Proletarian : Community Service Development Journal
Vol. 2, No. 2, November 2024, pp. 80~86
ISSN: 3031-0601, DOI: https://doi.org/10.61098/Proletariancomdev.v2i2.225

AI-based Digital Literacy for Vocational High School Principals in Muaro Jambi Regency

Hetty Rohayani[1], Rico[2], Armiwita[3], Ermaini[4]
[1,3,4] Muhammadiyah Jambi University, Jambi, Indonesia
[2] Adiwangsa Jambi University, Jambi, Indonesia

Article Information

Article History:

Received November 25, 2024
Revised November 25, 2024
Accepted November 30, 2024

Keywords:

Literacy
Digital
Artificial Intelegence
Principals of Vocational High School

ABSTRACT

The development of digital technology, especially artificial intelligence (AI), has a major impact on various sectors, including education. Principals as leaders of educational institutions have a strategic role in ensuring the utilization of digital technology to improve the effectiveness of learning and school management. However, there are still obstacles in AI adoption due to limited understanding and lack of relevant training. Therefore, AI-based digital literacy for Vocational High School (SMK) principals is an important aspect in creating a more innovative and adaptive educational environment. This service activity aims to improve the understanding of Vocational High School (SMK) principals throughout Indonesia in general and Vocational High School (SMK) principals in Muaro Jambi Regency in particular regarding the concept of AI, its application in school management, and its utilization in learning. Through the training and seminars organized, school principals are expected to be able to optimally adopt AI technology in data-based decision making, administrative efficiency, and strengthening digital competencies for teachers and students. Thus, AI-based digital literacy can help vocational high schools face the challenges of the digital era and improve the competitiveness of graduates in the industrial world.

Corresponding Author:

Hetty Rohayani
Muhammadiyah Jambi University, Jambi, Indonesia
Email: hettyrohayani@gmail.com

1. INTRODUCTION

In the rapidly growing digital era, artificial intelligence (AI) is one of the technologies that has a significant impact on various sectors, including education. The development of AI brings new challenges and opportunities in the world of education, especially for vocational high schools (SMK) that aim to prepare graduates who are ready to enter the workforce [1]. Therefore, SMK principals as leaders of educational institutions have a strategic role in ensuring that digital technology, especially AI, can be optimally utilized to improve the quality of learning and school management [2].

AI-based digital literacy for SMK principals is an urgent need considering that digital transformation has changed various aspects of education, from learning methods, academic data management, to data-based decision-making [3]. The utilization of AI in education, such as adaptive learning, student data analysis, and administrative automation systems, can help principals in creating a more effective and efficient learning environment [4].

However, many SMK principals still face challenges in adopting AI technology, either due to limited understanding of the technology or lack of appropriate training. The lack of AI-based digital literacy can hinder the implementation of innovations in school management and reduce the competitiveness of SMK graduates in an increasingly digitized industrial world [5].

Therefore, there is a necessity to enhance AI-based digital literacy for SMK principals through pertinent training programs, seminars, and technology skill development. With a solid grasp of AI and its applications in education, principals can make more data-driven decisions, enhance the efficacy of school management, and guide teachers and students in optimizing technology for the learning process [6]. The possession of proficient AI-based digital literacy competencies enables SMK principals to assume a pivotal role as agents of transformation within the context of an evolving education ecosystem, characterized by its increasing reliance on technology. This enables them to ensure that SMK graduates possess the requisite competencies that align with both the present and future demands of the industry [7].

The objective of this study is to examine the implementation of AI-based digital literacy service activities for SMK principals in Muaro Jambi Regency. The specific goals of this initiative are threefold to enhance the comprehension of school principals regarding the fundamental principles of artificial intelligence and its applications in education, to support school principals in the development of management strategies for their institutions that are informed by data and AI technology and to promote the integration of AI in educational environments to enhance adaptability. and effective teaching methods,Improve the efficiency of school administration through the utilization of AI-based systems,Prepare school principals to be innovative leaders who are able to direct teachers and students in the utilization of digital technology,Strengthen collaboration between schools and industries in order to improve the readiness of SMK graduates in the digital era.

