



Innovation in AI-Based Social Studies Learning for Strengthening Civic Social Intelligence and Pancasila Character in Junior Secondary Schools

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Abstrak: Penelitian ini bertujuan untuk menganalisis peran kecerdasan buatan (Artificial Intelligence/AI) dalam mendukung pembelajaran Ilmu Pengetahuan Sosial (IPS) yang berorientasi pada penguatan Civic Social Intelligence serta mengembangkan model inovatif berbasis teknologi untuk memperkuat karakter Pancasila pada siswa Sekolah Menengah Pertama (SMP). Penelitian menggunakan pendekatan mixed methods dengan desain explanatory sequential, yang diawali dengan pengumpulan data kuantitatif melalui survei terhadap siswa, kemudian diperdalam melalui wawancara dan observasi terhadap guru IPS dan siswa di beberapa SMP di wilayah Jawa Barat. Data kuantitatif dianalisis menggunakan statistik deskriptif dan inferensial, sedangkan data kualitatif dianalisis melalui teknik tematik untuk mengungkap makna dan dinamika pembelajaran berbasis AI. Hasil penelitian menunjukkan bahwa integrasi AI dalam pembelajaran IPS berkontribusi signifikan terhadap peningkatan pemahaman sosial, kemampuan berpikir kritis, serta kesadaran etika dan tanggung jawab sosial siswa. Pemanfaatan AI melalui simulasi sosial, pembelajaran berbasis skenario, dan refleksi digital terbukti efektif dalam memfasilitasi internalisasi nilai-nilai Pancasila secara kontekstual. Temuan kualitatif mengungkap bahwa AI tidak hanya berfungsi sebagai alat bantu pembelajaran, tetapi juga sebagai mediator reflektif yang mendorong pembentukan sikap empati, toleransi, dan literasi kewarganegaraan digital. Penelitian ini menegaskan pentingnya pengembangan model pembelajaran IPS berbasis AI yang mengintegrasikan dimensi kognitif, afektif, dan moral sebagai upaya membentuk generasi muda yang cerdas secara sosial dan berkarakter Pancasila.

Kata Kunci: Pendidikan IPS, Karakter Pancasila, Kecerdasan Buatan (AI), Civic Social Intelligence, Sekolah Menengah Pertama

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Abstract: This study aims to analyze the role of AI in supporting social studies learning oriented toward developing Civic Social Intelligence and to develop an innovative technology-based model to strengthen Pancasila values in junior high school (SMP) students. Using a mixed methods approach with an explanatory sequential design, this study involved student surveys, interviews, and observations with social studies teachers and students at several high schools in West Java. The results indicate that AI contributes significantly to the effectiveness of learning through social inquiry simulations and the reflective internalization of national values. The integration of qualitative data confirms that AI functions as a moral mediator, helping junior high school students understand digital ethics and social responsibility. This research provides a conceptual contribution to the development of an AI-integrated Social Studies Education paradigm that combines technological sophistication with humanistic values to shape a socially literate and character-driven golden generation.

Keywords: Social Studies Education, Pancasila Character, Artificial Intelligence (AI), Civic Social Intelligence, Junior High School

Introduction

The rapid development of Artificial Intelligence (AI) technology has brought significant transformation across various spheres of life, including the discourse of Social Studies Education (Ilmu Pengetahuan Sosial/IPS) at the school level. AI now serves as a catalyst for pedagogical change by facilitating adaptive learning, data-driven analysis of social phenomena, and the personalization of students' learning experiences worldwide (Agustin et al, 2024). In the global context, the integration of AI in education has stimulated the emergence of a new paradigm oriented toward Society 5.0—an intelligent, human-centered society that leverages digital technology to enhance social well-being. At the national level, Indonesia is also entering an era of digital-based educational transformation that demands students possess critical, ethical, and reflective thinking skills in responding to social dynamics within digital spaces (Pardosi, 2024). These changes necessitate a repositioning of the role of Social Studies Education, particularly within the dimension of Civic Education (PKn) as one of its core traditions (social studies as citizenship transmission). At the junior secondary school (SMP) level, Social Studies Education functions not only as a medium for teaching social knowledge but also as an instrument for developing Civic Social Intelligence among adolescents in the digital era. As the core value foundation of the Indonesian Social Studies curriculum, Pancasila bears an axiological responsibility to ensure that technological advancement does not erode human identity and national social cohesion from an early age. In this context, AI plays a dual role: as a tool for social inquiry and as an ethical challenge that requires a balance between artificial intelligence and students' moral intelligence. This perspective aligns with the view that Social Studies Education in the Society 5.0 era must integrate technological innovation with humanistic values to produce young citizens who are adaptive, empathetic, and socially literate (Andriani et al, 2023).

