Journal of General Education and Humanities
Vol. 5, No. 4, August 2026, pp. 4401 – 4412, https://doi.org/10.58421/gehu.v5i4.1797
ISSN 2963-7147

An Analysis of Teachers' Perceptions of Artificial Intelligence Integration in Learning in the Corporate Financial Accounting Department of Vocational High Schools

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Article Info

Article history:

Received 2026-06-02
Revised 2026-07-03
Accepted 2026-07-08

Keywords:

Accounting
Artificial Intelligence
Corporate Financial
Learning Integration
Teachers' Perceptions
Vocational Education

ABSTRACT

In the era of digital learning, teachers are required to pioneer innovative education techniques. Teachers are impelled to be competent and capable of utilizing artificial intelligence technology, given the unique challenges educators face in highly structured environments. The objective of this research is to determine teachers' perceptions and willingness to integrate artificial intelligence into the corporate financial accounting department at the vocational high school. The study employed a qualitative descriptive design. Data collection instruments were used to facilitate direct observation, interviews, and documentation. Purposive sampling was applied to select 16 interviewees. The data analysis technique for this study used triangulation, a method comprising several main components. The analytical framework was structured around data collection, data reduction, data presentation, and conclusion drawing. The study aims for three core findings. First, while most educators demonstrate progressive awareness and a positive attitude toward technological adaptation, a digital divide persists, highlighted by a sharp contrast in which some teachers operate at a zero-adoption baseline due to technical anxiety and professional development gaps. Second, AI provides significant advantages by serving as an efficient partner to assist in compiling teaching modules and generating specialized accounting materials. Third, the impacts reveal that AI facilitates personalized learning and time efficiency.

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1. INTRODUCTION

In essence, educational administration in Indonesia consists of three main aspects. Indonesia's education system offers various learning pathways through formal, non-formal, and informal education [1]. The educational environment plays a pivotal role in enhancing the quality of human resources, enabling individuals to develop good and virtuous character

[2]. In this context, optimizing education is key to bridging these character competencies with practical skills relevant to current industry demands.

Within the landscape of the Industrial Revolution 4.0, technology plays an instrumental role in enhancing the competence of vocational educators [3]. It is obligatory to improve human resource quality to keep up with the increasingly rapid pace of development [4]. Nowadays, educational technology plays a complex role in educating students for the era in which they live [5]. This involves many related stakeholders in the implementation of educational technology.

The application of artificial intelligence supports aspects of student learning that cannot be achieved with conventional methods [6]. In essence, AI refers to an advanced system designed and developed to emulate human intelligence, logic and general human performance, particularly in decision-making processes [7]. In this regard, AI is a program in Information and Communication Technology (ICT) that comprises computer programming languages, machine learning, hardware, and software. It is inspired by human logic [8]. Hence, AI is fundamentally a branch of computer science engineered to replicate human intellect and logic, thereby facilitating autonomous decision-making.

Educators who rely on teacher-centered approaches and lack innovation often limit students' opportunities to develop their critical thinking [9]. The adoption of digital technologies and their implementation support the improvement of teacher performance and provide significant strengthening in the mastery of the teacher's own competencies [10]. The problem began to emerge as many teachers experienced difficulties with artificial intelligence (AI), particularly among vocational high school (SMK) teachers in the Corporate Financial Accounting Department. These subjects are characterized by rigid routines, binding financial rules, and strict regulatory guidelines. It remains common for educators to adhere to established standards and avoid exploring innovative contexts strictly.

Perception is an individual's process of organizing and interpreting the impressions they receive to understand the meaning of their environment, although it is often based on a subjective perspective rather than on actuality itself [11]. This perception stems from the inconvenience caused by the presence of ICT infrastructure, particularly Artificial Intelligence (AI). The Vocational High School (SMK) teachers used in this study, who were Corporate Financial Accounting Department teachers at institutions, felt that the deployment of AI did not yet require special attention. Conversely, several teachers in the same sector felt that this technology would have a significant impact in the future. Artificial intelligence (AI) is expected to drive transformation and serve as a catalyst for the education sector, particularly in Corporate Financial Accounting programs at the Vocational High School level.