2. METHODS

Method is a way that can be used to achieve goals, while research is a means of seeking truth [8]. Basically, whatever method is used in solving existing problems, it must have been seen and analyzed which is the most appropriate method in solving these problems [9]. In the case of this service, observation and analysis have also been carried out so that the right method can be formulated in the implementation of service activities, which can be seen in the following figure1:

Figure 1. Activity Flow Stages

1. Identification of Needs

Identification of needs in community service activities with the theme of AI-based digital literacy for SMK principals is carried out to understand the challenges and obstacles faced in the application of AI technology in the educational environment. This identification process includes:

a) Survey and Interview: Collecting data from principals, teachers, and education personnel regarding their level of understanding of AI as well as obstacles in its application at school.
b) Training Needs Analysis: Determining the training materials needed, such as introduction to AI, AI applications in education, and AI implementation strategies in school management.
c) Technology Infrastructure Evaluation: Review the availability of hardware and software that support the implementation of AI in school academic and administrative activities.
d) Understanding Regulations and Policies: Identify regulations that support the implementation of AI in schools and understand the limitations and policies related to technology in education.
e) Case Studies and Best Practices: Examine successful examples of AI implementation in educational settings to provide principals with insights on effective strategies.
f) Collaboration with Industry and Academia: Collaborate with technology companies and universities to support AI implementation in schools through training and technical assistance.

With a comprehensive needs identification process, this service activity can be designed appropriately and effectively in improving AI-based digital literacy for SMK principals, so that they can be better prepared to face the challenges of digitalization in the world of education.

2. Preparation of Training Modules

The development of an AI-based digital literacy training module for SMK principals aims to provide a comprehensive guide that can be used as a reference during training and implementation of AI technology in schools. The module development process includes:

a) Determination of Module Structure: The module is organized into several main sections, including an introduction to AI, the benefits of AI in education, implementation strategies, and case studies and best practices.
b) Material Development: The materials are tailored to the needs of school principals, covering basic AI theories, practical applications, and technical skills required to manage digital schools.
c) Learning Methods: The modules are equipped with interactive learning methods, such as case studies, simulations, and practical exercises to enhance participants' understanding.
d) Evaluation and Feedback: Modules are piloted through initial training and developed based on participants' feedback to make them more effective and applicable.
e) Technology Integration: The modules are equipped with tutorials on the use of AI-based tools that can be used in school management and learning processes.

With a structured training module, SMK principals can more easily understand and adopt AI technology in the education system, so as to optimize school management and improve the quality of learning in the digital era.

3. Workshop and Simulation

The workshops and simulations in the AI-based digital literacy training activities for SMK principals are designed to provide practical experience in the application of AI technology in the educational environment. The series of activities include:

a) AI Introduction Session: Principals are given an understanding of the basics of AI, the types of AI technologies that are relevant in education, and the benefits of using them.
b) AI-based Data Management Simulation: Participants were trained to use AI systems to manage school academic and administrative data to improve decision-making efficiency.
c) Adaptive Learning Practices: A simulation of how AI can help create learning methods that adapt to the individual needs of students.
d) Chatbot and Virtual Assistant Implementation: Training in utilizing AI-based chatbots and virtual assistants to support communication and services in schools.
e) Data Analytics for School Performance Evaluation: Participants are taught how to use AI to analyze student and teacher data to improve educational effectiveness.
f) Discussion and Evaluation: An interactive session to share experiences, challenges and strategies for implementing AI in their respective schools.

Through this workshop and simulation, school principals are expected to better understand and adopt AI technology, so as to improve the quality of school management and support digital transformation in education.

4. Implementation Time and Place: Thursday, October 24, 2024, 08.00 to finish at the Vocational High School 10 Hall, Muaro Jambi Regency.

Team PKM:
1. Dr. Hetty Rohayani. AH, ST, M.Kom
2. Rico, S.Kom, M.S.I
3. Dr. Ermaini, SE, MM
4. Dr. Arniwita, S.Pd, MM

5. Implementation in Schools:

The implementation of AI-based digital literacy for SMK principals is carried out through the following steps:

a) Integration of AI in School Management: Using AI systems for academic data analysis, financial management, and school administration to be more efficient.
b) Continuous Training for Teachers and Education Personnel: Organizing training programs to improve understanding and skills in utilizing AI in learning.
c) Use of AI in Learning: Implement AI technologies in the classroom, such as adaptive learning systems, educational chatbots and virtual tutors to improve teaching effectiveness.
d) Digital Policy Development: Develop internal school regulations regarding the use of AI in academic and administrative activities to ensure ethical and efficient implementation.

e) Monitoring and Evaluation: Conduct regular monitoring of AI implementation in schools and adjust strategies based on feedback from teachers, students, and education personnel.
f) Collaboration with Industry and Academia: Establish cooperation with industry and university partners to update AI-based curriculum and provide practical experience for students.

With a structured and sustainable implementation, SMK principals can make the most of AI to improve the effectiveness of school management and ensure that graduates are ready for the digital era.

