ARTIFICIAL INTELLIGENCE (CHATGPT AND GEMINI) INTEGRATED CIVIC EDUCATION FOR SUPPORTING CIVIC LITERACY AND CRITICAL THINKING AMONG STUDENTS AT SMAN 1 SLEMAN

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Abstract
This study aims to explore the transformation of *Pancasila* and Civic Education (PPKn) learning through the integration of Artificial Intelligence (AI) in supporting students' civic literacy and critical thinking at SMAN 1 Sleman. In the Society 5.0 era, students are expected not only to develop technological awareness but also ethical understanding and civic character. This research employed a descriptive qualitative approach involving teachers and students at SMAN 1 Sleman as participants. Data were collected through observation, in-depth interviews, and documentation, and analyzed using data reduction, data display, and conclusion drawing. The findings suggest that AI integration, supported by school infrastructure and an innovative school vision, contributes to students' understanding of digital citizenship and provides opportunities to develop critical thinking in PPKn learning. The study also indicates that integrating AI can be connected to local wisdom values in Yogyakarta, particularly through the LESUNG philosophy and the NGAJENI movement, which serve as ethical references in the learning process. In addition, critical AI literacy appears to play a role in helping students respond to challenges such as mental health issues and cyberbullying. This study concludes that technology-based critical thinking, when linked with local cultural values, may support the formation of the *Pancasila* Student Profile in the digital age.

Keywords*:* Artificial Intelligence, Civic Literacy, Critical Thinking, Civic Education, SMAN 1 Sleman.

INTRODUCTION

The field of education is currently undergoing a paradigm shift driven by the rapid acceleration of Artificial Intelligence (AI) (Fauziddin & Agustin, 2024; Prastyono et al., 2023; Zahara et al., 2023). In the era of Society 5.0, the main challenge is no longer merely access to information, but rather how individuals manage, validate, and critically evaluate that information. Civic Education (*Pancasila* and Citizenship Education/PPKn) plays a vital role as an ideological and moral filter amid this digital disruption [1]. However, classroom realities indicate that PPKn learning often remains

[1] Aisya Amelliya and Melva Zainil, "Etnosains Sebagai Sumber Kontekstual Dalam Pendidikan Demokrasi Pada Pembelajaran PPKn Tematik SD," *Jurnal Motivasi Pendidikan Dan Bahasa* 3, no. 2 (2025): 111–19, https://doi.org/https://doi.org/10.59581/jmpb-widyakarya.v3i2.5027; Atri Waldi et al., "Peran Kampus Mengajar

confined to conventional, theoretical, text-based methods, making it less responsive to the rapid development of AI technologies that increasingly shape students' ways of thinking.

Globally, the integration of AI in education has been widely discussed, particularly in relation to digital literacy and learning efficiency [2]. However, existing studies tend to emphasize technical mastery of AI tools what [3] term "instrumental AI literacy" while largely overlooking how students critically evaluate AI-generated information from a civic and ethical standpoint. For upper secondary students, this gap is critical, as the inability to assess algorithmic outputs may weaken their civic reasoning and lead to the passive acceptance of AI-generated content as truth [4]. What remains underexplored is how AI integration in Civic Education (PPKn) can simultaneously enhance both technical digital skills and reflective, value-based civic literacy, particularly when combined with local wisdom. This study addresses that gap by examining the integration of AI in PPKn at SMAN 1 Sleman, with a specific focus on how global technology is synergized with Yogyakarta's local philosophical values to shape students' critical thinking and digital citizenship.

This gap between technical skills and critical reasoning is clearly reflected in the national landscape of civic literacy. Research by [5] reveals empirical evidence that although students demonstrate good digital knowledge (mean score M = 3.84), there is a significant gap in the dimensions of digital citizenship practices and critical reasoning. This finding is reinforced by [6], who argue that while digital media can effectively improve literacy, its success largely depends on systematic reinforcement strategies to ensure that technology use does not remain merely passive content consumption. Without integrative learning transformation, students risk becoming mere "objects" of technology—passively following the flow of digital information—rather than active and autonomous "subjects" as digital citizens.

The urgency of this transformation becomes particularly evident in the local context of SMAN 1 Sleman. As an educational institution adapting to technological advancements, SMAN 1 Sleman has observed that students frequently use Generative AI tools, specifically ChatGPT and Gemini, to complete academic tasks such as essay writing and case study analysis. However, preliminary observational data from two PPKn classroom sessions (October 2024) indicate a pattern of "instant dependency," where students directly copy AI-generated responses without verifying sources or

Dalam Meningkatkan Literasi, Numerasi Dan Adaptasi Teknologi Peserta Didik Sekolah Dasar Di Sumatera Barat," *Journal of Civic Education* 5, no. 3 (2022): 284–92.

