Evaluating Generative AI in Indonesian Education: Pragmatist and Social Reconstructionist Perspectives on Pedagogical and Structural Implications

Isa Ansori[1]*, Andi Kristanto[1], Mochamad Nursalim[1], Anastasia Danya Raini Banase[2]

[1]Universitas Negeri Surabaya, Lidah Wetan St, Surabaya, East Java, 60213, Indonesia
[2]Victoria University of Wellington, Kelburn Parade, Wellington, 6012, New Zealand
*Corresponding author, email: isaansori@unesa.ac.id

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Abstract
Despite the rapid integration of Generative Artificial Intelligence (GenAI) in education, existing scholarship remains predominantly focused on technical performance, with limited attention to its normative and philosophical implications, particularly in non-Western contexts. This study addresses this gap by applying a dual philosophical framework grounded in Deweyan pragmatism and Countsian social reconstructionism to evaluate GenAI-mediated pedagogy. Using a qualitative conceptual design, this study employs a systematic thematic synthesis of peer-reviewed literature to examine Generative Artificial Intelligence (GenAI) through the philosophical lenses of pragmatism and social reconstructionism. The findings reveal three key insights. First, GenAI demonstrates educational value only when pedagogically designed to augment, rather than replace, active student inquiry. Second, without deliberate policy intervention, its implementation risks amplifying existing digital inequalities in Indonesia. Third, the absence of a coherent national AI governance framework exposes educational systems to risks related to algorithmic bias and data injustice. Based on these findings, this study proposes a three-dimensional evaluative model integrating pedagogical quality, equity, and governance, offering a structured framework for guiding responsible GenAI adoption in developing educational systems.

1. Introduction

The integration of Generative Artificial Intelligence (GenAI) into education represents a major transformation in contemporary pedagogy. Unlike earlier educational technologies that primarily supported information delivery and instructional management, GenAI systems based on Large Language Models (LLMs) actively participate in knowledge construction by generating explanations, providing feedback, simulating dialogue, and supporting complex reasoning processes (Banh & Strobel, 2023; Feuerriegel et al., 2024). This development has shifted educational technology from instructional assistance toward cognitive augmentation, raising fundamental questions about the nature of learning and the role of educators in AI-mediated environments.

The rapid adoption of GenAI in education has generated both opportunities and concerns. On one hand, GenAI offers possibilities for personalized learning, adaptive feedback, and increased learning accessibility. On the other hand, excessive dependence on AI-generated outputs may reduce critical inquiry and encourage cognitive offloading. These concerns become more significant in developing educational systems such as Indonesia, where disparities in digital infrastructure, uneven teacher readiness, and limited AI governance frameworks remain major challenges (Herviana, 2025; Wulandari et al., 2024). In such conditions, the integration of GenAI may unintentionally reinforce existing educational inequalities rather than reduce them.

Existing studies on GenAI in education have predominantly focused on technical and measurable outcomes, including learning performance, efficiency, self-efficacy, and technology acceptance (Holmes & Tuomi, 2022; Shahzad et al., 2025). Although these studies provide important empirical insights, they often pay limited attention to the philosophical and socio-political dimensions of AI integration in education. As a result, discussions surrounding GenAI frequently emphasize technological effectiveness while overlooking questions related to meaningful learning, equity, and educational justice.

To address this limitation, this study adopts two complementary philosophical perspectives: John Dewey's pragmatism and George Counts' social reconstructionism. Pragmatism emphasizes experiential inquiry,

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reflective thinking, and active knowledge construction as the foundation of meaningful learning (Dewey, 1986; Dung & Pham, 2022). Meanwhile, social reconstructionism highlights the political role of education in addressing inequality, access, and social transformation (Counts, 1978; Schiff, 2022). While pragmatism focuses on the quality of learners' experiences, reconstructionism emphasizes broader structural and social consequences of educational technology.

Despite the growing literature on AI in education, limited studies have systematically integrated these two philosophical perspectives as a unified evaluative framework for GenAI. Existing research tends to examine pedagogical effectiveness or social implications separately, resulting in fragmented analyses of AI integration. Furthermore, studies discussing GenAI within the Indonesian educational context remain limited, particularly those addressing the intersection of pedagogy, equity, and governance.

