ANTHOR
Education and Learning Journal
https://anthor.org/index.php/anthor
Email. anthor.Jurnal@gmail.com
E-ISSN: 2963 –198X P-ISSN: 2963–2498 | Halaman: 469 - 472
Volume 5 Nomor 6 Tahun 2026

Opportunities for Artificial Intelligence Integration in Vocational Learning: A Case Study of Teachers at SMK Pelita Buana Sewon

Manuscript Information

Galih Pranowo

Yogyakarta State University, Indonesia

galihpranowo@uny.ac.id

Abstrak

Pemanfaatan kecerdasan artifisial (Artificial Intelligence/AI) membuka peluang untuk mengoptimalkan proses pembelajaran vokasi. Hal ini tentunya berkaitan erat dengan penggunaan AI oleh guru dalam mengembangkan bahan ajar. Penelitian ini bertujuan untuk mendeskripsikan peluang integrasi kecerdasan artifisial dalam pembelajaran vokasi. Penelitian ini dilaksanakan di SMK Pelita Buana Sewon. Penelitian menggunakan pendekatan kualitatif dengan desain studi kasus. Data diperoleh melalui observasi langsung, pengamatan terhadap hasil, serta wawancara terbuka menggunakan Google Forms. Hasil penelitian menunjukkan adanya potensi positif dalam mengintegrasikan kecerdasan artifisial (AI) ke dalam pembelajaran vokasi. Peluang tersebut terlihat dari lingkungan sekolah yang mendukung serta kebijakan yang diterapkan. Integrasi AI dalam pembelajaran vokasi diharapkan dapat menjembatani kesenjangan dalam pencapaian tujuan pembelajaran yang telah ditetapkan.

Kata Kunci:
Kecerdasan Artifisial (AI), Guru, Pendidikan Vokasi.

Abstract

The adoption of artificial intelligence (AI) opens up opportunities to streamline vocational learning processes. This will undoubtedly be closely related to teachers using AI to create learning materials. This study aims to describe the opportunities for integrating artificial intelligence into vocational learning. The location for this implementation is at SMK Pelita Buana Sewon. The study used a qualitative approach with a case study design. Data were obtained from direct observation, observation of results, and open-ended interviews using Google Forms. The results of the study demonstrates the positive potential for integrating artificial intelligence (AI) into vocational learning. This opportunity is evident in the supportive school environment and its policies. The integration of AI into vocational learning is expected to bridge the gap to achieving established learning objectives.

Keyword:
Artificial Intelligence (AI), Teacher, Vocational.

Information Production:
© 2026 *by the authors of this article. This work is licensed under an Attribution-ShareAlike* 4.0 *International* (CC BY-SA 4.0)

INTRODUCTION

The current development of education is certainly inseparable from the development of artificial intelligence (AI). The current development of artificial intelligence certainly has good opportunities for integration into education to improve quality and effectiveness (Haryanti & Marzuqi, 2026). This development allows teachers or educators to carry out generative activities for a learning product. The resulting product can be teaching materials, varied questions, or visual media used to help explain a concept. However, the results generated by AI cannot be 100% trusted immediately; prior content validation by the teacher concerned is necessary. This certainly requires professional pedagogical support from a teacher or educator.

The use of AI in vocational education certainly has a unique context. Vocational education emphasizes understanding skills for the workplace. Vocational education, specifically in vocational high schools, naturally connects practical skills concepts with real-world needs. AI has the potential to provide visual representations of technical processes that are difficult to observe directly during the learning process. Furthermore, AI can be used as an exploratory tool to assist teachers before students engage in practical work. This use must be based on competency considerations and the learning objectives to be achieved. AI also has the potential to improve the quality of learning through personalized instruction for teachers if implemented in a humanistic manner (Nisfiya & Fauzi, 2026).

