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A Study on the Impact of a Short Training Course on the Management of Artificial Intelligence-Assisted Learning at SMK Nusatama Kota Padang

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Abstract

Given the rapid advancements in information and communication technology, particularly in artificial intelligence (AI), this study explored the impact of a short training course on the management of AI-assisted learning at SMK Nusatama in Padang city conducted in the mids of August 2024. Designed to enhance teachers' competencies in integrating technology into the learning process, the study emphasized the methodology used to assess improvements in teachers' services and understanding. A set of questionnaires was administered to gauge the potential of AI in teaching. The findings revealed that the training effectively improved teachers' ability to incorporate AI into their teaching methods, enrich instructional materials, and foster student interaction and assessment. Additionally, the training played a significant role in developing teachers' digital skills, which were essential for navigating the challenges of education in the digital era. These findings were expected to serve as a valuable reference for further development in the application of AI within educational settings, particularly in vocational schools.

Abstrak

Seiring dengan pesatnya kemajuan teknologi informasi dan komunikasi, khususnya penggunaan kecerdasan buatan (AI), penelitian ini mengeksplorasi dampak pelatihan singkat terhadap pengelolaan pembelajaran berbasis AI di SMK Nusatama, Kota Padang, yang dilaksanakan pada pertengahan Agustus 2024. Pelatihan ini dirancang untuk meningkatkan kompetensi guru dalam mengintegrasikan teknologi ke dalam proses pembelajaran, dengan menekankan pada metode yang digunakan untuk mengidentifikasi peningkatan layanan dan pemahaman guru. Kuesioner digunakan untuk mengidentifikasi potensi pemanfaatan AI dalam pembelajaran. Hasil penelitian menunjukkan bahwa pelatihan ini secara efektif meningkatkan kemampuan guru dalam mengintegrasikan AI ke dalam metode pengajaran, memperkaya bahan ajar, serta mendorong interaksi dan penilaian siswa. Selain itu, pelatihan singkat ini berperan signifikan dalam mengembangkan keterampilan digital guru yang sangat diperlukan untuk menghadapi tantangan pendidikan di era digital. Temuan ini diharapkan dapat menjadi referensi berharga untuk pengembangan lebih lanjut dalam penerapan AI di lingkungan pendidikan, khususnya di sekolah kejuruan.

Keywords:

AI-Assisted Learning
Teacher Training
Vocational Education
Learning Management
Educational Technology
Teacher Competencies

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1. INTRODUCTION

In the era of the 4.0 Industrial Revolution, technological advancements have significantly impacted various aspects of life, including education. Artificial Intelligence (AI) technology has increasingly become a focal point in efforts to enhance the quality of learning across different educational levels (Luckin, et. al., 2016). The use of AI in education offers innovative solutions to address challenges faced by educators and students, such as varying levels of comprehension, limited teaching time, and the need for more personalized learning methods (García-Martínez, et. al., 2023).

The management of AI-assisted learning is becoming increasingly relevant, particularly in situations where teachers are required to be more effective and creative in delivering content and monitoring students' learning progress (Melchor, et. al., 2023; Rios-Campos, et. al, 2023). AI can provide adaptive learning, where educational materials can be tailored to the individual needs and abilities of each student. Additionally, AI supports teachers in evaluating student learning outcomes more accurately and efficiently.

Despite the immense potential of AI in education, its utilization in Indonesia remains limited (Helmiatin & Kahar, 2024; Indrasari, et al., 2024). Many educators have yet to fully understand how to integrate this technology into their teaching practices. Therefore, greater efforts are needed to enhance technological literacy among teachers and students, as well as to develop the necessary skills to leverage AI in the learning process.

The Community Service Program (PKM) conducted by the English Education Study Program of FKIP Universitas Bung Hatta at SMK Nusatama in Kota Padang aims to address these challenges by providing short training sessions and workshops for teachers on managing AI-assisted learning. Through this PKM program, it is hoped that teachers will gain a better understanding of the concepts and applications of AI in education, particularly in managing learning processes, enabling them to effectively enhance the quality of learning in schools. Additionally, this initiative seeks to raise awareness of the importance of technological innovation in education and to develop more adaptive and responsive learning models that meet students' needs. Ultimately, through this PKM activity, it is expected to create a more modern, inclusive, and technology-based learning ecosystem that can effectively address various educational challenges in the digital era.