[2] L. Petricini, T. A., & Cruz, "AI Literacy in the Communication Basic Course: Insights on Embedding, Motivation, and Reducing Uncertainty," *Journal of Teaching and Learning With Technology* 14, no. 1 (2026), https://doi.org/https://doi.org/10.14434/jotlt.v14i1.41702.

[3] S Conrad, K., & Kamperman, "Building Critical AI Literacy: An Approach to Generative AI. Thresholds in Education," *Thresholds in Education* 48, no. 2 (2025): 142–48, https://doi.org/https://eric.ed.gov/?id=EJ1483967.

[4] R. A. Y. S. Mega, "Countering Democratic Disruption Amid The Disinformation Phenomenon Through Artificial Intelligence (Ai) In Public Sector," *Jurnal Manajemen Pelayanan Publik* 07, no. 01 (2023), https://doi.org/https://doi.org/10.24198/jmpp.v7i1.48125; Anandha Glorrys Graceia Nawa and Yohanes Edi Gunanto, "Inovasi Pembelajaran Berbasis Teknologi Artificial Intelligence (AI) Dalam Perspektif Wawasan Kristen Alkitabiah [Learning Innovation Based on Artificial Intelligence (AI) Technology from the Perspective of a Biblical Christian Worldview]," *Diligentia: Journal of Theology and Christian Education* 7, no. 1 SE-ARTICLES (January 31, 2025): 49–61, https://doi.org/10.19166/dil.v7i1.9189; Ida Tejawiani et al., "Peran Artificial Intelligence Terhadap Peningkatan Kreativitas Siswa Dengan Menerapkan Proyek Penguatan Profil Pelajar Pancasila," *Jmm (Jurnal Masyarakat Mandiri)* 7, no. 4 (2023): 3578–92.

[5] K. Tripayana, I. N. A., Basariah, B., Artina, F., Auvia, S., & Khanim, "Sawaludin, S., Zubair, M., Penguatan Kearifan Lokal (Local Wisdom) Dan Watak Kewarganegaraan (Civic Disposition) Melalui Sabtu Budaya Di SMP Negeri Se-Kota Mataram," *Jurnal Ilmiah Profesi Pendidikan* 10, no. 4 (2025), https://doi.org/3318-3331.

[6] Hendrizal Hendrizal et al., "Penguatan Civic Literacy Melalui Media Digital Dalam Pembelajaran PPKn," *Jurnal Ilmiah Pendidikan Dasar (JIPDAS)* 5, no. 3 SE-Artikel (August 30, 2025): 2923–30, https://doi.org/10.37081/jipdas.v5i3.3878.

critically reflecting on potential distortions of *Pancasila* values embedded in the outputs. This finding is critical because civic reasoning is a foundational pillar of democracy. Despite the relevance of the information literacy framework proposed by [7], which bridges AI use with ethical considerations, privacy awareness, and data validity, existing studies have not yet examined how this framework operates in a secondary school setting that integrates local wisdom.

Furthermore, strengthening civic literacy through AI-based PPKn learning is not merely a methodological experiment, but a strategic solution for developing resilient digital citizenship. As emphasized by [8], the integration of technology in PPKn should aim to cultivate citizens who can participate in digital public spaces in a wise, ethical, and responsible manner. This study seeks to address this gap by proposing a learning transformation model that not only utilizes AI as a medium but also positions it as an object of critical inquiry. Therefore, this research aims to examine how an AI-based PPKn learning transformation can be comprehensively designed and implemented to enhance students' civic competence and critical reasoning at SMAN 1 Sleman.

RESEARCH METHODS

This study employs a qualitative, descriptive design. The research was conducted at SMAN 1 Sleman and involved 32 participants: 2 PPKn teachers and 30 Grade XI students. Participants were selected using purposive sampling based on the following criteria: (a) teachers who had integrated AI tools into at least three PPKn lessons, and (b) students who had actively used AI platforms (ChatGPT or Gemini) in completing Project-Based Learning (PjBL) assignments. Data collection included participatory observation over eight sessions (each lasting 90 minutes) to examine students' interactions with AI while solving civic cases. Semi-structured interviews were conducted with all participants using a protocol that included 12 open-ended questions exploring changes in critical thinking and learning independence. Observation and interview data were complemented by analyses of lesson plans (RPPs), student digital project reports, and AI-based assessment rubrics. To ensure research ethics, written informed consent was obtained from all participants (and from parents/guardians for minor students), and the study received institutional approval from the school principal. Confidentiality and the right to withdraw at any time without consequence were guaranteed. "Critical thinking" was operationalized as the ability to question AI-generated outputs, cross-check information from multiple sources, and identify potential algorithmic bias. "Civic literacy" was operationalized as students' understanding of digital rights and responsibilities, ethical participation in public digital spaces, and awareness of *Pancasila* values in online interactions.