6. Evaluation and Feedback:

Evaluation and feedback are important steps in assessing the effectiveness of AI-based digital literacy activities for SMK principals. This process was conducted through several methods, namely:

a) Post-Training Questionnaire and Survey: Collecting principals' responses on the relevance of the materials, the quality of the training, and the ease of implementing AI in their schools.
b) In-Depth Interviews: Conducting discussions with the trainees to understand the obstacles faced in implementing AI after the training.
c) Direct Observation: Monitor the implementation of AI technologies in schools and see the extent of changes in management and learning.
d) Competency Improvement Data Analysis: Assess the improvement of principals' understanding and skills in adopting AI before and after the training.
e) Case Studies of Schools that Have Successfully Adopted AI: Using schools that have successfully implemented AI as examples for other schools in adopting best practices.
f) Program Development Recommendations: Based on the evaluation, strategize and improve the next training to better suit the needs of school principals.

Effective evaluation and feedback will ensure that the AI-based digital literacy program for SMK principals continues to grow and provide optimal impact in improving the quality of technology-based education.

3. RESULTS AND DISCUSSION

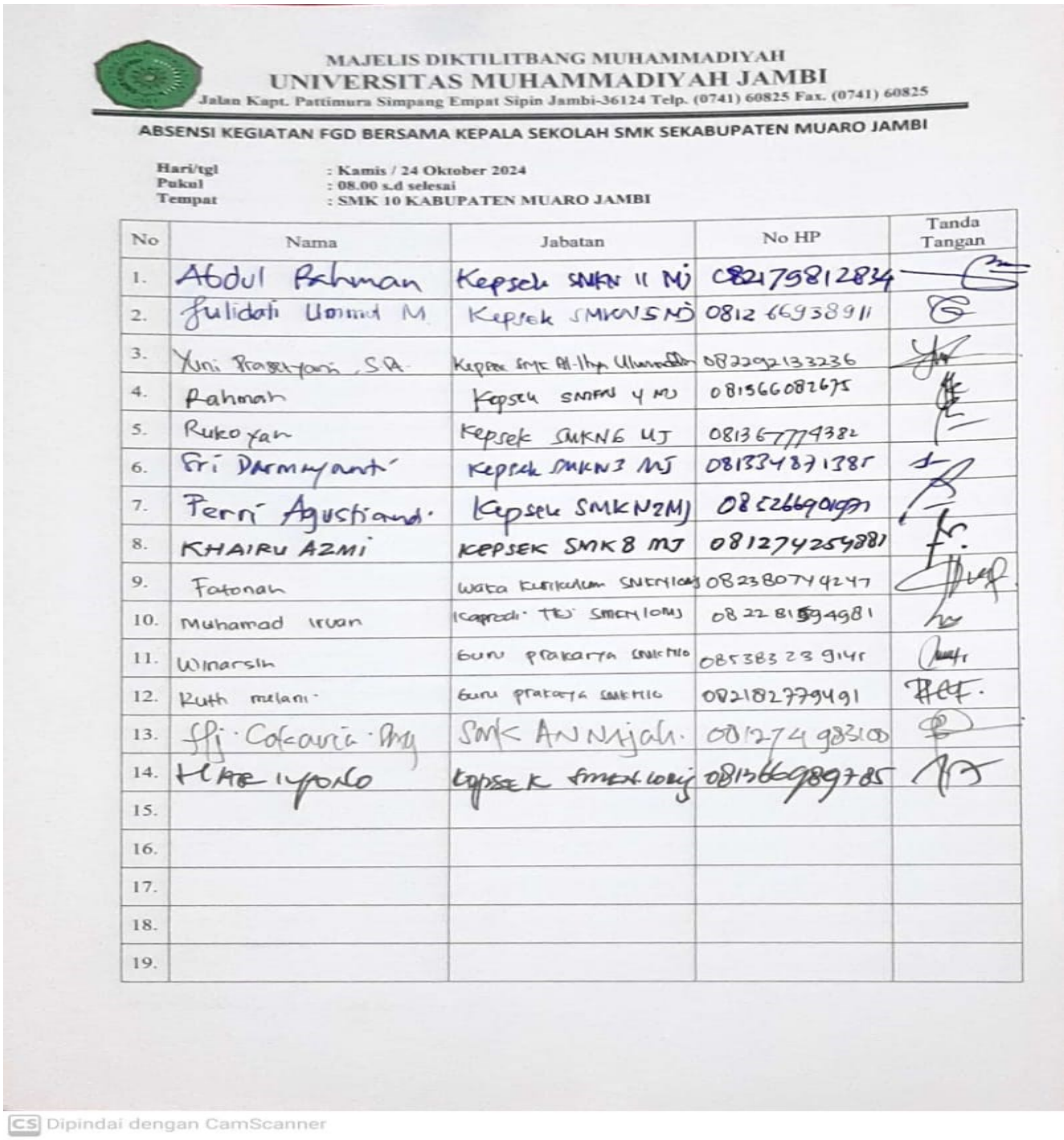
Participation in literacy activities is a crucial aspect of life in life. The majority of education stages are highly dependent on literacy skills and awareness. A culture of literacy instilled in the younger generation has a significant impact on the level of success, both in the context of education and community life.