2. METHODOLOGY

This study utilized a mixed-methods approach to assess teachers' understanding of integrating artificial intelligence (AI) into teaching. A structured set of questionnaires was created using Google Forms to identify teachers' knowledge, skills, and perceptions regarding AI in education. These questionnaires included both closed-ended and open-ended questions, facilitating quantitative data collection alongside qualitative insights (Taherdoost, 2021). Participants consisted of teachers from SMK Nusatama who attended the PKM Workshop in the mids of August 2024, and their baseline knowledge and skills were assessed through the questionnaire both before and after the training. This initial assessment helped identify areas of need and establish benchmarks for evaluation. Following this, a comprehensive training program was conducted, focusing on the practical applications of AI tools, strategies for personalizing learning, and methods for evaluating student engagement and outcomes.

After the training, participants completed the same questionnaire to measure changes in their competencies. The data from the pre- and post-training assessments were analyzed using statistical methods to identify significant improvements. Qualitative responses were thematically analyzed to gain deeper insights into participants' experiences and perceptions of AI in teaching. Additionally, feedback was collected through focus group discussions and interviews with selected participants to further understand the training's impact and identify ongoing challenges in implementing AI in their classrooms. The findings indicated that the training effectively enhanced teachers' abilities to incorporate AI into their teaching methods, enrich instructional materials, and foster student interaction and assessment, laying a foundation for future professional development initiatives.

3. DISCUSSION OF THE RESULTS

The implementation of the Community Partnership Program (PKM) focused on AI-Assisted Learning Management has yielded several significant positive impacts on enhancing AI-driven educational management at SMK Nusatama Padang. Based on the data collected and analyzed after the workshop sessions, several key elements of this initiative have been identified.

3.1. Teachers' Improvement on the Use of AI in Education

The training and mentorship activities conducted in this Community Partnership Program (PKM) have successfully enhanced teachers' understanding of artificial intelligence (AI) in the educational context. Through various interactive sessions, teachers were introduced to foundational AI concepts, such as machine learning, data analysis, and algorithms, which can be applied to teaching and learning activities. For instance, they learned how adaptive learning platforms like Edmodo or Google Classroom, which are AI-based, can tailor content to match the learning pace of students, thus improving classroom instruction effectiveness. With this knowledge, teachers feel more confident and open to applying AI technology to elevate the quality of their teaching.

Additionally, teachers now understand how AI can assist in managing student learning data to improve learning outcomes. Another example is the use of AI to analyze student progress and provide recommendations for those who need special assistance, simplifying teachers' efforts in targeted interventions. Automated evaluation systems, like AI-based platforms that quickly grade student responses and provide instant feedback, also offer teachers an efficient solution for managing student assessments. This enhanced understanding has provided teachers with a new perspective on using AI, empowering them to integrate technology effectively into school learning activities (Bilad, et.al., 2023; Nuryadin, & Marlina, 2023).

3.2. Teacher Technical Skill Development

In addition to theoretical understanding, the training provided teachers with technical skills needed to implement AI technology directly in their teaching. For example, teachers learned to use AI-based applications like Kahoot and Quizizz to design interactive quizzes tailored to students' needs. These tools allow teachers to create engaging content that motivates students, while also automating the collection and analysis of quiz results. This approach helps teachers present material in a more dynamic and organized way, increasing student engagement in the learning process.

Teachers were also equipped with technical skills to monitor and assess student progress through AI-driven analytics platforms like Google Classroom and Edmodo. Using these platforms, teachers can access data on students' learning activities, such as participation levels, time spent on tasks, and overall progress. This data provides a clearer view of individual student development, enabling teachers to offer more personalized and targeted guidance. With these skills, teachers not only become more effective in managing learning but can also make more informed decisions about instructional strategies (Rahayu, 2023; Slimi, 2023).

3.3. The Implementation of AI-Assisted Learning Models

As a result of this training, several teachers have begun implementing AI-assisted learning models that are adaptive and personalized in their classrooms. For example, in Mathematics, teachers have integrated AI-based platforms like DreamBox or Smart Sparrow to customize practice problems according to each student's ability level. Students who grasp concepts quickly are given more challenging problems, while those who struggle receive easier tasks with additional explanations. This approach ensures that all students can learn at their own pace without holding back faster learners, fostering a more inclusive and effective learning environment.