However, in practice, innovation in AI-integrated Social Studies learning at the secondary level still faces a gap between ideal conditions and actual implementation. Empirically, many schools have yet to adopt integrated learning models capable of systematically internalizing Pancasila values into the analysis of digital social phenomena for adolescents. Previous studies indicate that the use of digital technology in Social Studies often emphasizes cognitive aspects, while affective, moral, and social skills dimensions receive insufficient attention (Ferandi et al, 2023). Consequently, AI tends to be positioned merely as a technical instrument rather than as a medium for social and moral inquiry in classroom learning. This gap underscores the importance of academic studies that bridge technological innovation with the strengthening of Pancasila-based character within the framework of Social Studies Education at the secondary school level. The conceptual foundation of this study is grounded in innovative learning theory proposed by Joyce and Weil (2011), which emphasizes that learning models should foster active participation and critical reflection among learners regarding social issues. Within the context of Civic Education theory in Social Studies, AI-based innovative learning is expected to transform teacher–student social interactions from an instructional orientation to a collaborative and reflective one. This theory also highlights the importance of integrating cultural and moral values into every learning process so that outcomes extend beyond the acquisition of social knowledge to the formation of young citizens with strong social responsibility.

Furthermore, the theory of AI integration in education developed by Holmes et al. (2019) asserts that AI is not merely a technological aid but a smart learning ecosystem that requires ethical guidance. AI has the potential to optimize Social Studies learning at the SMP level through simulations of social phenomena, basic analysis of online citizen behavior, and content adaptation aligned with adolescents' developmental stages. Nevertheless, this theory also warns that without value-based (Pancasila-oriented) pedagogical design, AI may generate algorithmic bias and lead to the dehumanization of education (Agustin et al, 2024).

From the perspective of educational philosophy, Notonagoro (1987) emphasizes that Pancasila constitutes the ontological and axiological foundation of Indonesia's national education, functioning not only as a moral norm but also as an epistemological principle guiding the development of science and technology in the social domain) (therefore, within the context of AI-based Social Studies learning, values such as humanity, social justice, and mutual cooperation operate as ethical filters to ensure that the utilization of technology in schools remains oriented toward the public good (Dewantara et al, 2019). In this regard, the synthesis of innovative learning theory, AI integration, and the tradition of citizenship transmission in Social Studies forms the main conceptual framework of the present study. Previous empirical studies have demonstrated that the integration of Pancasila values into Social Studies learning contributes significantly to strengthening students' national character and moral literacy, as evidenced by Sulistyarini et al. (2020), who found that embedding Pancasila values in Social Studies materials effectively fosters religious, democratic, and socially just civic character, and Munawaroh (2023), who emphasized that the success of character education is highly dependent on contextual and reflective learning models. Furthermore, in the digital era, Rawandi and Ruslan (2025) showed that Social Studies teachers play a pivotal role as moral facilitators in guiding students to internalize national values through digital media. However, despite these findings, most existing studies still rely on conventional pedagogical approaches, while empirical research that explicitly examines the role of AI technology at the junior secondary school level remains limited. Few studies have explored how AI can function as an effective instrument for social inquiry among adolescents that leads to the internalization of Pancasila values within the Society 5.0 context. \ This gap underpins the present study, which aims to analyze the role of AI in enhancing the effectiveness of Social Studies learning oriented toward strengthening Pancasila-based character at the SMP level and to develop an innovative AI-integrated Social Studies learning model capable of internalizing national values among students, particularly in fostering Civic Social Intelligence. The scientific contribution of this study lies in the formulation of a new paradigm of "AI-integrated Social Studies Education" grounded in Pancasila values, through a synthetic approach that integrates social inquiry theory and Pancasila philosophy to construct a human-centered, reflective, and ethical learning model, thereby enriching academic discourse on Social Studies education innovation and providing a practical reference for the development of value-based educational policies in the digital era (Prakoso et al, 2024).