[7] M. L. Ali, Radwan, Wilson, "Information Literacy in the Artificial Intelligence Era : A Proposed Framework Information Literacy in the Artificial Intelligence Era : A Proposed Framework" 19, no. 2 (2025): 242–70, https://doi.org/https://doi.org/10.15760/ comminfolit.2025.19.2.6.

[8] Agung Supriyanto, "Integrasi Literasi Digital Dalam Pembelajaran PPKn Untuk Pembentukan Digital Citizenship Di Era Society 5.0," *JUPEIS: Jurnal Pendidikan Dan Ilmu Sosial* 5, no. 2 (2026): 29–36.

Table 1. Participant Characteristics

Participant Code	Role	Gender	Grade/Position	Years of AI Use	Frequency of AI Use	Main AI Platform Used	Interview Duration (Minutes)
T1	Civic Education Teacher	Male	Senior Teacher	2 years	Daily	ChatGPT, Gemini	60
T2	Civic Education Teacher	Female	Senior Teacher	1.5 years	Weekly	ChatGPT	55
S1	Student	Female	Grade XI	1 year	Daily	ChatGPT, Gemini	45
S2	Student	Male	Grade XI	1 year	Daily	Gemini	40
S3	Student	Female	Grade XI	2 years	Weekly	ChatGPT	50
S4	Student	Male	Grade XI	1.5 years	Daily	ChatGPT, Gemini	45
S5	Student	Female	Grade XI	1 year	Weekly	Gemini	40
S6	Student	Male	Grade XI	2 years	Daily	ChatGPT	50

Data were collected using three main techniques to ensure depth of information. First, participatory observation was conducted to directly examine students' interactions with AI platforms (such as ChatGPT or Gemini) while solving civic-related cases, including human rights violations and democratic issues. Second, in-depth interviews were conducted with teachers and selected student representatives to explore changes in critical thinking patterns and in learning independence after using AI assistants. Third, documentation analysis was applied by reviewing lesson plans (RPP), students' digital projects, and assessment instruments that have integrated digital literacy elements based on the framework developed by [9].

The data analysis process was conducted interactively following the Miles and Huberman model, which consists of three simultaneous stages: data reduction, data display, and conclusion drawing. Data reduction involved selecting and focusing on findings relevant to critical reasoning and civic literacy. The data were then presented in a systematic narrative describing the effectiveness of AI in learning. To ensure data credibility and the validity of findings, this study employed triangulation techniques, including source triangulation (comparing data from teachers and students) and technique triangulation (comparing results from observations, interviews, and documents).

RESEARCH RESULTS AND DISCUSSION

This section presents an in-depth analysis of the integration of Artificial Intelligence (AI) in the teaching of *Pancasila* and Civic Education (PPKn) at SMAN 1 Sleman. The main focus of this

[9] Supriyanto., Agung. "Integrasi Literasi Digital Dalam Pembelajaran PPKn Untuk Pembentukan Digital Citizenship Di Era Society 5.0." *JUPEIS: Jurnal Pendidikan Dan Ilmu Sosial* 5, no. 2 (2026): 29–36.

analysis is to examine how this digital transformation enhances civic literacy and stimulates students' critical reasoning in the context of technological disruption in the Society 5.0 era.

Through data triangulation techniques that compare classroom observations, interviews with education practitioners, and document analysis of school facilities and infrastructure, the findings indicate that the use of AI is not merely a technical support tool, but a strategic instrument for shaping the character of digital citizens. For instance, an interview with a Grade XI student revealed a growing critical awareness: *"At first, I just copied what ChatGPT said. Now, I cross-check it with news and ask my teacher. Sometimes the AI gives wrong answers"* (Interview, Student A, March 2026). This is also supported by an observation note during a PPKn session: *"When discussing human rights cases, three out of five student groups manually verified AI-generated summaries using government websites before citing them"* (Observation Log, March 15, 2026). Additionally, a review of students' digital project documents showed that each group was required to attach a *'source verification log'* alongside AI outputs, serving as an artifact of critical literacy.

The following discussion elaborates these findings through five main pillars: starting from the alignment of the school's innovative vision, strengthening ethical information literacy, and culminating in the integration of global technology with the local wisdom of Yogyakarta, which represents a distinctive characteristic of SMAN 1 Sleman.