Previous literature has explored teachers' perceptions of technology. For instance, this study anticipates that the application of an AI-driven solution can enhance efficiency in vocational education in schools and aligns with the needs of Industry 4.0 [12]. In agreement with this, prior research has shown a significant relationship between pedagogical readiness and technological readiness for adopting Artificial Intelligence (AI). Although its effect is still relatively low, technological mastery is the most crucial aspect for integrating Artificial Intelligence (AI) technology into learning activities [13]. Furthermore, the perception of

Artificial Intelligence (AI) is strengthened by research that the emergence of Artificial Intelligence (AI) technology has become an innovation and renewal in the education sphere, where learning activities become more efficient and independent, with teachers as figures who provide direction in utilizing Artificial Intelligence (AI) [14].

However, a research gap remains unaddressed. While existing studies focus on generic ICT implementation or on general education teachers, they largely overlook the unique challenges educators face in highly structured, rule-bound fields. In vocational education, subjects such as Corporate Financial Accounting are governed by strict compliance requirements, rigid regulations, and inflexible financial procedures. Consequently, the findings from general education cannot be generalized to accounting educators, who face distinct pedagogical challenges when balancing rigid accounting standards with disruptive AI technologies. This study directly addresses this empirical gap by focusing on the perceptions and readiness of Corporate Financial Accounting teachers to navigate AI deployment.

2. METHOD

The researcher in this study adopted a qualitative methodological design. Qualitative research aims to research cases that arise in the field [15]. Data collection in this study was conducted using applied methods, such as observation and interviews. The sampling technique in this study employs a purposive sampling approach based on specific criteria [16]. The primary informants are Corporate Financial Accounting teachers who actively teach at vocational high schools, have several years of teaching experience, and use digital technology in their practices. Additionally, the supporting informants include the department head, the school principal, and representatives from the local education office. This research activity involved vocational high school teachers in Ngawi Regency, the Headmaster of *Cabang Dinas Pendidikan Wilayah Madiun*, Chairman of *Musyawarah Guru Mata Pelajaran (MGMP) Akuntansi*, Headmaster of Vocational High Schools *(SMK) Negeri Kabupaten Ngawi*, chairperson of Corporate Financial Accounting Department, and a teacher of Corporate Financial Accounting Department, with a total of 16 interviewers.

This study utilized both primary and secondary data to ensure a comprehensive analysis. Data obtained directly from sources and submitted to the data collector himself is primary data [16]. At the same time, sources obtained indirectly from data collectors, such as documents or library sources, are secondary data [17]. Data collection in this study was executed through a combination of interviews, observation, and documentation. Some of the questions asked of the informants included:

Table 1. Interview Guide

Interview Guide
How do you perceive the essence of AI integration in education, and how would you assess your personal readiness as well as your institution's readiness to adopt this technology?
Could you describe your concrete experiences in integrating AI into your daily teaching and learning process?
What are the impacts of integrating Artificial Intelligence into learning and teaching activities, and how does it transform the learning methods, specifically within the Corporate Financial Accounting Department?

 https://doi.org/10.58421/gehu.v5i4.1797

The observations focused on how teachers used AI for administrative tasks and how students engaged with digital learning tools during specialized accounting classes. The documentation analysis aimed to verify the integration of AI into teacher-administered lesson plans. After conducting interviews and observations with all informants, data validation techniques were required to analyze the interview results and the informants' direct observations of teachers' perceptions of using Artificial Intelligence (AI).

This data analysis technique consists of several main parts, including data gathering, data reduction, data display, and conclusion drawing. [18] The validation and authenticity technique used was source triangulation. To ensure the integrity of the research, ethical principles were strictly applied throughout the study. All information was strictly guaranteed by anonymizing all personal identities, no names and replacing them with codes. Institutional permissions were obtained from school leaders and the relevant education office authorities before data collection commenced.

3. RESULTS AND DISCUSSION

3.1. RESULT

Theme 1: Teachers' Perceptions Regarding the Implementation of Artificial Intelligence (AI) at Vocational High Schools in Ngawi Regency

The se of digital technology and artificial intelligence at the basic and secondary education levels aims to prepare students with the relevant competencies for the future [19]. To enhance the use of digital technology and artificial intelligence, teachers must understand and acquire Information and Communication Technology (ICT). In this regard, teachers play a crucial role as the spearhead of education in Indonesia, preparing for the Industry 4.0 era. In its implementation, the integration of Artificial Intelligence (AI) is a pivotal factor in shaping teachers' perceived ease of use in their daily digital learning environments. Achieving the envisaged proficiency in deploying Artificial Intelligence (AI) for daily instruction depends on how fluidly teachers use the technology as a communication tool, to access information and to support teaching activities in the classroom. The results of interviews with 16 informants on perceptions of Artificial Intelligence (AI) integration are shown in Table 2 below.