Artificial Intelligence (AI) plays an important role in improving digital literacy in educational institutions. AI enables a more personalized approach to a more personalized approach to learning by analyzing student data to develop a learning plan that suits their individual needs. Therefore, students can develop their digital literacy skills more effectively in improving digital literacy in educational institutions. In addition, AI can assist in the development of learning materials that are in line with curriculum of educational institutions through natural language processing technology language processing technology. This can generate relevant and useful content to improve the Principal's understanding of digital literacy. Digital literacy is key to navigating the modern world modern world, and AI plays an important role in advancing these skills in education. in education. The results of this program show that :

a) Improved Digital Literacy: Principals showed significant improvement in understanding AI concepts and applications, including the use of AI-based platforms for school data management and student performance analysis.
b) Technology Competency Strengthening: Participants are able to use applications such as educational chatbots, learning analytics, and predictive systems for decision-making.
c) Effective Implementation in Schools: Some schools have successfully implemented AI-based attendance systems and data analysis for curriculum management.

However, some challenges were also identified, such as limited technology infrastructure in some schools and resistance to change from some principals.

Figure 3. Documentation of AI-Based Digital Literacy Workshop Activities


MAJELIS DIKTILITBANG MUHAMMADIYAH
UNIVERSITAS MUHAMMADIYAH JAMBI
Jalan Kapt. Pattimura Simpang Empat Sipin Jambi-36124 Telp. (0741) 60825 Fax. (0741) 60825

ABSENSI KEGIATAN FGD BERSAMA KEPALA SEKOLAH SMK SEKABUPATEN MUARO JAMBI

Hari/tgl : Kamis / 24 Oktober 2024
Pukul : 08.00 s.d selesai
Tempat : SMK 10 KABUPATEN MUARO JAMBI

No	Nama	Jabatan	No HP	Tanda Tangan
1.	Abdul Rahman	Kepsek SMKN 11 MJ	082179812834	
2.	Julidati Ummi M	Kepsek SMKN 5 MJ	0812 66938911	
3.	Yuni Prasetyani, S.Pd	Kepsek SMK Al-Ihya Ulumuddin	082292133236	
4.	Rahmah	Kepsek SMKN 4 MJ	081566082675	
5.	Rukoyah	Kepsek SMKN 6 MJ	081367774382	
6.	Sri Darmayanti	Kepsek SMKN 3 MJ	081334871385	
7.	Perri Agustiandi	Kepsek SMKN 2 MJ	08526690199	
8.	KHAIRU AZMI	KEPSEK SMK 8 MJ	081274254881	
9.	Fatonah	Waka Kurikulum SMKN 10 MJ	082380744247	
10.	Muhamad Irwan	Kaprodi TKJ SMKN 10 MJ	08 22 81594981	
11.	Winarsih	Guru prakarya SMKN 10	085383239145	
12.	Ruth melani	Guru prakarya SMKN 10	082182779491	
13.	[illegible]	SMK AN Najah	081274983100	
14.	[illegible]	Kepsek [illegible]	0813669989785	
15.				
16.				
17.				
18.				
19.				

Figure 4. Attendance List of Participants of AI-Based Digital Literacy Workshop Activities

4. CONCLUSION

The AI-based digital literacy program has a positive impact on improving the competencies of SMK principals in Muaro Jambi district. The program helps them understand and apply AI technology to support more effective education management. However, the sustainability of the program requires support in the form of improved technology infrastructure and ongoing mentoring. By addressing these challenges, AI-based digital literacy can be the foundation for accelerating digital transformation in education.