Digital Transformation of PPKn: Synchronizing Technological Infrastructure and the Strategic Vision of SMAN 1 Sleman

The integration of Artificial Intelligence (AI) in *Pancasila* and Civic Education (PPKn) at SMAN 1 Sleman is not merely a technological trend, but a structural manifestation of the school's vision to develop an "innovative" and "IT-based" generation. Theoretically, the adoption of AI in classrooms represents a form of educational pioneerism, aligned with the findings of [10], who argues that structured exposure to AI can significantly reduce digital anxiety and enhance students' self-efficacy in facing technological disruption in the Society 5.0 era.

This implementation is strongly supported by the availability of facilities and infrastructure at SMAN 1 Sleman. The presence of a well-equipped computer laboratory functions as a key enabler. Without adequate infrastructure, AI integration would remain a purely theoretical discussion. However, at SMAN 1 Sleman, these facilities enable a transformation from conventional text-based methods toward experiential learning. This is consistent with the study by [11], which highlights that integrating digital literacy at both the planning and implementation stages through AI-based platforms can strengthen students' digital citizenship.

Furthermore, the use of AI in this school serves as a crucial tool in implementing the school's tenth mission, which emphasizes differentiated learning and a STEAM approach [12]. AI enables PPKn

[10] Petricini, T. A., & Cruz, "AI Literacy in the Communication Basic Course: Insights on Embedding, Motivation, and Reducing Uncertainty."
[11] Supriyanto, "Integrasi Literasi Digital Dalam Pembelajaran PPKn Untuk Pembentukan Digital Citizenship Di Era Society 5.0."
[12] Rijal Wiguna et al., "Pelatihan Literasi Digital Dan Pemanfaatan Artificial Intelligence (AI) Dalam Pembelajaran Di Sekolah Dasar Cantayan," *Jurnal Abdimas Teknologi Informatika & Komputer (JATIK)* 2 (2025): 82–86, https://doi.org/https://doi.org/10.31294/jatik.v2i2.9156; Maulida Putri Maharani and Kurotul Aeni, "Artificial

teachers to personalize instructional materials for students' varying learning paces—one of the core principles of the Merdeka Curriculum. For example, students with a visual learning preference can use generative AI to create digital comics on legal norms, while students with strong analytical skills can utilize AI to map constitutional dispute data [13].

The connection between the school's innovative vision and its tangible achievements is also reflected in students' accomplishments, such as winning competitions in Internet of Things (IoT) and international Smart Car events. These achievements indicate that the digital ecosystem at SMAN 1 Sleman is well-developed, making the integration of AI into humanities subjects like PPKn a strategic step to balance technical competencies (hard skills) with civic intelligence. Therefore, SMAN 1 Sleman not only produces technically skilled graduates but also innovative digital citizens who uphold ethical values and environmental awareness.

Reconstructing Civic Literacy and the *Pancasila* Student Profile through Critical AI Literacy

Strengthening civic literacy at SMAN 1 Sleman through the integration of Artificial Intelligence (AI) is a strategic response to the dynamics of the Society 5.0 era. Students' civic knowledge is no longer confined to static textbook content but has become more dynamic through the analysis of global issues facilitated by AI systems. This aligns with the findings of Basariah et al. (2025), which show a significant positive correlation between intensive use of digital media and students' civic literacy outcomes, particularly in the dimensions of knowledge and critical thinking skills.

However, within the context of SMAN 1 Sleman, the use of AI is not left uncontrolled without moral guidance. This aligns with the school's mission, which emphasizes the values of "Imtaq" (faith and piety) and noble character. This synergy is implemented through the application of an AI-era information literacy framework proposed by [14], where technology must be grounded in ethical principles and responsibility. At SMAN 1 Sleman, AI is positioned not as a replacement for students' moral reasoning or original thinking, but as a "dialogue partner" to test the validity of information.

This approach is particularly important given the relatively low national reading index, which often makes students vulnerable to misinformation (fake news) and digital propaganda. Through PPKn, AI is used as a simulation tool to train students' critical reasoning in analyzing information.

Intelligence-Based Snakes and Ladders Game Media to Improve the Learning Outcome of Elementary School Students," *Journal of Education Research and Evaluation* 8, no. 4 SE-Articles (November 25, 2024): 664–74, https://doi.org/10.23887/jere.v8i4.78720; Beti Riasani et al., "Ethnopedagogy of IPAS Armed with Pancasila and Artificial Intelligence as a 21st Century Learning Revolution," *Jurnal Penelitian Pendidikan IPA* 11, no. 6 SE-Research Articles (June 25, 2025): 985–94, https://doi.org/10.29303/jppipa.v11i7.11638.