In addition, English teachers have started using applications such as Grammarly or NoRedInk to help students improve their writing skills. These AI-driven tools provide automatic feedback on grammar, vocabulary, and sentence structure, allowing students to revise and enhance their writing independently. Teachers can monitor each student's progress through detailed reports generated by the apps, enabling them

to offer targeted support when needed. By integrating AI-assisted learning models, the learning experience becomes more personalized and efficient, helping teachers maximize each student's potential (Salem, 2024).

3.4. Students' Learning Quality Improvement

The integration of AI technology in learning has shown early signs of improving the quality of education, particularly through increased engagement from both teachers and students. For example, teachers using AI platforms like Google Classroom or Edmodo can monitor student participation in real time during class discussions or assignments. Students become more actively involved as they receive immediate feedback from the system, encouraging them to correct their mistakes and learn from them promptly. This quick feedback allows teachers to adjust their teaching methods or materials based on students' responses and understanding, leading to a more responsive and dynamic learning environment.

Furthermore, student learning outcomes have improved due to AI's ability to provide more accurate analyses of their academic progress. For instance, in English language learning, tools like Grammarly offer detailed corrections on grammar and writing style. Students can immediately see where they made errors and learn how to fix them, which helps them strengthen their understanding and skills independently. This process ultimately leads to better performance in assignments and exams. By incorporating AI, the learning experience becomes more efficient, and student outcomes are enhanced (Luckin, et al., 2016; García-Martínez, et. al., 2023; Salem, 2024).

3.5. Teacher Learning Community Network

The Community Partnership Program (PKM) successfully established a learning network and community among the teachers at SMK Nusatama Padang in collaboration with lecturers from the English Education Program at Universitas Bung Hatta Padang. Within this community, teachers and lecturers share experiences, resources, and best practices regarding the implementation of AI in the classroom. For example, more experienced teachers using AI applications like Edmodo and Google Classroom guide their peers who are new to the technology, demonstrating effective ways to utilize these platforms to enhance student engagement and track progress. Lecturers also contribute by sharing theoretical insights and the latest research on AI in education, enriching the discussions and practices taking place.

This network has fostered a collaborative and innovative culture within the school, where teachers actively adopt new approaches learned from the community (Mayuni et.al., 2024). One outcome of this collaboration is the organization of regular discussion sessions and internal workshops, where teachers exchange best practices on using AI across various subjects. For instance, a Mathematics teacher who successfully implemented an adaptive learning platform like Smart Sparrow shared the experience with colleagues, leading other subject teachers to adopt similar strategies. This collaboration has sparked innovation in the classroom, enriching students' learning experiences and cultivating a spirit of continuous learning among educators (Tallman, 2021; Pozas & Letzel-Alt, 2023).

The learning community also facilitates the exchange of ideas and solutions for challenges in implementing AI. Teachers facing obstacles such as limited infrastructure or access to technology can discuss these issues and work together to find solutions. They support one another in developing the technical and creative skills needed to integrate AI into their teaching practices. Through this community, teachers not only learn from lecturers and colleagues but also build a strong professional network that continually drives improvement and ongoing professional development (Voogt, et al., 2016)).

3.6. Sustainable Development Plans

To ensure the sustainability and further development of the results achieved in the Community Service Program on the Management of AI-Assisted Learning, there are eat least eight follow-up plans have been formulated as table 1. These follow-up plans are expected to strengthen and expand the implementation of AI-assisted learning, ultimately leading to a broader and more sustainable impact on improving the quality of education.

Table 1. Sustainability of Community Service Program on the Management of AI-Assisted Learning