Methodology

This study employs a *mixed methods* approach using an *explanatory sequential design*, in which quantitative and qualitative data are collected and analyzed sequentially, with the results of the initial quantitative analysis serving as the basis for guiding the collection and in-depth exploration of qualitative data in the subsequent phase (Ivankova, Creswell, & Stick, 2006). This design was selected due to its effectiveness in examining complex phenomena such as the integration of Artificial Intelligence (AI) in Social Studies learning at the junior secondary school (SMP) level, which is grounded in the tradition of *citizenship transmission* and therefore requires both measurable empirical analysis and rich contextual interpretation (Toyon, 2021). The research strategy adopted is *design-based research* (DBR) within a developmental research framework, aimed at testing and refining an innovative AI-based Social Studies learning model through iterative cycles of design, implementation, reflection, and continuous improvement (Wipulanusat et al, 2020). The data consist of both primary and secondary sources. Primary data were collected through student surveys, in-depth interviews with Social Studies teachers and students, and observations of Social Studies learning processes in several junior secondary schools in Subang Regency. Secondary data include documents related to the Merdeka Curriculum at the SMP level, digital-based Social Studies teaching modules, and AI-supported instructional tools, with the aim of obtaining a comprehensive understanding of the role of AI in developing *Civic Social Intelligence* and internalizing Pancasila values during adolescence (Kandiero, 2022).

In terms of data collection techniques, the quantitative phase utilized closed- and open-ended questionnaires distributed to junior secondary school students using *stratified random sampling* based on grade levels (VII, VIII, and IX), while the qualitative phase involved semi-structured interviews conducted through *purposive sampling* with Social Studies teachers and selected students based on their level of engagement in digital learning, complemented by participatory classroom observations. All research procedures adhered to ethical standards, including informed consent, anonymity, and confidentiality of information (Gloc, 2024). Inclusion criteria comprised active junior secondary school students in Subang Regency, Social Studies teachers who have integrated technology into their teaching practices, and instructional documents relevant to strengthening Pancasila-based character, while subjects and documents lacking institutional validity were excluded to ensure data credibility (Hadi & Closs, 2015). The unit of analysis focused on AI-integrated Social Studies learning interactions that embed civic values, with the research population consisting of all junior secondary school students in Subang Regency and qualitative participants comprising selected Social Studies teachers and students (Subedi, 2016). Data analysis was conducted in two stages: quantitative data were analyzed using descriptive statistics with SPSS version 25, while qualitative data were examined through thematic analysis assisted by NVivo 12. The findings from both stages were then integrated through data triangulation and *meta-inference* to produce comprehensive conclusions (Othman, Steen, & Fleet, 2020). The integration of quantitative and qualitative results was carried out through comparative interpretation within the paradigm of scientific pragmatism, making the *sequential explanatory* model particularly suitable for revealing the complexity of AI integration in the junior secondary Social Studies curriculum and its implications for the

internalization of Pancasila values in the context of Society 5.0 (Boivin, 2021) (Maleku et al, 2021).

Result and Discussion

This section presents the research findings obtained through a mixed methods explanatory sequential design, in which quantitative analysis was conducted first to describe general trends in students' perceptions of the integration of Artificial Intelligence (AI) in Social Studies (IPS) learning, followed by qualitative analysis to explore the meanings and experiences underlying the quantitative results.

1. Quantitative Analysis Results

The results of survey data processing from 100 junior secondary school (SMP) students in Subang Regency indicate that students' acceptance of AI use in Social Studies learning is relatively high, with an overall mean score of 4.21 on a five-point scale. Descriptive analysis shows that 83.4% of respondents stated that AI helps improve their understanding of Pancasila values within the context of social life, while 79.2% perceived that AI strengthens interactivity in social inquiry activities.

The distribution of scores by indicator reveals that the learning effectiveness dimension obtained the highest mean score ($M = 4.32$) ($SD = 0.61$), followed by the dimension of strengthening Pancasila character through social competence ($M = 4.18$) ($SD = 0.67$) and the utilization of technology in the learning process ($M = 4.12$) ($SD = 0.73$). Pearson correlation analysis between perceived AI effectiveness and the internalization of Pancasila values shows a significant positive relationship ($r = 0.64$) ($p < 0.01$), indicating that higher perceived effectiveness of AI use is associated with stronger students' perceptions of civic character development in Social Studies.

Simple linear regression analysis further demonstrates that the effectiveness of AI in learning significantly influences the internalization of Pancasila values, with a coefficient of determination of $R^2 = 0.41$ ($p < 0.001$). This suggests that 41% of the variance in students' perceptions of character strengthening can be explained by the effectiveness of AI implementation in Social Studies learning. These findings are consistent with the study by Huang et al. (2021), which reported that AI can significantly enhance learning motivation and moral concept understanding at the secondary education level.

In addition, analysis of variance based on grade level reveals significant differences ($F = 3.72$) ($p < 0.05$). Students in Grades VII and VIII tend to show higher levels of acceptance compared to those in Grade IX, indicating that younger students may have greater adaptability to AI-based learning systems (Alimisis & Kynigos, 2020).