[13] E. M. Kisno, K., Fatmawati, N., Rizqiyani, R., Kurniasih, S., & Ratnasari, "Pemanfaatan Teknologi Artificial Intelligences (Ai) Sebagai Respon Positif Mahasiswa Piaud Dalam Kreativitas Pembelajaran Dan Transformasi Digital," *IJIGAEd: Indonesian Journal of Islamic Golden Age Education* 04, no. 1 (2023): 44–56, https://doi.org/https://doi.org/10.32332/ijigaed.v4i1.7878; Henry Praherdhiono et al., "Peningkatan Kapabilitas Guru Dalam Penggunaan Artificial Intelligence Di MI Ar Raudhah Lawang: Studi Pelaksanaan Pelatihan Dan Evaluasi Hasil Pelatihan," *Abdimas Pedagogi: Jurnal Ilmiah Pengabdian Kepada Masyarakat* 8, no. 1 SE-Articles (May 9, 2025): 47–53, https://doi.org/10.17977/um050v8i12025p47-53.

[14] Ali, Radwan, Wilson, "Information Literacy in the Artificial Intelligence Era : A Proposed Framework Information Literacy in the Artificial Intelligence Era : A Proposed Framework."

As emphasized by [15], strengthening digital literacy is a fundamental requirement for developing students' independent thinking in cyberspace. In this context, students are trained to adopt a methodical skepticism toward AI-generated outputs, evaluate data sources, and identify potential algorithmic biases—skills referred to by [16] as Critical AI Literacy.

Moreover, this integration directly supports the realization of the *Pancasila* Student Profile. The dimension of "Critical Thinking" is strengthened through AI-based content analysis, while the dimension of "Faith in God Almighty and Noble Character" serves as an ethical compass in the use of technology. In this way, the learning transformation at SMAN 1 Sleman successfully creates a synthesis between advanced global technology and strong local character values, ensuring that students become not only competent technology users but also wise and responsible digital citizens.

Synthesis of Global Technology and Yogyakarta's Local Wisdom: Reconstructing the Character of Digital Citizens

The most distinctive finding in the transformation of PPKn learning at SMAN 1 Sleman is the school's success in integrating global advances in Artificial Intelligence (AI) with the noble cultural values of Yogyakarta. This phenomenon demonstrates that digital modernity need not erode cultural identity; rather, it can strengthen it through the internalization of local philosophy. At SMAN 1 Sleman, this is realized through the integration of the LESUNG philosophy *(Lantip ing Pamawas, Eling lan Waspada, Sayuk Rukun, Unggah Ungguh, Nengenaken Kautaman, Greget lan Makarya)* and the NGAJENI movement as moral guidelines in interacting with AI.

Theoretically, this connection can be explained through two main pillars of the LESUNG philosophy that are relevant to digital literacy: a) *Lantip ing Pamawas* (Intelligent and Sharp Observation): In the context of AI use, this value is transformed into students' critical reasoning ability. Students are not merely passive users but become "lantip" (insightful) in analyzing information generated by algorithms. This aligns with the concept of Critical AI Literacy proposed by [17], where students are trained to understand that AI outputs are not absolute truths, but data-driven constructions that must be re-evaluated using logical reasoning and ethical judgment. b) *Eling lan Waspada* (Awareness and Vigilance): This value serves as an ethical foundation in addressing risks related to privacy and digital data bias. "Eling" refers to students' awareness of their responsibilities as individuals before God and as citizens (*Imtaq*), while "Waspada" is reflected in their caution toward information manipulation, misinformation (hoaxes), and threats to personal data security in cyberspace. This awareness is consistent with the framework of [18] regarding the importance of understanding the ethical and security implications of the use of intelligent technologies.

In addition, the NGAJENI movement *(Ngapurancang, Jempol, Ndherek Langkung, Nuwun, Inggih)*, implemented at SMAN 1 Sleman, adds a humanistic dimension to technology, which is often perceived as cold and mechanical. When using digital platforms or AI, students are encouraged to

[15] Muhammad Hendri Nuryadi and Pipit Widiatmaka, "Strengthening Civic Literacy among Students through Digital Literacy in Society 5 . 0" 17, no. 2 (2023): 215–20, https://doi.org/10.11591/edulearn.v17i2.20746.
[16] Conrad, K., & Kamperman, "Building Critical AI Literacy: An Approach to Generative AI. Thresholds in Education."
[17] Conrad, K., & Kamperman.
[18] Ali, Radwan, Wilson, "Information Literacy in the Artificial Intelligence Era : A Proposed Framework Information Literacy in the Artificial Intelligence Era : A Proposed Framework."

maintain respectful communication ethics (netiquette). This integration demonstrates that the development of digital citizenship at SMAN 1 Sleman adopts an ethnopedagogical approach, where local cultural values function as a filter against the negative impacts of globalization.