No.	Actions	Description
1	Advanced Training for Teachers	Subsequent training sessions are essential to deepen teachers' knowledge and skills in utilizing AI technology for classroom management. This training will focus on the advanced use of AI tools and applications, as well as strategies for integrating them into various subjects.
2	Development of AI-Based Teaching Materials	The community service team will collaborate with teachers to develop and enhance AI-based teaching materials that align with the current school curriculum. These materials will be designed to help teachers convey complex concepts more effectively and interactively.
3	Ongoing Monitoring and Evaluation	A monitoring and evaluation program will be implemented periodically to assess the impact of AI on learning. This will involve collecting data on student engagement, learning outcomes, and feedback from both teachers and students regarding the effectiveness of the applied teaching methods.
4	Establishment of a School Support Team	To support the sustainable implementation of AI, a guidance team will be formed at SMK Nusatama Padang. This team will consist of teachers who have undergone training and will act as mentors for their peers in implementing AI technology in the classroom.
5	Collaboration with Stakeholders	Collaboration with various stakeholders, including the education department, technology providers, and the English Education Study Program at Universitas Bung Hatta Padang— the institution facilitating this PKM—will be crucial to support the development of infrastructure, teaching materials, and further research on the use of AI in education.
6	Development of an Online Learning Community	An online platform will be developed to support a learning community for teachers interested in AI-assisted learning. This platform will serve as a space for resource sharing, discussion, and experience exchange regarding the application of AI in education.
7	Further Research	Ongoing research will be conducted to evaluate the effectiveness of AI-assisted learning in both the short and long term. This research will focus on AI's impact on various learning aspects, such as the development of critical thinking skills, creativity, and student collaboration.
8	Dissemination of Results	The outcomes of this initiative, including best practices, challenges, and solutions, will be disseminated through seminars, publications, and workshops at both local and national levels. This aims to expand the program's impact and inspire other schools to implement AI technology in their learning processes.

4. CONCLUSION

The implementation of the Community Service Program (PKM) on the Management of AI-Assisted Learning at SMK Nusatama in Kota Padang has successfully achieved its primary goal of enhancing teachers' understanding and skills in integrating artificial intelligence (AI) technology into the learning process. This initiative not only enriched teachers' knowledge of AI but also provided practical skills that enable them to apply adaptive and personalized AI-assisted learning models in their classrooms.

The outcomes of this program indicate a significant improvement in the quality of learning, evidenced by increased student engagement and enhanced learning outcomes. Moreover, the establishment of

a network and learning community among the participating teachers demonstrates that this initiative has also fostered collaboration and innovation within the educational environment.

With plans for ongoing development, this PKM activity is expected to serve as a foundation for further advancing the use of AI in education, ultimately improving overall educational quality and preparing students for success in the digital era. Additionally, this program highlights the importance of technological literacy and teachers' readiness to address future educational challenges, as well as the need for continued efforts with the English Education Study Program at Universitas Bung Hatta in Padang to support the integration of technology in learning.

In short, the implementation of this Community Partnership Program (PKM) has successfully achieved its goals of enhancing technology literacy among teachers and promoting the use of artificial intelligence as an effective tool in the learning process. These outcomes are expected to contribute to the improvement of educational quality in schools and better prepare students to face the challenges of the digital era.

5. RECOMMENDATION

Based on the evaluation results, a sustainable development plan can be formulated to expand and deepen the use of AI in the learning process in the future. This plan includes various initiatives for ongoing training, the development of AI-based teaching materials, and further research on the impact of AI on student learning outcomes. First, regular training sessions will be organized to enhance teachers' skills in effectively implementing AI technology. These sessions will cover the latest tools and applications, as well as strategies for integrating AI across different subjects. Additionally, the development of engaging AI-based educational materials will ensure that the content delivered to students is relevant and stimulating, thereby increasing their interest in learning.

Alongside training and material development, the plan will also involve further research into the effects of AI on student learning outcomes. This research aims to identify ways in which AI can enhance students' understanding, skills, and motivation. By collecting and analyzing data on the effectiveness of AI in education, educators can make more informed decisions about appropriate teaching strategies. This sustainable development plan is expected to create a more adaptive and responsive learning environment that meets students' needs in the digital age.

References

Bilad, M. R., Yaqin, L. N., & Zubaidah, S. (2023). Recent Progress in the Use of Artificial Intelligence Tools in Education. Jurnal Penelitian Dan Pengkajian Ilmu Pendidikan: E-Saintika, 7(3), 279–314. https://doi.org/10.36312/esaintika.v7i3.1377

García-Martínez, I., Fernández-Batanero, J. M., Fernández-Cerero, J., & León, S. P. (2023). Analysing the Impact of Artificial Intelligence and Computational Sciences on Student Performance: Systematic Review and Meta-analysis. Journal of New Approaches in Educational Research, 12(1), 171-197. doi: 10.7821/naer.2023.1.1240 1