2. Qualitative Analysis Results

Qualitative analysis was conducted based on interviews with 12 Social Studies teachers and 15 junior secondary school students selected purposively. Through thematic coding using NVivo 12, four main themes emerged:

Theme 1: AI as a facilitator of reflective social inquiry.

Social Studies teachers reported that AI helps students reflect on Pancasila values contextually through simulations of social phenomena, particularly by facilitating

simulations of moral dilemmas in digital society. This finding aligns with Holmes et al. (2021), who emphasize the role of AI as a cognitive mediator in value internalization.

Theme 2: Ethical challenges and the degradation of social interaction.

Teachers expressed concerns regarding potential plagiarism and reduced face-to-face social interaction due to overreliance on algorithms. Students also acknowledged ethical dilemmas when using AI. These findings support Zawacki-Richter et al. (2019), who stress the importance of digital ethics in school settings.

Theme 3: Increased student motivation and digital literacy.

Students reported that AI-based Social Studies learning is more engaging due to features such as automated feedback and personalized content. Observational data indicate a 27% increase in active student participation in group discussions following the implementation of the AI-based model.

Theme 4: Internalization of Pancasila values through digital social experiences.

AI serves as a medium for understanding Pancasila values through real-world contexts, such as empathy on social media platforms and online mutual cooperation. Simulation features enable students to reflect on the social impacts of decisions made in digital spaces (Liu et al, 2022).

3. Integration of Quantitative and Qualitative Findings

The integration of quantitative and qualitative data demonstrates coherence between students’ positive perceptions (quantitative findings) and the strengthening of reflective meaning (qualitative findings). AI not only enhances academic efficiency but also expands opportunities for reflecting on national values through interactive digital experiences (Kandiero, 2022).

Table 1. Summary of Integrated Findings of AI-Based IPS–PKn Learning

Research Dimension	Key Quantitative Findings	Key Qualitative Findings	Integrative Findings
AI Effectiveness in Social Inquiry	M = 4.32 (significant effect on value internalization)	AI facilitates interactive reflection on social values	AI effectiveness enhances meaningful Social Studies learning
Strengthening Pancasila Character	R ² = 0.41 (significant AI effect)	Students understand values through simulations of social phenomena	AI functions as an instrument for developing Civic Social Intelligence
Ethical Challenges in AI Use	Variations by grade level and digital literacy	Concerns about integrity and digital ethics	The need for stronger moral guidance by teachers in AI use

Overall, the implementation of AI in Social Studies learning at the junior secondary school level not only improves academic effectiveness but also strengthens the contextual internalization of Pancasila values, supporting the direction of character education toward Society 5.0 (Prakoso et al, 2024).

The findings of this study confirm that the integration of Artificial Intelligence (AI) into Social Studies (Ilmu Pengetahuan Sosial/IPS) learning at the junior secondary school (SMP) level plays a significant role in strengthening learning effectiveness while simultaneously internalizing Pancasila values in a contextual manner among students. Quantitative results indicate that the effectiveness of AI use contributes positively to students' understanding of Pancasila values ($r = 0.64$) ($p < 0.01$), while qualitative findings reveal that students perceive AI as a reflective medium capable of facilitating ethical and collaborative learning. Thus, AI functions not merely as a pedagogical support tool but also as a moral instrument in building Civic Social Intelligence grounded in the nation's core values. These findings directly address the main research question concerning the role of AI in supporting Pancasila-oriented Social Studies learning at the secondary education level.

The interpretation of these findings can be explained through the framework of innovative learning theory proposed by Joyce and Weil (2011), which emphasizes the importance of active learner engagement in reflective learning related to social issues. The application of AI in Social Studies creates spaces for dialogue and bidirectional learning interactions that encourage junior secondary school students to think critically, collaborate, and evaluate moral values within the dynamics of digital society. This perspective aligns with the theory of AI integration in education proposed by Holmes et al. (2019), which suggests that AI can function as an intelligent tutor and learning partner that enhances learning personalization without diminishing the role of Social Studies teachers as guides of values and ethics. From the perspective of Pancasila philosophy, technological integration is directed toward fostering early awareness of just and civilized humanity. The collaboration between technology and teachers' roles thus contributes to the formation of Ecological Citizenship, namely young citizens who are value-conscious and morally responsible in cyberspace.