The use of AI is not only seen from the existence of a device used to generate AI. This utilization must also be seen from the learning process, referring to the concept of Technological Pedagogical Content Knowledge (TPACK). The TPACK concept certainly combines technological knowledge in the form of AI with the pedagogy and content found in learning practices in vocational schools. Teachers who implement the TPACK approach can incorporate AI technology into the curriculum so that the learning process can run

e-ISSN: 2963 – 198X
p-ISSN: 2963 – 2498

effectively (Winarno et al., 2023). This concept should be the foundational concept used for the integration of AI in the vocational learning process.

Pelita Buana Sewon Vocational School serves as the research context in this case study. The school offers fashion design and audiovisual majors. Furthermore, the teachers at the school are of diverse ages. This diversity will undoubtedly impact the integration of AI into the subjects taught by each teacher. Furthermore, AI is often used merely to enhance school administration and learning. Based on this, this article examines the opportunities and challenges of AI integration in vocational learning. The scientific contribution of this article is evident in the contextual description of the teachers' experiences at Pelita Buana Sewon Vocational School.

METHODS

The research approach in this article uses a qualitative approach with a single case study design at SMK Pelita Buana Sewon. Qualitative research tends to use in-depth analysis with a process of meaning-making from the perspective of the subject being highlighted (Ultavia B. et al., 2023). This case study is of course limited to teachers' perceptions of AI integration in vocational learning at vocational schools. This design is certainly intended to understand the phenomenon of AI integration into learning at a particular school, in this case, SMK Pelita Buana Sewon. Data analysis used comes from seven teachers at SMK Pelita Buana Sewon. The participant criteria were selected purposively, of course, coming from fashion design and audiovisual teachers.

Data collection was obtained using Google Forms which were given directly to teachers. The questions asked were open-ended questions with the following contexts: (1) The use of AI in the real learning process; (2) the usefulness of AI for practical learning and work readiness in the field; (3) school environmental support in integrating AI in learning; (4) Depths of AI integration in learning; (5) strategies for dealing with obstacles to future needs. Therefore, the data collection technique used was a written, narrative, open-ended qualitative survey.

In the context of educational research, understanding data collection techniques is crucial because the research objects are generally related to human behavior (Priatna et al., 2025). In this study, the researchers did not conduct probing or ask direct follow-up questions. The teacher's brief answers were not necessarily interpreted as simple information. Instead, the information provided was analyzed holistically and interpreted according to a predetermined context. The researchers also directly observed the teacher's AI integration process by generating several AI products for learning and analyzing the results.

RESULTS AND DISCUSSION

Opportunities for AI in vocational or professional learning in vocational schools

AI technology can enhance creativity and digital literacy if teachers utilize it optimally to prepare students for the workforce (Rosti et al., 2026). The potential for AI use in vocational or vocational high school learning is significant. This is evident in teacher responses that AI accelerates and facilitates the creation of visual learning media for students. Abstract material becomes more concrete in conceptual form.

" I use AI as a learning planning assistant and interactive media for students. For example, during class, I use Canva AI to create interactive learning media containing comprehensive materials and games that are directly available from Canva AI (G1)."

This opinion certainly demonstrates that AI is used to facilitate the learning process. This opinion was further reinforced by the second teacher, who explained that AI can explain difficult concepts more easily.

"In my teaching at SMK AI, I use it to explain difficult material, requiring me to create simulations. For example, a simulation using an electronic circuit involves creating an LED circuit with a resistor (G2)."

The above findings provide a new perspective that AI has the potential to be integrated into vocational learning at SMK Pelita Buana Sewon, as nearly all teachers who responded responded similarly. Therefore, the potential for AI utilization is vast. The opportunities presented include increased efficiency and ease of work, as well as opportunities for enriching ideas and more engaging presentation of material. Conceptually, AI's opportunities align with TPACK, which integrates technological knowledge, pedagogy, and content.