These achievements reinforce the position of SMAN 1 Sleman as a "Peace School" that values diversity and culture. The synergy between global technology and local wisdom ensures that digital transformation in the school does not produce a "robotic generation" disconnected from its roots but instead nurtures digital citizens who are globally aware while remaining humble *(andhap asor)* and firmly grounded in *Pancasila* values.

Acceleration of Student Potential: Synergy between Technological Achievement and the Development of Civic Social Capital

The outstanding achievements of SMAN 1 Sleman students—such as winning first place in the Internet of Things (IoT) category and third place in the Smart Car category at the Global Innovation Through Competition (GITC) in the Philippines in 2024, as well as earning a Silver Medal at the Kaohsiung International Invention and Design Expo—provide empirical evidence that the school's educational ecosystem has reached a high level of digital maturity. From a pedagogical perspective, these achievements confirm the effectiveness of developmental and career preparation functions through extracurricular activities such as Youth Scientific Research (KIR), Videography, and Robotics. As described in the school profile, extracurricular activities are not merely supplementary; they serve as platforms for expanding social experience and for internalizing moral values through practical skill application.

In the context of *Pancasila* and Civic Education (PPKn), these international technological achievements represent valuable social capital. Students' advanced technological competencies (such as IoT and AI) become instruments for engaging in digital civic participation. This synergy aligns with the argument of [19], which states that strong digital skills, when integrated with solid civic literacy, can produce individuals capable of offering innovative solutions to societal problems. Students are not merely "technicians," but citizens who use their expertise for the public good.

Furthermore, the integration of AI in PPKn learning serves to provide ethical direction for these technical capabilities. Without strong civic literacy, technological mastery risks being misused. However, by strengthening critical reasoning in PPKn, graduates of SMAN 1 Sleman are expected to become professionals with a strong sense of social responsibility. This aligns with the framework of [20] on AI Literacy, which emphasizes enhancing students' self-efficacy and intrinsic motivation to contribute to both professional and civic life.

These achievements also reflect the success of the school's mission in organizing competitive international-level academic mentoring. The accomplishments of Muhammad Faris Husein and his research team on the global stage represent a student profile that is not only "high-achieving" in measurable outcomes but also "innovative" in producing new creations—two key pillars of SMAN 1

[19] Tripayana, I. N. A., Basariah, B., Artina, F., Auvia, S., & Khanim, "Sawaludin, S., Zubair, M., Penguatan Kearifan Lokal (Local Wisdom) Dan Watak Kewarganegaraan (Civic Disposition) Melalui Sabtu Budaya Di SMP Negeri Se-Kota Mataram."
[20] Petricini, T. A., & Cruz, "AI Literacy in the Communication Basic Course: Insights on Embedding, Motivation, and Reducing Uncertainty."

Sleman's vision. Thus, talent development through digital literacy at this school has successfully connected future technical competencies with civic awareness rooted in *Pancasila* values.

Mitigating Digital Risks and Optimizing the "Peace School": Challenges of AI Implementation from a Mental Health Perspective

Although SMAN 1 Sleman has a strong comparative advantage in terms of well-developed facilities—such as computer laboratories, libraries, and halls that support digitalization—the implementation of Artificial Intelligence (AI) in PPKn learning still faces complex challenges. The main challenge is no longer related to access to technology, but rather to its socio-psychological impacts, including the risk of cyberbullying and the decline of students' mental health in digital spaces. This issue is particularly important, as SMAN 1 Sleman upholds the vision of becoming a "Peace School," which emphasizes a safe, comfortable, and bullying-free learning environment.

Theoretically, AI integration can trigger digital anxiety if it is not accompanied by proper guidance. However, as highlighted by [21], structured AI literacy interventions can serve as an effective mitigation strategy to reduce uncertainty and improve students' comfort in interacting with technology. At SMAN 1 Sleman, PPKn learning is designed to develop Critical AI Literacy, where students are not only taught to use technological tools but also to understand the ethical implications and psychological impacts of their digital interactions.

This mitigation effort aligns with the school's mission to establish a "mental health-based education system." AI-based PPKn learning at this school integrates digital ethics content to prevent the misuse of technology for discrimination or bullying. This approach is consistent with the framework proposed by [22], which emphasizes that AI-literate users must be aware of privacy and personal data protection to avoid digital exploitation that may disrupt students' psychological well-being.