Therefore, this study aims to develop a philosophically grounded evaluative framework for Generative Artificial Intelligence (GenAI) in education by integrating pragmatism and social reconstructionism. Specifically, this study examines how GenAI supports meaningful inquiry and reflective learning while also analyzing its implications for educational equity and social transformation in Indonesia. Through this dual-lens approach, the study proposes a three-dimensional evaluative framework encompassing pedagogical quality, equity, and governance to support more responsible and context-sensitive AI integration in education.

2. Method

This study employed a qualitative conceptual research design aimed at developing a philosophically grounded evaluative framework for Generative Artificial Intelligence (GenAI) in education. Rather than generating primary empirical data, the study systematically analyzed and interpreted existing scholarly literature through two complementary philosophical perspectives: pragmatism and social reconstructionism.

The research process consisted of four stages: literature identification, screening and selection, thematic synthesis, and interpretive philosophical analysis. A structured literature search was conducted using three major academic databases: Scopus, Web of Science, and ERIC. The search utilized combinations of keywords including "Generative AI," "large language models," "education," "pragmatism," "social reconstructionism," "educational equity," "AI governance," and "Indonesia." The search was limited to peer-reviewed journal articles published between 2018 and 2025, while foundational philosophical works by Dewey and Counts were included regardless of publication year because of their conceptual relevance.

The initial search identified 126 publications. After removing duplicates and screening titles and abstracts, 74 articles remained for full-text review. Following the application of inclusion and exclusion criteria, 38 articles were selected for the final analysis. Studies were included if they discussed educational applications of GenAI and addressed pedagogical, ethical, philosophical, or socio-political dimensions of AI integration. Studies focusing solely on technical system development without educational relevance were excluded. The overall literature selection process is summarized in Figure 1.

The selected literature was analyzed using a thematic synthesis approach. In the first stage, open coding was conducted to identify recurring themes related to GenAI in education, including personalized learning, cognitive offloading, pedagogical transformation, digital inequality, algorithmic bias, governance, and institutional readiness. In the second stage, axial coding was employed to organize these themes into broader analytical categories derived from pragmatism and social reconstructionism. Pragmatist categories included experiential inquiry, reflective cognition, and active learning, while reconstructionist categories included equity, access, power relations, and social transformation.

Table 1 presents the primary coding structure used in the thematic synthesis process.

Table 1. Synthesized Evaluative Framework for GenAI in Education

Philosophical Lens	Analytical Category	Emerging Themes
Pragmatism	Experiential Inquiry	Active learning, inquiry-based learning, reflective thinking
Pragmatism	Reflective Cognition	Cognitive engagement, critical thinking, cognitive offloading
Reconstructionism	Equity and Access	Digital divide, unequal infrastructure, technological accessibility
Reconstructionism	Social Transformation	AI governance, algorithmic bias, educational justice

Following thematic synthesis, an interpretive analysis was conducted to examine how the identified themes aligned with or challenged the principles of pragmatism and social reconstructionism. The analysis was guided by the interpretive paradigm (Crotty, 1998; Guba & Lincoln, 1994), which emphasizes contextual meaning-making and the socially constructed nature of knowledge. Through this process, the study developed a philosophically grounded evaluative framework integrating pedagogical quality, equity, and governance dimensions.

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To ensure trustworthiness, the study adopted four qualitative criteria proposed by Guba and Lincoln (1994), credibility, dependability, confirmability, and transferability. Credibility was strengthened through systematic database selection and transparent inclusion criteria. Dependability was addressed by clearly documenting the literature selection and coding procedures. Confirmability was maintained through theoretical consistency in applying the dual philosophical framework throughout the analysis. Transferability was enhanced by situating the interpretation within the Indonesian educational landscape while maintaining conceptual relevance for broader developing educational contexts.

Additionally, the study maintained analytical rigor through theoretical coherence, conceptual transparency, and contextual relevance. The overall analytical process and philosophical structure of the study are illustrated in Figure 1.