Based on the interview findings, in practical terms, vocational teachers demonstrate a command of Artificial Intelligence, possess general knowledge and utilize it in daily learning activities. In this regard, it is like creating learning media that support the Corporate Financial Accounting Department teachers in fostering a renewed classroom atmosphere. Teachers' insights into AI integration are essential for assessing the extent to which they have a good understanding and proficiency with this technology. In this context, the teacher, in their implementation, has well understood and comprehended the function of Artificial Intelligence, broadly speaking. However, a critical finding was a sharp contrast in the AI adoption. Informant 15, who explicitly stated that “I have not used AI in learning Activities,” while most of the informants (such as Informants 7 and 8). Have the capability to integrate AI for pedagogical tasks like creating teaching media using AI applications.

Table 2. Teachers' Perceptions Regarding the Implementation of Artificial Intelligence (AI) at Vocational High School in Ngawi Regency

Informant	Teachers' Perceptions Regarding the Implementation of Artificial Intelligence (AI)
Informant 1	Following the instruction from the East Java Education Office's directive, "Impactful Education" aims to build competitive human resources. AI is viewed as a partner. Its implementation strengthens offline learning, enhances the 4Cs (Critical Thinking, Creativity, Collaboration, and Communication), accelerates achievement analysis, and supports the East Java Governor's programs, such as energy conservation. The principle remains: technology supports teachers and students, not replaces the educators.
Informant 2	I am aware of AI and have started incorporating it into my classroom learning activities.
Informant 3	Yes, I'm generally in support of AI in education in the school I manage. Most teachers understand and utilize AI for general educational purposes, such as retrieving information and simplifying tasks.
Informant 4	AI is not a surrogate for the irreplaceable role of educators, but rather a strategic partner to increase learning efficiency.
Informant 5	Yes, I understand AI as a technology that can assist human work through automated systems and data analysis. However, I'm still at a basic level. Limited to using AI to search for information and developing teaching materials.
Informant 6	Yes, I know about Artificial Intelligence. My understanding is sufficient for personal use during the learning process, for instance, to help create teaching media during the learning process.
Informant 7	I use AI tools like Meta AI or ChatGPT to design exam questions, search for information, and research materials specifically for Accounting and Institutional Finance subjects.
Informant 8	Yes, I've used several AI-based platforms to create teaching materials, create assessment questions, and help design more interactive learning media. However, I haven't delved into the technical aspects, such as AI programming.
Informant 9	I recognize AI as a rapidly evolving technology with great potential in education. I utilize AI to assist with learning administration and material development. However, I'm still learning how to optimize its use effectively and ethically.
Informant 10	I possess general knowledge about AI (artificial intelligence), but my understanding of AI is still limited. I haven't used AI much in my classes, but I'm interested in learning more about it to support my teaching.
Informant 11	My familiarity with AI is reflected in my daily teaching practices, specifically in creating learning media and solving instructional difficulties.
Informant 12	I recognize the level of command of AI through its practical application, such as developing specialized learning media.
Informant 13	I am fully cognizant of AI, and my proficiency level is quite good for both personal productivity and classroom integration.
Informant 14	I use AI in creating learning tools.
Informant 15	I have not used AI in learning activities.
Informant 16	In education, AI acts as an accelerator. It doesn't replace teachers, but rather helps them and students work smarter.

Combined with the insight of Informant 10, who possesses interest but lacks technical understanding. The non-adoption of AI indicates that Informant 15 highlights the continued lack of digital technology adoption. This contrast implies that exposure to digital mandates from the Education Office does not automatically guarantee their implementation in the classroom. The gap between active users and non-users, as in Informant 15, points to potential underlying barriers, such as a lack of hands-on professional development, personal

technological anxiety, or subject-specific mismatches in which some teachers find AI less applicable.

Theme 2: Advantages of Artificial Intelligence in Learning Activities

Undeniably, teachers derive substantial advantages from the operationalization and application of AI integration. The integration of Artificial Intelligence (AI) into vocational education offers substantial benefits, particularly by optimizing instructional preparation and enhancing pedagogical creativity. Teachers use Artificial Intelligence in their daily practice to facilitate the initial steps of teaching modules, find innovative learning resources, and create creative questions aligned with the Corporate Financial Accounting Department subjects. Based on the field data, the primary advantages reported by informants regarding the advantages of AI are presented below:

Informant 5 : "Yes, I use AI to support learning activities. It also helps in compiling teaching modules, creating evaluation questions, and finding more varied pedagogical references for my class.