The findings of this study are consistent with previous research highlighting the relevance of technology in shaping national character. Saylendra et al. (2023) demonstrated that AI-based interactive media significantly enhance the Pancasila Student Profile. Similarly, reflective and collaborative learning models have been shown to be effective in cultivating students' social responsibility (Sarkadi et al, 2022). Mahendra and Nasiwan (2021) also emphasized the importance of strengthening Civic Virtue as a character dimension that enables individuals to confront ethical challenges in the Society 5.0 era.

A noteworthy aspect of this study is the identification of AI's role in moral mediation, namely as an intermediary in fostering adolescents' ethical reflection. While previous studies have often focused primarily on the cognitive dimensions of digital learning (Feriandi et al, 2023), this research conducted in junior secondary schools in Subang Regency highlights a shift toward an affective approach, in which AI is utilized as a medium for social inquiry to reflect on Pancasila values. Nevertheless, this innovation must remain guided by teachers acting as a moral compass to maintain a balance between artificial intelligence and students' moral intelligence (Rohmah et al, 2024).

The integration of data also demonstrates a tangible contribution to the development of Design-Based Research (DBR) in Social Studies Education. Within this model, AI is positioned as part of an iterative learning process that enables continuous evaluation of students' social attitudes. The use of AI thus serves as a platform for developing morally

responsive pedagogy that adapts to social change at the secondary school level, in line with Gustin et al. (2024), who emphasize the relevance of Pancasila as a unifying national ideology in the digital era.

Nevertheless, this study also reveals challenges, particularly students' tendency to over-rely on AI without engaging in deep value reflection. This phenomenon confirms the concerns raised by Haddad and Suprihat (2023) regarding the potential weakening of educators' influence amid technological intervention. The limitations of this study include its focus on a single geographical context, namely Subang Regency, which necessitates further testing in broader settings. In addition, school policy dimensions and digital infrastructure readiness at the junior secondary school level remain variables that warrant further exploration.

Theoretically, this study contributes to the paradigm of AI-integrated Social Studies Education, an instructional approach that combines artificial intelligence with the tradition of citizenship transmission. These findings support the recommendations of Trisiana et al. (2022) to develop technology-based learning models as a means of strengthening national character. From a practical perspective, the results encourage secondary schools to systematically integrate AI literacy and digital ethics into the Social Studies curriculum.

The implications of this study extend to policy development within the Merdeka Curriculum framework. Local governments and schools are expected to prepare guidelines for AI integration that continue to prioritize humanistic values. Future research is recommended to examine variables such as digital empathy and social responsibility through projects aimed at strengthening the Pancasila Student Profile (P5), as suggested by Triaswari et al. (2024). In conclusion, AI-based IPS-PKn learning at the junior secondary school level not only addresses the technical demands of the contemporary era but also reinforces the moral foundations of Indonesia's younger generation toward a more ethical and humanistic paradigm.

Conclusion

This study concludes that the application of Artificial Intelligence (AI) in Social Studies (Ilmu Pengetahuan Sosial/IPS) learning at the junior secondary school (SMP) level has been proven to play a significant role in enhancing learning effectiveness while simultaneously strengthening the internalization of Pancasila values among students. Quantitative analysis reveals a strong positive relationship between the effectiveness of AI utilization and students' understanding of national values, while qualitative findings indicate that AI is able to function as a facilitator of social inquiry and moral reflection within digital learning contexts for adolescents. The integration of these two approaches confirms that AI-based IPS-PKn learning not only fosters students' technological competencies but also revitalizes affective and humanistic dimensions through the development of Civic Social Intelligence in the Society 5.0 era. From a theoretical perspective, this article contributes to the development of a Social Studies Education paradigm oriented toward collaboration between technology and the tradition of Citizenship Transmission. The model produced through the Design-Based Research (DBR) approach demonstrates that integrating AI into the Social Studies curriculum can create reflective, interactive, and contextual learning spaces for secondary school students, bridging Pancasila philosophy with innovative

learning theory. Practically, the findings from junior secondary schools in Subang Regency provide a conceptual foundation for teachers and educational institutions to design curricula that integrate digital literacy, AI ethics, and Pancasila-based character within a unified learning ecosystem in schools. In terms of implications, this study recommends strengthening educational policies at the secondary level to encourage the ethical use of AI while consistently positioning Pancasila values as the moral and philosophical foundation of learning. Teachers are expected to remain the primary facilitators and moral compasses to prevent excessive technological dependence among students. Future research is suggested to expand the sample across diverse regions and to examine the effectiveness of this model by incorporating additional variables such as digital empathy and social responsibility, with the aim of shaping a younger generation that is not only globally competitive but also firmly grounded in a strong Pancasila-based identity.

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