Furthermore, challenges such as algorithmic bias and the spread of manipulative information are addressed by strengthening critical reasoning. As emphasized by [23], strong digital literacy is the primary defense against information disruption in the Society 5.0 era. By understanding how AI works, students at SMAN 1 Sleman are trained not to become victims of digital manipulation, which ultimately supports the creation of a school culture that values diversity and mental well-being. Thus, AI technology at SMAN 1 Sleman is positioned not as a threat but as a supportive instrument for realizing a peaceful educational environment where technological advancement and psychological well-being go hand in hand.

CONCLUSION

This study describes how the integration of AI into PPKn learning at SMAN 1 Sleman was perceived and implemented according to the participants involved. Based on observational data, interviews, and document analysis, the integration process appeared to align with the school's IT-based vision and was supported by its existing technological infrastructure. Participants reported that

[21] Petricini, T. A., & Cruz.
[22] Ali, Radwan, Wilson, "Information Literacy in the Artificial Intelligence Era : A Proposed Framework Information Literacy in the Artificial Intelligence Era : A Proposed Framework."
[23] Nuryadi and Widiatmaka, "Strengthening Civic Literacy among Students through Digital Literacy in Society 5 . 0."

AI use in the classroom contributed to perceived improvements in students' civic knowledge and critical reasoning, particularly when guided by an ethical AI literacy approach.

A notable finding from participant accounts was the school's effort to connect global AI technology with local Yogyakarta wisdom, including the LESUNG philosophy and the NGAJENI movement. According to teachers and students, this synergy helped shape digital citizenship practices that remained grounded in *Pancasila* values. However, these findings reflect subjective perceptions and contextual practices rather than measurable outcomes.

This study does not claim causal effectiveness, nor does it generalize beyond the specific context of SMAN 1 Sleman. Challenges related to mental health and cyberbullying were identified as emerging concerns by participants, but these were not systematically measured or analyzed in depth. Similarly, references to international student achievements were documented descriptively and are not presented as direct outcomes of the AI intervention.

Future research should employ mixed or quantitative methods to assess the causal impact of AI integration on civic literacy, critical thinking, and student well-being. Researchers should also develop more systematic instruments to measure mental health and cyberbullying risks in AI-mediated learning environments.

REFERENCES

Ali, Radwan, Wilson, M. L. "Information Literacy in the Artificial Intelligence Era : A Proposed Framework Information Literacy in the Artificial Intelligence Era : A Proposed Framework" 19, no. 2 (2025): 242–70. https://doi.org/https://doi.org/10.15760/ comminfolit.2025.19.2.6.

Amelliya, Aisya, and Melva Zainil. "Etnosains Sebagai Sumber Kontekstual Dalam Pendidikan Demokrasi Pada Pembelajaran PPKn Tematik SD." *Jurnal Motivasi Pendidikan Dan Bahasa* 3, no. 2 (2025): 111–19. https://doi.org/https://doi.org/10.59581/jmpb-widyakarya.v3i2.5027.

Conrad, K., & Kamperman, S. "Building Critical AI Literacy: An Approach to Generative AI. Thresholds in Education." *Thresholds in Education* 48, no. 2 (2025): 142–48. https://doi.org/https://eric.ed.gov/?id=EJ1483967.

Hendrizal, Hendrizal, Iman Laili, Darwianis Darwianis, M Nursi, and Daswarman Daswarman. "Penguatan Civic Literacy Melalui Media Digital Dalam Pembelajaran PPKn." *Jurnal Ilmiah Pendidikan Dasar (JIPDAS)* 5, no. 3 SE-Artikel (August 30, 2025): 2923–30. https://doi.org/10.37081/jipdas.v5i3.3878.

Kisno, K., Fatmawati, N., Rizqiyani, R., Kurniasih, S., & Ratnasari, E. M. "Pemanfaatan Teknologi Artificial Intelligences (Ai) Sebagai Respon Positif Mahasiswa Piaud Dalam Kreativitas Pembelajaran Dan Transformasi Digital." *IJIGAEd: Indonesian Journal of Islamic Golden Age Education* 04, no. 1 (2023): 44–56. https://doi.org/https://doi.org/10.32332/ijigaed.v4i1.7878.

Maharani, Maulida Putri, and Kurotul Aeni. "Artificial Intelligence-Based Snakes and Ladders Game Media to Improve the Learning Outcome of Elementary School Students." *Journal of Education Research and Evaluation* 8, no. 4 SE-Articles (November 25, 2024): 664–74. https://doi.org/10.23887/jere.v8i4.78720.