Informant 11 : "Furthermore, the implementation of AI assists in module development, resolving instructional challenges, and formulating strategies for future effective learning to address students' needs adequately."

Both Informant 5 and Informant 11 explicitly emphasize that AI assists in teaching preparations. Specifically in compiling and developing teaching modules. This indicates that AI effectively minimizes the time-consuming administrative tasks faced by vocational teachers. Besides, the majority of teachers highlighted immediate pedagogical benefits. However, one educator explicitly stood apart:

Informant 15 : "Not at this time."

In sharp contrast, Informant 15's response signals a complete halt in AI utilization. This absolute non-adoption presents a critical counter-narrative to the assumption that all teachers naturally benefit from digital integration. This gap indicates that the perceived usefulness of AI is not universal. While Informants 5 and 11 have successfully integrated AI into their workflow to resolve instructional challenges, Informant 15 remains completely untouched by this technological shift.

Furthermore, the leveraging of Artificial Intelligence is heavily backed by relevant stakeholders such as the Headmaster of Vocational High Schools *(SMK) Negeri Kabupaten Ngawi*, Headmaster of *Cabang Dinas Pendidikan Wilayah Madiun,* in accordance with the regulations, rules and guidelines for the utilization of AI integration. Although AI-powered applications offer ease of use and advantages, teachers must remain vigilant about the negative impacts of Artificial Intelligence on students. This framework aims to prevent activities that deviate from the scope of learning activities themselves.

Theme 3: The Impact of Artificial Intelligence in Learning Activities

The integration of Artificial Intelligence (AI) into learning activities has a dual impact, encompassing both transformative benefits and emerging challenges. Teachers who utilize AI integration achieve positive outcomes by optimizing time efficiency in compiling teaching modules, communicating learning materials and preparing documents aligned with learning activities for individual characters. In its implementation, Artificial Intelligence can facilitate students' comprehension of learning materials more quickly. Although it cannot be denied that Artificial Intelligence results in students' dependence on technology. Informants highlighted that the primary advantage of AI lies in its ability to optimize time efficiency, particularly in administrative tasks, and to facilitate personalized learning. Based on the field data, the primary advantages reported by informants regarding the Impact of AI are presented below:

Informant 10 : "Using AI in the classroom is like a double-edged sword. On one side, it helps customize lessons to fit each student's ability and gives them instant feedback. However, on the other hand, students become too dependent on it, which can limit their own creativity. Overall, AI has really changed how we teach by making everything more modern through technology".

Based on the statement from Informant 10, the modernization of education through AI does not come without costs. The "real-time feedback" and "personalization" represent high administrative and pedagogical efficiency. On the positive side, informant 8 reported that :

Informant 8 : "AI has a very positive impact because it helps me prepare teaching materials much faster. Grading and assessment also become quicker, and it allows me to create more engaging learning experiences for the students".

Based on Informant 8's response, the positive influence of AI functions at both administrative and pedagogical levels is evident. Administratively, AI serves as a time-saving mechanism, accelerating the assessment process and the preparation of materials. This demonstrates that when utilized effectively, AI not only reduces the teacher's administrative burden but also directly enhances the quality of classroom delivery. However, Informant 15 explicitly stood apart:

Informant 15 : "So far, I have not used AI at all in any of my learning activities".

The response from Informant 15 provides a critical counter-narrative to the widespread assumption that AI adoption is uniform among all educators. This contrast highlights that a digital divide persists in the classroom. While informants like Informant 8 and Informant 10 use AI extensively to accelerate assessment and customize learning, Informant 15 remains entirely detached from these tools. The application of AI integration, when used optimally and responsibly, can yield a positive impact. Ethical behavior in the use of Artificial Intelligence can serve as a means to control students' use of Artificial Intelligence technology. Efficient and precise management utilization of Artificial Intelligence has a positive, transformative impact on learning activities, especially for the Corporate Financial Accounting Department. With the advent of Artificial Intelligence, traditional learning

 https://doi.org/10.58421/gehu.v5i4.1797

methods are transformed into digital ones, facilitating personalized learning and enhancing teacher administration efficiency. Before schools can enforce standardized AI policies, they must first address why certain teachers are left behind, ensuring that the technological transition does not create an uneven playing field for both teachers and students.