Learning Environment Support

The school environment at SMK Pelita Buana Sewon supports AI integration for vocational learning. A safe, comfortable school environment supported by positive social relationships can create a conducive learning atmosphere (Soriton et al., 2026). This support is evident from the principal who held a teacher capacity building workshop with AI. Furthermore, this support is demonstrated by the school forming a learning community among teachers.

e-ISSN: 2963 – 198X
p-ISSN: 2963 – 2498

"Support from schools provides AI training and how to utilize it for the learning process (G3)"

This aligns with the second teacher's opinion, stating that support is not only related to the provision of training or workshops but also to supporting school facilities. These facilities can include Wi-Fi access or other hardware.

" The existence of a learning community (Kombel) among teachers in schools or training/workshops on technology utilization supported by the principal to share prompting and AI tools relevant to vocational learning. As well as the availability of media that support the use of AI, such as Wi-Fi and IFP (G2) "

Furthermore, moral support within the Pelita Buana Sewon Vocational School environment is also evident. If a fellow teacher has difficulty using AI, other teachers step in to help.

"Help each other for those who don't understand (G5)"

"Moral support and always providing education (G6)"

These findings demonstrate that AI readiness extends beyond the provision of tools. It also involves how human resources can foster a positive learning ecosystem. Based on these elements, this learning environment is part of the organizational context that can facilitate innovation adoption.

Teacher readiness challenges

The process of integrating AI into vocational education at SMK Pelita Buana Sewon was also challenging. Teachers' awareness that AI is not merely a learning aid but also a strategic learning assistant in supporting curriculum changes (Putri et al., 2025) presents a challenge in itself in ensuring teacher readiness in using AI. This lack of readiness is evident in teachers' lack of familiarity with AI tools. This certainly presents a challenge in itself for integrating AI into learning, given the excessive teacher activity.

" There is not enough time to create teaching materials with AI due to various tasks and not being familiar with the specific things in the tools available in AI due to lack of practice (G7)"

Furthermore, the question arises: the accuracy of AI-generated results can sometimes be difficult to distinguish. It's necessary to double-check results generated from multiple sources to ensure proper verification.

"…. tend to copy-paste answers from AI without verifying the truth or understanding the basic logic behind it (G2)"

These findings clearly demonstrate that teacher readiness challenges must begin to be addressed. This includes technical support and time. Furthermore, the learning objectives to be achieved in a subject are key to teacher readiness for AI use.

AI integration strategies in learning

Strategies for implementing AI in vocational learning must consider the learning objectives to be achieved. Improving teachers' skills in utilizing AI will be maximized if implemented in groups, encouraging discussion and sharing of materials (Djaka et al., 2025). This strategy is intended to minimize obstacles to integrating AI into learning. AI-generated results should facilitate teachers in bridging theory and practice.

"Combining AI with hands-on practice (G3)"

The next strategy to overcome these obstacles is for teachers at SMK Pelita Buana Sewon to conduct independent explorations using the AI they use. This exploration will certainly help teachers more quickly adopt knowledge.

"Making time in your daily life to explore with AI, even if only for a short time, and constantly improving the results of our AI media to make them more perfect (G7)"

These findings certainly indicate that the strategy of integrating AI into learning extends beyond providing accounts for teachers. It also encompasses teachers' active use of AI. This allows AI to serve as a powerful learning assistant.

Findings and implications

Based on the findings, the integration of artificial intelligence (AI) into in-depth vocational learning at SMK Pelita Buana Sewon is trending positively. This is evident in the teachers' adoption of AI in their teaching. The learning environment at SMK Pelita Buana Sewon is also supportive, as evidenced by its policies, human resources, and equipment. This, of course, stems not only from material support but also from moral support within the learning environment.