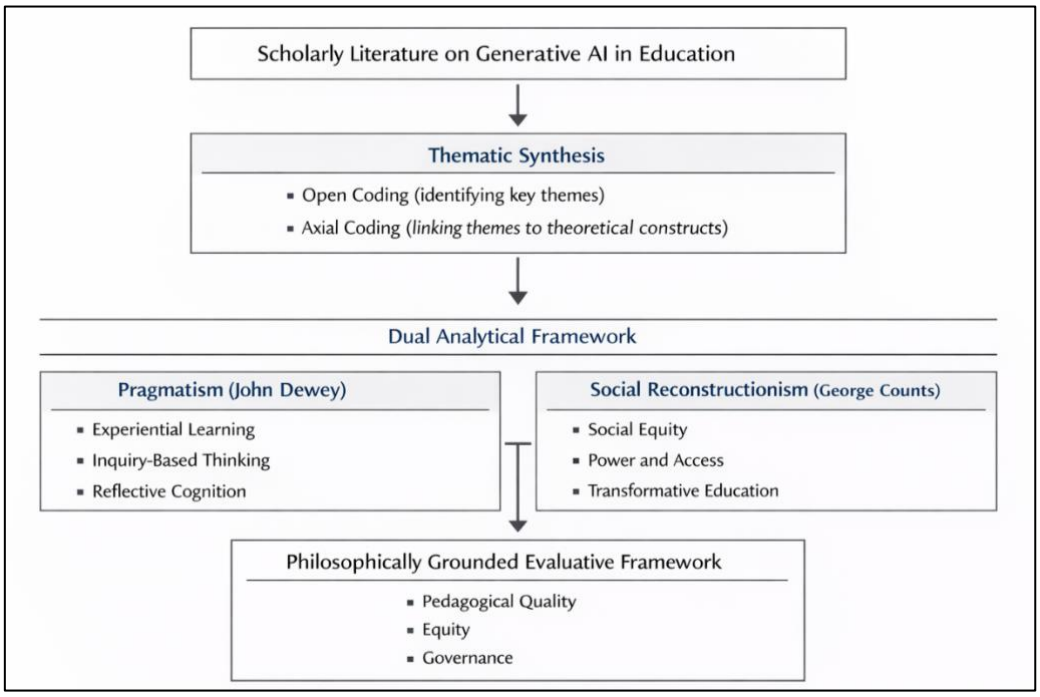

Figure 1. Conceptual Framework of Generative AI Evaluation Based on Pragmatism and Social Reconstructionism

3. Results and Discussion

This section presents the findings of the conceptual analysis derived from the systematic thematic synthesis of the literature on Generative Artificial Intelligence (GenAI) in education. Drawing on the analytical procedures outlined in the methodology specifically open and axial coding the analysis identifies key patterns related to pedagogical transformation, cognitive engagement, digital inequality, and governance challenges.

These themes are subsequently interpreted through the dual philosophical lenses of pragmatism and social reconstructionism, enabling a multidimensional evaluation of GenAI that integrates both pedagogical and socio-political considerations. The discussion is organized into four parts: (1) an overview of the empirical landscape of GenAI in education, (2) a pragmatist analysis focusing on experiential learning and inquiry, (3) a reconstructionist critique addressing issues of equity and social transformation, and (4) a synthesis that integrates both perspectives into a comprehensive evaluative framework.

3.1. The Pedagogical Transformation Wrought by Generative AI: An Empirical Overview

The thematic analysis of the reviewed literature reveals three major patterns that characterize the current transformation of education through Generative Artificial Intelligence (GenAI). These patterns provide an empirical foundation for the subsequent philosophical analysis, particularly in evaluating GenAI through the lenses of pragmatism and social reconstructionism.