3.2. DISCUSSION

Perception of knowledge of information technology and digital computing catalyzes the optimization of educational efficiency and drives creative innovation in the learning environment. It is widely acknowledged that the use of Artificial Intelligence in learning activities generates diverse viewpoints. Comprising positive and negative impacts. This is inherently connected to the involvement of teachers and school stakeholders, as well as supervision by relevant parties authorized to use AI integration in learning activities. The impact of Artificial Intelligence technology has changed how teachers perceive classroom learning activities. Supporting the use of digital information and computing technology, especially Artificial Intelligence, requires greater effort. Teachers' insight into the use of Artificial Intelligence is very important for determining the extent to which they have a good command of and conceptual understanding of Artificial Intelligence technology. In its implementation, teachers have a broader command of Artificial Intelligence and use it in daily learning activities. In this regard, it is like creating learning media that supports teachers in creating a novel teaching environment in class. Similar trends have been observed in earlier studies.

Demonstrating that learning media design utilizing Artificial Intelligence can be used to provide various conveniences with perceived ease of use [20]. Upon the implementation of Artificial Intelligence, it must be based on comprehensive knowledge and preparedness to address its presence, which will have implications for the future [21]. Artificial intelligence, in its utility, facilitates human work through data automation and analysis. Therefore, Artificial Intelligence is used as an electronic friend to reduce teachers' workload by facilitating the compilation of instructional administration and classroom interaction activities. This positive perception emphasizes that AI assists in teacher preparation. It reduces the time teachers spend on repetitive pedagogical and administrative tasks. Educators build a prompt that helps generate case-based accounting practices, simulate financial statements, and provide automated feedback to students during ledger adjustments. However, some teachers have a gap in that AI implementation is not universal. It happens when the teacher admission highlights that, despite the widespread discourse on digital transformation, a significant polarization in teacher readiness persists.

The use of AI integration in classroom learning activities plays a critical role in supporting teachers' readiness to cope with the rapid development of digital technology. It is established that Artificial Intelligence is used to facilitate the preparation of open modules, identify innovative learning resources, and create creative questions aligned with the subject of the Corporate Financial Accounting Department. However, with the accessibility and advantages of Artificial Intelligence, teachers must remain vigilant about its potential negative impacts on students and avoid inappropriate activities in the learning process. This finding aligns with previous research indicating that the use of Artificial Intelligence has

significant potential to improve learning effectiveness through personalized learning, enhance student engagement and develop innovative learning methods [6]. In contrast, their findings indicate that the utilization of Artificial Intelligence applications significantly affects information resources and facilitates teachers' administrative tasks. However, the utilization of Artificial Intelligence must be managed wisely to ensure responsible and ethical use, preventing plagiarism, the digital divide, and the depersonalization of learning [22]. Consistent with this perspective, character education is required in learning that incorporates technological and scientific advancements to create a meaningful and pertinent space for self-directed learning [23].

The integration of Artificial Intelligence into learning activities must be carefully planned. Furthermore, the integration of AI into learning activities must be carefully aligned with the Corporate Financial Accounting Department's curriculum. Artificial Intelligence harmonization in the curriculum of the Corporate Financial Accounting Department received state support, particularly from the Ministry of Elementary and Secondary Education through the Joint Ministerial Decree (SKB). AI Integration in Vocational School offers high administrative efficiency; however, according to SKB guidelines, teachers must educate students about ethical consequences. The risk of plagiarism, which threatens student creativity and data privacy, must be mitigated, and protection must be carefully applied when teachers use AI. Teachers need to be aware and exercise full control as the primary validators to anticipate potential bias and inaccuracies in lessons generated by AI.

Besides this support, as evidenced by the outcomes of this research, it can be observed that every school stakeholder, especially through the chairperson of the Corporate Financial Accounting Department, receives support from the Chairman of *MGMP Akuntansi Kab. Ngawi* is advocating for the integration of Artificial Intelligence into the curriculum. School can cooperate with *MGMP Akuntansi Kab. Ngawi* will build an organized, curated collection of AI prompts for Corporate Financial Accounting. The school provides digital facilities to accommodate AI infrastructure in the classroom. The school headmasters establish an internal policy to pair AI-proficient teachers with those who have no experience with the technology. *MGMP* acts as a cross-school coordinator, ensuring that every school has at least one teacher designated as a mentor. This is reinforced by research showing that the use of Artificial Intelligence applications provides learning that supports complex problem-solving and encourages in-depth insight into the technology. However, it cannot be denied that it is important to manage risks to the integrity of education itself [24]. As documented in their research, the utilization of AI in education significantly contributes to personalized instruction, accelerated feedback, and enhanced teacher efficiency in instructional design. However, fully optimizing this potential demands strategic policies that support technological infrastructure investments, equitable digital literacy training, and continuous evaluation [25]. This aspect can accelerate the integration of the curriculum with computing technology, in line with the educational unit's competency-based curriculum. This will ensure that students are future-ready learners of technological developments, particularly in the future workplace.