ACKNOWLEDGMENTS

Thank you to the Head of the Muaro Jambi Regency Education Office for supporting and supporting this activity so that this AI-based Digital Literacy Workshop was carried out. Thank you also to the Rector of Universitas Muhammadiyah Jambi and Adiwangsa Jambi University who provided support to the PKM Implementation Team in this activity. Thank you to the Principal, Teachers and Staff of SMK Negeri 10 Muaro Jambi Regency who have contributed and participated in directly preparing everything so that the event can run well.

REFERENCES

[1] Asrol, L. D & Rifma, S. (2022). Evaluasi Literasi Kecerdasan Buatan Definisi. Cybernetics: Journal Educational Research And Social Studies, 1-11.

[2] Chai, C. S., Koh, J. H. L., & Tsai, C. C. (2013). A Review of Technological Pedagogical Content Knowledge. Computers & Education, 76, 41-52.

[3] Kurniawansyah, Kevin., Marthiawati, Noneng., Rohayani, H & Nugraha, Hafiz. (2023). Pelatihan Cara Penggunaan Aplikasi Sikesal untuk Admin OPD Se-Kota Jambi. Karunia: Jurnal Hasil Pengabdian Masyarakat Indonesia. 2(4), 115-120.

[4] Fakhri, M. M., Isma, A., Hidayat M., W., Ahmar, A. S., & Surianto, D. F. (2024). Digital Literacy Training and Introduction to Artificial Intelligence Ethics to Realize Digital Literate Teachers: Pelatihan Literasi Digital dan Pengenalan Etika Kecerdasan Buatan untuk Mewujudkan Guru Melek Digital. Mattawang: Jurnal Pengabdian Masyarakat, 5(1), 38-47.

[5] Fathahillah, F., Fakhri, M & Ahmar, A (2023). Analysis of Artificial Intelligence Literacy in the Blended Learning Model in Higher Education. EduLine: Journal of Education and Learning Innovation, 3(4), 566-575.

[6] Machmud, M. T., & Fakhri, M. M. (2023). Indonesia Teacher Competencies in Integrating Information and Communications Technology for Education. Athens Journal of Technology & Engineering, 2(1), 331.

[7] Rahmawati, Asna Zultiva. (2023). Peningkatan Literasi Digital untuk Masyarakat Berbasis Era Teknologi Informasi. MUJAHADA: Jurnal Pengabdian Masyarakat, 1(1), 12–20.

[8] Rohayani, H., Arniwita, Ermaini & Oka Ediansa. (2024). Workshop Dan Coaching Clinic Program Matching Fund Bagi Dosen Di Universitas Muhammadiyah Jambi . Jurnal Pengabdian Kolaborasi Dan Inovasi IPTEKS, 2(1), 278–283.

[9] Rosalyn Anwar, Citra & Hartoto.(2023).Diskusi Publik Artificial Intelligence (AI): Mengoptimalkan Pemanfaatan Teknologi untuk Kemajuan Pendidikan dan Produktivitas Masyarakat. 4(1).1–9.

[10] Schmid, M., & Petko, D. (2019). How Technology Influences Student Learning: A Review of Classroom Experiments. Educational Research Review, 28, 100-115.

[11] Sejati, Amanda Puspanditaning., Lukmana, Iwa., Suryana, Deddy & Amir, Amir. (2021). Menumbuhkan Geliat Literasi Digital Pada Remaja di Kecamatan Sumedang Utara, Kabupaten Sumedang. Jurnal Pasca Dharma Pengabdian Masyarakat, 2(1), 47-54.

[12] Suryani, S., Hasriani, H., Tamsir, N., Husain, T., Herlinda, H., Thabrani, T & Syam, A. (2023). Literasi Digital Dalam Pengembangan Media Pembelajaran Guru SMKN 1 Gowa Berbasis AI. Community Development Journal: Jurnal Pengabdian Masyarakat, 4(2), 4636-4643.

[13] UNESCO. (2021). AI in Education: Challenges and Opportunities for Sustainable Development. Paris: UNESCO Publishing.

[14] Veletsianos, G., & Kimmons, R. (2012). Assumptions and Challenges of Open Scholarship. International Review of Research in Open and Distributed Learning, 13(4), 166-189.

[15] Zahara. Azkia. & Chusni.(2023). Implementasi Teknologi Artificial Intelligence (AI) dalam Bidang Pendidikan. JPSP.3(1).15–20.

[16] Zulfikhar, Rosa., Murthada., Nurfaiz, Yudha., Majid, Abdul & Sumarno. Analisis Literasi AI Meningkatkan Motivasi dan Hasil Belajar Mahasiswa di Perguruan Tinggi Kota Makassar. (2024). Innovation and Applied Education Journal, 1(1), 14-19.