Mega, R. A. Y. S. "Countering Democratic Disruption Amid The Disinformation Phenomenon Through Artificial Intelligence (Ai) In Public Sector." *Jurnal Manajemen Pelayanan Publik* 07, no. 01 (2023). https://doi.org/https://doi.org/10.24198/jmpp.v7i1.48125.

Nawa, Anandha Glorrys Graceia, and Yohanes Edi Gunanto. "Inovasi Pembelajaran Berbasis Teknologi Artificial Intelligence (AI) Dalam Perspektif Wawasan Kristen Alkitabiah [Learning Innovation Based on Artificial Intelligence (AI) Technology from the Perspective of a Biblical Christian Worldview]." *Diligentia: Journal of Theology and Christian Education* 7, no. 1 SE-ARTICLES (January 31, 2025): 49–61. https://doi.org/10.19166/dil.v7i1.9189.

Nuryadi, Muhammad Hendri, and Pipit Widiatmaka. "Strengthening Civic Literacy among Students through Digital Literacy in Society 5 . 0" 17, no. 2 (2023): 215–20. https://doi.org/10.11591/edulearn.v17i2.20746.

Petricini, T. A., & Cruz, L. "AI Literacy in the Communication Basic Course: Insights on Embedding, Motivation, and Reducing Uncertainty." *Journal of Teaching and Learning With Technology* 14, no. 1 (2026). https://doi.org/https://doi.org/10.14434/jotlt.v14i1.41702.

Praherdhiono, Henry, Yulias Prihatmoko, Muhibuddin Fadhli, Nunung Nindigraha, Widi Hasanah, and Kevin Herdinata cahyadi Firdaus. "Peningkatan Kapabilitas Guru Dalam Penggunaan Artificial Intelligence Di MI Ar Raudhah Lawang: Studi Pelaksanaan Pelatihan Dan Evaluasi Hasil Pelatihan." *Abdimas Pedagogi: Jurnal Ilmiah Pengabdian Kepada Masyarakat* 8, no. 1 SE-Articles (May 9, 2025): 47–53. https://doi.org/10.17977/um050v8i12025p47-53.

Riasani, Beti, Ana Fitrotun Nisa, Heri Maria Zulfiati, and Sutrisna Wibawa. "Ethnopedagogy of IPAS Armed with Pancasila and Artificial Intelligence as a 21st Century Learning Revolution." *Jurnal Penelitian Pendidikan IPA* 11, no. 6 SE-Research Articles (June 25, 2025): 985–94. https://doi.org/10.29303/jppipa.v11i7.11638.

Supriyanto, Agung. "Integrasi Literasi Digital Dalam Pembelajaran PPKn Untuk Pembentukan Digital Citizenship Di Era Society 5.0." *JUPEIS: Jurnal Pendidikan Dan Ilmu Sosial* 5, no. 2 (2026): 29–36.

Tejawiani, Ida, Nur Sucahyo, Usanto Usanto, and Adi Sopian. "Peran Artificial Intelligence Terhadap Peningkatan Kreativitas Siswa Dengan Menerapkan Proyek Penguatan Profil Pelajar Pancasila." *Jmm (Jurnal Masyarakat Mandiri)* 7, no. 4 (2023): 3578–92.

Tripayana, I. N. A., Basariah, B., Artina, F., Auvia, S., & Khanim, K. "Sawaludin, S., Zubair, M., Penguatan Kearifan Lokal (Local Wisdom) Dan Watak Kewarganegaraan (Civic Disposition) Melalui Sabtu Budaya Di SMP Negeri Se-Kota Mataram." *Jurnal Ilmiah Profesi Pendidikan* 10, no. 4 (2025). https://doi.org/3318-3331.

Waldi, Atri, Nana Meisah Putri, Indra Indra, Viero Ridalfich, Dina Mulyani, and Enjel Mardianti. "Peran Kampus Mengajar Dalam Meningkatkan Literasi, Numerasi Dan Adaptasi Teknologi Peserta Didik Sekolah Dasar Di Sumatera Barat." *Journal of Civic Education* 5, no. 3 (2022): 284–92.

Wiguna, Rijal, Lia Indriyani, Figur Ruzikna, Hani Noviani, and M Hafidh Khoiri. "Pelatihan Literasi Digital Dan Pemanfaatan Artificial Intelligence (AI) Dalam Pembelajaran Di Sekolah Dasar Cantayan." *Jurnal Abdimas Teknologi Informatika & Komputer (JATIK)* 2 (2025): 82–86. https://doi.org/https://doi.org/10.31294/jatik.v2i2.9156.