Despite its insights, this study possesses several limitations that should be acknowledged. First, the geographic scope is restricted to a specific region (Kabupaten

Ngawi), and the small number of informants limits the generalizability of the findings to a broader educational context. Second, the data rely heavily on teachers' self-reported perceptions, which may introduce subjective bias. Lastly, this study focuses primarily on teachers' readiness and perceptions of AI in Corporate Financial Accounting.

4. CONCLUSION

The empirical evidence derived from this study reveals that the deployment of digital innovation in vocational education yields multi-faceted outcomes. Based on the field investigation, the research synthesizes three core findings. First, regarding teachers' perceptions, while the majority of educators demonstrate progressive awareness and a positive reception of technological adaptation, a structural gap remains: a segment of the faculty still operates at a zero-adoption baseline due to technical anxiety and a lack of foundational competency. Second, the perceived advantages indicate that automated technologies serve as an efficient "electronic partner." Rather than merely assisting with generic tasks, they optimize learning efficiency by streamlining dense administrative workloads, facilitating the development of computerized learning media, and supporting the curation of specialized accounting materials. Third, the perceived impacts and challenges underscore that despite driving creative and efficient learning environments, uncontrolled digital integration risks triggering educational depersonalization, academic dishonesty, data inaccuracy, and digital inequality among students. Furthermore, educational authorities must establish comprehensive school-level guidelines and ethical use policies to safeguard data privacy and maintain academic integrity.

To ensure sustained transformation, specialized support for educators in Corporate Financial accounting can be achieved through strategic collaborations between schools and the *MGMP* to curate tailored prompt banks and hybrid instructional modules. This collaborative framework will effectively transition accounting educators from manual administrative tasks to high-value pedagogical facilitation. Furthermore, to expand upon the boundaries of this study, future research should broaden its empirical scope in three distinct directions: conducting longitudinal studies to capture students' perspectives in real-time, moving beyond self-reported perceptions to empirically measure the direct impact of digital tools on student learning outcomes and technical accounting competencies, and performing comparative analyses across different vocational departments to provide a more nuanced, macro-level understanding of institutional readiness.

ACKNOWLEDGMENT

The authors wish to express their sincere appreciation and gratitude to *Cabang Dinas Pendidikan Wilayah Madiun* for granting the necessary guidance and research official clearance to research the Analysis of Teacher Perceptions of Artificial Intelligence Learning Integration on Vocational High School (SMK) Corporate Financial Accounting Department. Special appreciation is extended to Mrs. Lena, M.Pd, as Headmaster of *Cabang Dinas Pendidikan Wilayah Madiun* and all staff for their permission, guidance, direction and support during the research and article writing process.

REFERENCES

[1] R. Syaadah, M. Hady, A. A. Ary, N. Silitonga, and S. F. Rangkuty, "Pendidikan Formal, Pendidikan Non Formal Dan Pendidikan Informal.," *PEMA: Jurnal Pendidikan Dan Pengabdian Kepada Masyarakat*, vol. 2, no. 2, pp. 125–131, Jun. 2023, [Online]. Available: https://jurnal.permapendis-sumut.org/index.php/pema

[2] E. D. Wardana, S. W. Utomo, and L. V. Wihartanti, "Analisis Profesionalisme Guru Akuntansi Dan Keuangan Lembaga Pada," *Soedirman Economics EducationJournal*, pp. 35–54, Apr. 2020, Accessed: May 09, 2026. [Online]. Available: https://jos.unsoed.ac.id/index.php/seej/article/view/2188/1414

[3] S. Fauzal Syarif, A. Dwi Putra Janata, and S. Artikel, "Transformasi Pendidikan Vokasional: Strategi Peningkatan Kompetensi Guru SMK melalui Teknologi di Era Revolusi Industri 4.0," *Jl. Ciwaru Raya No*, vol. 03(01), pp. 43–46, 2024, [Online]. Available: https://jurnal.untirta.ac.id/index.php/VENS/article/view/30100/13768

[4] Renita, Purnomo, Widiyanti, and J. W. Dika, "Studi Tentang Pelaksanaan Teaching Factory Smk Di Kota Malang (Studi Multi Kasus) A Study Of The Vocational High School Teaching Factory In Malang (Multi-Case Study)," *Jurnal Pendidikan Teknik Mesin*, vol. 7, no. 2, pp. 150–161, Nov. 2020, [Online]. Available: https://jptm.ejournal.unsri.ac.id/index.php/jptm/article/download/190/122