Helmiatin, A.H. & Kahar, M.R. (2024) Investigating the adoption of AI in higher education: a study of public universities in Indonesia, Cogent Education, 11:1, 2380175, DOI: https://doi.org/10.1080/2331186X.2024.2380175

Indrasari, M., Muh Barid Nizarudin Wajdi, M Adhi Prasnowo, Eko Pamuji, Bagus Winarko, Hendra Fatadona. (2024) The Digitalization Policy In The Education Sector: Innovation And Adaptation. Journal of Social Political Sciences JSPS Vol. 5, No. 3, August 2024 ISSN: 2715-7539 (Online) https://e-journal.unas.ac.id/jsps/article/download/241/195/

Luckin, R., Holmes, W., Griffiths, M. & Forcier, L. B. (2016). Intelligence Unleashed. An argument for AI in Education. London: Pearson.

Mayuni, I., Chen, Y., Ratminingsih, N. M., Palupi, T. M., & Halim, N. (2024). Tracking teachers' experience of adopting my English step to infuse differentiated instruction. Studies in English Language and Education, 11(3), 1374-1392. Online: https://jurnal.usk.ac.id/SiELE/article/view/35500

Melchor, P.J.M., Lomibao, L.S., Parcutilo. J.O. (2023). Exploring the Potential of AI Integration in Mathematics Education for Generation Alpha — Approaches, Challenges, and Readiness of Philippine Tertiary Classrooms: A Literature Review. Journal of Innovations in Teaching and Learning. 2023; 3(1):39-44. doi: 10.12691/jitl-3-1-8.

Nuryadin, Riki & Marlina, Marlina (2023) The Use of AI (Artificial Intelligence) in Education (Literature Review) Vol. 7, No. 2 (2023) 143-158 ISSN: 2597-4866 Indonesian Journal of Primary Education https://ejournal.upi.edu/index.php/IJPE/article/download/64290/pdf

Pozas, M., & Letzel-Alt, V. (2023). Teacher collaboration, inclusive education and differentiated instruction: A matter of exchange, co-construction, or synchronization? Cogent Education, 10(2). https://doi.org/10.1080/2331186X.2023.2240941

Rahayu, S. (2023) The Impact of Artificial Intelligence on Education: Opportunities and Challenges. Jurnal Education Vol. 9, No. 4, 2023, pp. 2132-2140 ISSN 2459-9522 (Print), 2548-6756 (Online) https://ejournal.unma.ac.id/index.php/educatio/article/view/6110

Rios-Campos, C., Cánova, E. S. M., Zaquinaula, I. R. A., Zaquinaula, H. E. A., Vargas, D. J. C., Peña, W. S., Idrogo, C. E. T., & Arteaga, R. M. Y. (2023). Artificial Intelligence and Education. South Florida Journal of Development, 4(2), 641–655. https://doi.org/10.46932/sfjdv4n2-001

Salem, Ibrahim bin 2024 Integrating Artificial Intelligence in Personalized Learning: A Future-Oriented Approach to Enhance Student Engagement and Achievement. International Journal of Post Axial: Futuristic Teaching and Learning Vol. 2 No. 2 June 2024, pp. 111-119 https://journal.amorfati.id/index.php/postaxial https://journal.amorfati.id/index.php/postaxial/article/view/299

Slimi, Z. (2023) The Impact of Artificial Intelligence on Higher Education: An Empirical Study European Journal of Educational Sciences, March 2023 edition Vol.10 No.1 ISSN: 1857- 6036 http://dx.doi.org/10.19044/ejes.v10no1a17

Taherdoost, H. (2021) Data Collection Methods and Tools for Research; A Step-by-Step Guide to Choose Data Collection Technique for Academic and Business Research Projects. International Journal of Academic Research in Management (IJARM), 10 (1), pp.10-38. ffhal-03741847f Online: https://hal.science/hal-03741847/document

Tallman, T. O. (2021). How Teachers Experience Collaboration. Journal of Education, 201(3), 210-224. https://doi.org/10.1177/0022057420908063

Voogt, J. M., Pieters, J. M., & Handelzalts, A. (2016). Teacher collaboration in curriculum design teams: effects, mechanisms, and conditions. Educational Research and Evaluation, 22(3–4), 121–140. https://doi.org/10.1080/13803611.2016.1247725