However, challenges arise when teachers are unfamiliar with AI, which can lead to less than optimal adoption of AI tools. Furthermore, validating AI-generated results presents a unique challenge for teachers. This validation is key to ensuring the generated results align with the correct concepts and learning objectives.

e-ISSN: 2963 – 198X
p-ISSN: 2963 – 2498

The use of AI will be maximized if teachers have a sound strategy for using it in vocational schools. Teachers must be able to integrate AI to bridge theory and hands-on practice in learning. To maximize this, teachers must understand the tools available. The success of this integration will be evident in whether the set learning objectives are achieved.

Research Limitations

This study's limitations lie in its use of a single school, making the findings difficult to generalize. This single-school limitation, of course, means the findings are contextualized within that school's environment.

CONCLUSION

This research demonstrates the potential for integrating artificial intelligence (AI) into vocational learning in a positive direction. This opportunity is evident in the supportive school environment and its policies. Furthermore, challenges in implementation can be minimized with relevant strategies. It is hoped that this AI integration will bridge the gap between teachers and students in achieving learning objectives.

REFERENCES

B., A. U., Jannati, P., Malahati, F., Qathrunnada, & Shaleh. (2023). Kualitatif: Memahami karakteristik penelitian sebagai metodologi. *Jurnal Pendidikan Dasar, 11*(2), 341–348.

Djaka, M. R. P. K., Usman, U. K., Sinurat, R., Avrilya, N. A., Candra, T., Putri, N. H., & Sudiana. (2025). Integrasi pelatihan guru SMK dalam pemanfaatan AI untuk pembelajaran di SMKN 6 Bandung. *Jubaedah: Jurnal Pengabdian dan Edukasi Sekolah, 5*(3), 960–969. https://doi.org/10.46306/jub.v5i3.449

Haryanti, A. N., & Marzuqi, Y. (2026). Kecerdasan buatan sebagai mitra pedagogis dalam pendidikan Pancasila: Studi fenomenologis di sekolah menengah atas. *Khatulistiwa: Jurnal Pendidikan dan Sosial Humaniora, 6*(2), 924–938. https://doi.org/10.55606/khatulistiwa.v6i2.11204

Nisfiya, I., & Fauzi, I. (2026). Integrasi kecerdasan buatan dalam pendidikan abad ke-21: Analisis peluang dan implikasi nilai Islam. *Edukatif: Jurnal Ilmu Pendidikan, 8*(1), 17–26. https://doi.org/10.31004/edukatif.v8i1.8688

Priatna, T., Nurfauji, B. B., Nuraeni, D., Sari, E. S. M., Agasha, P. S., & Ulum, R. R. (2025). Teknik pengumpulan data dalam pendekatan kualitatif. *Merdeka Indonesia Journal International (MIJI), 5*(2), 707–713.

Putri, D. D. R., Febrianty, A., Zahrah, K., & Laila, N. R. (2025). Kesiapan dan hambatan guru dalam mengintegrasikan AI dalam pembelajaran di SDN Teja Barat 1. *Jurnal Koulutus: Jurnal Pendidikan Kahuripan, 8*(2), 189–198.

Rosti, Haerul, Umpain, T., Karlan, L., Hasyani, M. K., Deswita, Cahyani, M. P., & Lestari, N. A. (2026). Implementasi artificial intelligence sebagai media pembelajaran dan inovasi dalam dunia kerja vokasi di sekolah SMK N 2 Kolaka Utara. *MARTABE: Jurnal Pengabdian Masyarakat, 9*(5), 1948–1958. https://doi.org/10.31604/jpm.v9i5.1948-1958

Soriton, V., Lempas, J. D., & Oroh, S. S. A. (2026). Pengaruh lingkungan sekolah dan peran guru terhadap minat belajar siswa SMK. *SECONDARY: Jurnal Inovasi Pendidikan Menengah, 6*(3), 1709–1721. https://doi.org/10.51878/secondary.v6i3.12327

Winarno, Auna, H. S., & Sugiarni. (2023). Pendekatan pembelajaran TPACK menggunakan tools berbasis artificial intelligence (AI): Manfaat dan tantangan. *Proceedings Series of Educational Studies*, 249–256.