First, the literature consistently indicates that GenAI has significantly expanded the possibilities for personalized learning. Systems based on Large Language Models (LLMs) are capable of dynamically adapting instructional content, feedback, and learning pathways to individual learner needs in real time. This capability marks a substantial shift from traditional one-size-fits-all instruction toward more responsive and

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individualized learning environments (Maier & Klotz, 2022; Strielkowski et al., 2025). In this sense, GenAI brings the long-standing pedagogical ideal of personalized instruction previously associated with intensive human tutoring closer to practical implementation at scale (Anderson & Krathwohl, 2001).

Second, alongside these opportunities, a recurring pattern in the literature highlights the risk of cognitive offloading. The analysis shows that when students rely heavily on GenAI to generate answers, explanations, or written outputs, there is a measurable reduction in their engagement in higher-order cognitive processes. Gerlich (2025) demonstrates that the availability of AI-generated responses can lead to decreased critical thinking and reduced depth of cognitive processing. Similarly, Ruiz-Rojas et al., (2024) find that collaborative inquiry and critical discussion are weakened when learners substitute their own reasoning with AI-generated content. This tension between augmentation and substitution represents a central challenge in the pedagogical use of GenAI.

Third, the literature reveals a persistent gap in governance and ethical regulation surrounding the implementation of GenAI in education. The rapid adoption of AI technologies has outpaced the development of institutional and national frameworks capable of addressing issues such as algorithmic bias, data privacy, and equitable access. Yan et al., (2025) identify significant policy gaps and a lack of transparency in AI-driven educational systems, while Gouseti et al., (2025) highlight ongoing ethical concerns related to fairness, accountability, and the disproportionate impact of AI on marginalized learners. These challenges are particularly pronounced in developing contexts, where infrastructural limitations and policy readiness vary significantly.

Taken together, these three patterns personalized learning, cognitive offloading, and governance challenges demonstrate that the impact of GenAI in education is neither inherently beneficial nor inherently detrimental. Rather, its educational implications are contingent upon how it is pedagogically designed, critically used, and institutionally regulated. These findings establish the empirical basis for the subsequent analysis, which interprets these patterns through the dual philosophical perspectives of pragmatism and social reconstructionism.

3.2. A Pragmatist Evaluation of Generative AI in Education

Building on the empirical patterns identified in Section 3.1, the pragmatist perspective provides a framework for evaluating whether Generative Artificial Intelligence (GenAI) enhances or undermines the quality of learning experiences. From a pragmatist standpoint, the central concern is not the technological sophistication of GenAI, but its capacity to support experiential inquiry, reflective thinking, and the active reconstruction of knowledge, as emphasized by Dewey (1986).

The analysis suggests that GenAI holds genuine pedagogical potential when it is integrated as a scaffold for inquiry rather than as a substitute for cognitive effort. In contexts where learners actively engage with problems, formulate questions, and critically evaluate AI-generated responses, GenAI can extend the depth and breadth of inquiry. Its ability to provide immediate feedback, generate alternative explanations, and simulate dialogic interaction aligns with pragmatist principles of learning as an iterative and reflective process (Halkiopoulos & Gkintoni, 2024; Kadaruddin, 2023). Under these conditions, GenAI functions as an instrument that enriches experience and supports the development of higher-order thinking.

However, the findings in Section 3.1 regarding cognitive offloading reveal a significant tension. When GenAI is used to produce ready-made answers, essays, or problem solutions without requiring active engagement from learners, it risks short-circuiting the inquiry process. From a pragmatist perspective, this constitutes a form of mis-education, where the appearance of understanding replaces genuine intellectual development. As Dewey, (1986) argues, learning is fundamentally rooted in the reconstruction of experience through effortful inquiry; technologies that bypass this process ultimately undermine the growth of intelligence. Empirical evidence from Gerlich (2025) and Ruiz-Rojas et al., (2024) supports this concern, demonstrating that excessive reliance on AI-generated outputs can reduce critical thinking and collaborative reasoning.

This tension highlights that the educational value of GenAI is not inherent but conditional. Its impact depends on how it is pedagogically designed and implemented. A pragmatist-informed approach to GenAI integration therefore requires what may be termed an “inquiry-before-assistance” principle, in which learners are encouraged to engage with problems independently before turning to AI as a tool for reflection, feedback, or extension. In addition, assessment practices must prioritize the quality of reasoning and the learning process rather than the polished nature of final outputs, thereby discouraging passive reliance on AI-generated content (Holmes & Tuomi, 2022).