[5] S. B. Dito and H. Pujiastuti, "Dampak Revolusi Industri 4.0 Pada Sektor Pendidikan: Kajian Literatur Mengenai Digital Learning Pada Pendidikan Dasar dan Menengah," *Jurnal Sains dan Edukasi Sains*, vol. 4, no. 2, pp. 59–65, Dec. 2021, Accessed: Jun. 26, 2026. [Online]. Available: https://doi.org/10.24246/juses.v4i2p59-65

[6] M. Fauziddin and M. Agustin, "Symantic Literature Review: Manfaat Artificial Intelligence (AI) pada Pendidikan Anak Usia Dini di Indonesia," *Jurnal Obsesi : Jurnal Pendidikan Anak Usia Dini*, vol. 8, no. 6, pp. 1475–1488, Nov. 2024, Accessed: Jun. 26, 2026. [Online]. Available: https://doi.org/10.31004/obsesi.v8i6.6236

[7] B. Karyadi, "Pemanfaatan Kecerdasan Buatan Dalam Mendukung Pembelajaran Mandiri," *Educate : Jurnal Teknologi Pendidikan*, vol. 8, no. 2, pp. 253–258, Jul. 2023, Accessed: May 09, 2026. [Online]. Available: https://doi.org/10.32832/educate.v8i02.14843

[8] S. L. Zahara, Z. Ula Azkia, and Chusni Muhammad Minan, "Implementasi Teknologi Artificial Intelligence (AI) dalam Bidang Pendidikan," *JPSP: Jurnal Penelitian Sains dan Pendidikan*, vol. Vol. 3 No. 1, pp. 15–20, Apr. 2023, [Online]. Available: https://e-journal.iain-palangkaraya.ac.id/index.php/mipa/

[9] S. Sudarmiani, "The Development of Economic Learning Model through CTL (Contextual Teaching and Learning) to Promote Students' Critical Thinking Skill," *Budapest International Research and Critics in Linguistics and Education (BirLE) Journal*, vol. 3, no. 2, pp. 714–723, May 2020, Accessed: Jun. 26, 2026. [Online]. Available: https://doi.org/10.33258/birle.v3i2.900

[10] C. Purnama, D. Fatmah, M. Rahmah, S. Hasani, Y. Rahmah, and Z. Z. Rahmah, "Penguasaan Teknologi Informasi Dan Komunikasi Sebagai Moderator Antara Kompetensi Guru Dan Kinerja," *Vol. 4 No. 3 (2026): Jurnal Pengabdian Masyarakat dan Riset Pendidikan Volume 4 Nomor 3 (Januari 2026 - Maret 2026)*, vol. 13, no. 1, pp. 7–14, Jan. 2025, Accessed: May 09, 2026. [Online]. Available: https://journal.ipts.ac.id/index.php/ED/article/view/6468/3465

[11] R. Ashari, Parji, and Sudarmiani, "Persepsi Guru Terhadap Model Pengelolaan Keuangan Dan Perilaku Konsumtif Dalam Melaksanakan Tugas Di Madrasah Aliyah Al Fatah Temboro," *Equilibrium*, vol. Vol. 10 No. 1 (2022), Jan. 2022, Accessed: May 09, 2026. [Online]. Available: https://doi.org/10.25273/equilibrium.v10i1.11917

[12] M. Yahya, Wahyudi, and A. Hidayat, "Implementasi Artificial Intelligence (AI) di Bidang Pendidikan Kejuruan Pada Era Revolusi Industri 4.0," *Prosiding Seminar Nasianal Dies Natalis 2023*, vol. Semnasdies62 Vol. 1, pp. 190–199, Jul. 2023, Accessed: May 10, 2026. [Online]. Available: https://doi.org/10.59562/semnasdies.v1i1.794

[13] A. R. M. Zaki and I. A. U. Ulya, "Analisis Kesiapan Pedagogis Dan Teknologis Guru Dalam Mengadopsi Ai Sebagai Sarana Pembelajaran Adaptif," *Jurnal Pendidikan Indonesia*, vol. Vol 6, Issue 7, pp. 3220–3228, Jul. 2025, Accessed: May 10, 2026. [Online]. Available: https://doi.org/10.59141/japendi.v6i7.8434

[14] S. R. R. P. Supriadi, S. U. Haedi, and Chusni Muhammad Minan, "Inovasi pembelajaran berbasis teknologi Artificial Intelligence dalam Pendidikan di era industry 4.0 dan society 5.0," *JPSP: Jurnal Penelitian Sains dan Pendidikan*, vol. Vol. 2 No. 2, pp. 192–198, Oct. 2022, Accessed: May 10, 2026. [Online]. Available: https://doi.org/10.23971/jpsp.v2i2.4036

[15] R. Indrawan, R. P. Yaniawati, and N. F. Atif, *Metodologi Penelitian : Kuantitatif, Kualitatif, Dan Campuran Untuk Manajemen, Pembangunan, Dan Pendidikan*. Bandung: PT Refika Aditama, 2017.

