs can increase teachers' interest, commitment, and readiness to adopt AI in educational processes, highlighting the importance of continued support to enable effective AI integration and address emerging challenges. Thus, training focused on AI adoption has the potential to enhance educational quality in the digital era.

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