Importantly, the pragmatist evaluation also intersects with issues of access and infrastructure. The benefits of AI-supported inquiry presuppose the availability of reliable digital resources, including stable internet access and adequate technological devices. In contexts such as Indonesia, where these conditions are

ISSN: 2797-3174

unevenly distributed, the potential of GenAI to support meaningful learning experiences cannot be fully realized for all students. From a pragmatist perspective, this raises a critical concern: educational technologies cannot be considered genuinely valuable if they only enhance learning for a subset of learners while excluding others from meaningful participation.

In sum, the pragmatist analysis indicates that GenAI can contribute positively to education when it is designed to support inquiry, reflection, and active engagement. However, when used as a shortcut that replaces cognitive effort, it becomes pedagogically regressive. These findings underscore the importance of aligning GenAI integration with principles of experiential learning and reflective inquiry, thereby ensuring that technology serves not supplants the educational process.

3.3. A Reconstructionist Critique: Generative AI, Equity, and Social Transformation in Indonesia

While the pragmatist analysis evaluates the pedagogical quality of GenAI, the reconstructionist perspective shifts attention to its broader social and political implications. Drawing on the principles of Counts (1978), education is understood not as a neutral process, but as a site of social transformation that must actively address issues of inequality, access, and power. Within this framework, the integration of Generative Artificial Intelligence (GenAI) in education must be critically examined in terms of who benefits, who is excluded, and how existing structures of inequality may be reinforced or challenged.

The findings presented in Section 3.1 reveal that the expansion of GenAI in education introduces a new layer of stratification, particularly in contexts characterized by uneven access to digital infrastructure. In Indonesia, disparities in internet connectivity, availability of technological devices, and teacher preparedness remain significant across regions. As a result, the potential benefits of GenAI such as personalized learning and adaptive feedback are more readily accessible to students in well-resourced urban environments than to those in under-resourced or rural areas. This uneven distribution of technological access reflects and risks amplifying pre-existing educational inequalities.

More critically, the rapid adoption of GenAI in education risks reinforcing a form of "technological solutionism," where complex educational problems are oversimplified as issues that can be resolved through technological intervention alone. In such a paradigm, structural inequalities rooted in socio-economic disparities, institutional capacity, and uneven policy development are often obscured rather than addressed. From a reconstructionist perspective, this tendency is deeply problematic, as it shifts attention away from systemic reform toward technological substitution. In the Indonesian context, where disparities in infrastructure and governance remain significant, the uncritical promotion of GenAI as a universal solution may inadvertently legitimize and normalize unequal educational conditions, rather than challenge them.

From a reconstructionist perspective, this pattern is not incidental but structurally predictable. As argued by Bulathwela et al., (2024), technological innovations in education do not inherently democratize learning; rather, without deliberate intervention, they tend to reinforce existing advantages. The integration of GenAI, therefore, must be understood as a political process shaped by policy decisions, institutional priorities, and broader socio-economic conditions. In the absence of targeted strategies to ensure equitable access, GenAI risks becoming a mechanism through which educational disparities are deepened rather than reduced.

Beyond issues of access, the literature also highlights concerns related to algorithmic bias and data governance. AI systems are trained on large-scale datasets that may reflect dominant cultural perspectives, potentially marginalizing local knowledge and reinforcing epistemic inequalities. Yan et al., (2025) identify persistent gaps in AI governance frameworks, including limited transparency and accountability in algorithmic decision-making. Similarly, Gouseti et al., (2025) emphasize the ethical risks associated with AI use in education, particularly in relation to fairness, data privacy, and the disproportionate impact on vulnerable student populations. In the Indonesian context, where national AI governance policies are still emerging, these risks are further intensified by the lack of clear regulatory guidelines.