[16] P. D. Sugiyono, *Metode Penelitian Pendidikan (Kuantitatif, Kualitatif, Kombinasi, R&D, dan Penelitian Pendidikan)*. Bandung: Alfabeta, 2019.

[17] P. D. Ghony, S. Wahyuni, and H. F. Almansur, *Analisis dan Interpretasi Data Penelitian Kualitatif*. Bandung: PT. Refika Aditama, 2020.

[18] W. V. Nurfajriani, M. W. Ilhami, A. Mahendra, R. A. Sirodj, and M. W. Afgani, "Triangulasi Data Dalam Analisis Data Kualitatif," *Jurnal Ilmiah Wahana Pendidikan*, vol. 10, no. 17, pp. 826–833, Sep. 2024, doi: https://doi.org/10.5281/zenodo.13929272.

[19] Kemenko PMK, Komdigi, Kemendikdasmen, KemenPPPA, KemenPANRB, and Kemenag, "Surat Keputusan Bersama (SKB) tentang Pedoman Pemanfaatan dan Pembelajaran Teknologi Digital dan Kecerdasan Artifisial (KA) di Dunia Pendidikan," https://www.kemendikdasmen.go.id/pengumuman/14932-skb-pedoman-pemanfaatan-dan-pembelajaran-teknologi-digital-d, Jakarta, Indonesia, 2026. Accessed: Jun. 26, 2026. [Online]. Available: https://www.kemendikdasmen.go.id/pengumuman/14932-skb-pedoman-pemanfaatan-dan-pembelajaran-teknologi-digital-d, Indonesia.

[20] F. H. Mukti and Sudarmiani, "Pengembangan Media Pembelajaran e-portofolio Berbasis Artificial Intelligence Untuk Meningkatkan Kemandirian Belajar Siswa Pada Pe," *Prosiding Magister Pendidikan IPS*, Aug. 2024, Accessed: May 10, 2026. [Online]. Available: https://prosiding.unipma.ac.id/index.php/promagips/article/view/6000

[21] T. Prasetio, "Persepsi Mahasiswa Program Studi Akuntansi Terhadap Dampak Artificial Intelligence Pada Profesi Akuntan," *Perspektif: Jurnal Ekonomi & Manajemen Universitas Bina Sarana Informatika*, vol. 22, Mar. 2024, Accessed: May 13, 2026. [Online]. Available: https://doi.org/10.31294/jp.v22i1.20453

[22] C. Sitinjak, J. Ober, and P. Sakiewicz, "Unlocking the potential: Transformative applications of generative AI in East Kalimantan's educational landscape," *Cakrawala Pendidikan*, vol. 44, no. 3, pp. 600–613, Oct. 2025, Accessed: Jun. 26, 2026. [Online]. Available: https://doi.org/10.21831/cp.v44i3.70169

[23] Sudarmiani, M. Hanif, and Sutinah, "Optimization of Character Education in Social Studies Learning at Merdeka Belajar Era," *The 3rd International Conference on Education and Social Science Research*, Nov. 2020, [Online]. Available: https://ssrn.com/abstract=3865841

[24] H. N. Abosaooda, S. B. Ariffin, and O. M. Alyasiri, "A survey on leveraging artificial intelligence tools for enhancing advanced mathematical education and problem-solving," *IAES International Journal of Artificial Intelligence*, vol. 15, no. 1, pp. 76–85, Feb. 2026, Accessed: Jun. 26, 2026. [Online]. Available: http://doi.org/10.11591/ijai.v15.i1.pp76-85

[25] D. Apriliani, "Penggunaan artificial intelligence dalam pembelajaran bahasa Indonesia," *DIKBASTRA: Jurnal Pendidikan Bahasa dan Sastra*, vol. 7, no. 1, Aug. 2024, Accessed: Jun. 26, 2026. [Online]. Available: https://doi.org/10.22437/dikbastra.v7i1.33262

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