In response to these challenges, a reconstructionist approach calls for a politically conscious integration of GenAI in education. This entails, first, positioning AI adoption as an equity-driven initiative rather than merely a technological or efficiency-oriented reform. National and institutional policies must explicitly address disparities in infrastructure, access, and digital literacy to ensure that the benefits of GenAI are distributed more equitably. Second, teacher education must move beyond technical training to include critical awareness of the social implications of AI, enabling educators to act as agents of equity rather than passive adopters of technology (Wiese et al., 2025). Third, curriculum design should incorporate critical engagement with AI itself, fostering students' ability to understand, question, and shape the role of AI in society (Schiff, 2022).

Ultimately, the reconstructionist analysis underscores that the question is not whether GenAI should be adopted in education, but under what conditions it can contribute to a more just and equitable system. Without

ISSN: 2797-3174

intentional efforts to address structural inequalities, the integration of GenAI risks reproducing existing patterns of exclusion. Conversely, when guided by principles of equity and social transformation, GenAI holds the potential to become a tool for expanding educational opportunities and empowering learners across diverse contexts.

3.4. Synthesizing the Dual Lens: Toward a Philosophically Grounded Framework for Evaluating Generative AI in Education

The preceding analyses have demonstrated that evaluating Generative Artificial Intelligence (GenAI) in education requires more than isolated consideration of pedagogical effectiveness or social impact. Instead, a comprehensive assessment must integrate both dimensions. By bringing together the pragmatist and reconstructionist perspectives, this study develops a philosophically grounded evaluative framework that captures the complexity of AI-mediated education.

From a pragmatist standpoint, as articulated by John Dewey, the primary concern is the quality of the learner's experience. GenAI is educationally valuable when it supports inquiry, fosters reflective thinking, and enables learners to actively construct knowledge. However, as identified in Section 3.2, this potential is undermined when AI systems are used to replace rather than support cognitive engagement, resulting in forms of cognitive offloading that weaken intellectual development.

From a reconstructionist perspective, drawing on George Counts, the focus shifts to issues of equity, access, and social transformation. As discussed in Section 3.3, the integration of GenAI is deeply embedded in existing socio-economic structures and may exacerbate educational inequalities if not guided by deliberate policy and institutional interventions. The benefits of AI-enhanced learning are unevenly distributed, raising critical concerns about fairness and inclusion.

The integration of these two perspectives reveals a central insight: pedagogical quality and social equity are not separate considerations but interdependent conditions for meaningful educational transformation. A GenAI system that enhances inquiry but is accessible only to privileged learners fails to meet the broader goals of education, just as an equitable system that lacks meaningful learning experiences falls short of fostering intellectual development. Thus, both dimensions must be addressed simultaneously.

Based on this synthesis, this study proposes a three-dimensional evaluative model for Generative Artificial Intelligence (GenAI) in education, integrating pedagogical quality, equity, and governance as interdependent dimensions. The first dimension, pedagogical quality, assesses the extent to which AI supports experiential inquiry, reflective cognition, and active learning processes. The second dimension, equity, examines how access to and benefits from GenAI are distributed across socio-economic and geographic contexts. The third dimension, governance, evaluates the presence of policies, ethical guidelines, and institutional structures that ensure the responsible and transparent use of AI technologies.

These three dimensions are interconnected and mutually reinforcing. Effective governance is necessary to ensure equitable access, while equitable conditions enable the meaningful realization of pedagogical potential. Conversely, weak governance structures can lead to both inequitable access and pedagogically problematic uses of AI. This integrative framework thus provides a structured basis for evaluating GenAI beyond technical performance metrics, aligning technological innovation with broader educational values.

Applied to the Indonesian context, this framework highlights several critical implications. Current patterns of GenAI adoption tend to favor institutions with greater resources, while governance mechanisms remain underdeveloped. As a result, the conditions required for both pedagogical quality and equity are not yet fully met. Addressing this gap requires coordinated efforts across policy, curriculum design, and teacher education to ensure that GenAI contributes to a more inclusive and meaningful educational system.

In sum, this dual-lens framework offers a normative and analytical tool for understanding and guiding the integration of GenAI in education. By combining insights from pragmatism and social reconstructionism, it moves beyond techno-centric evaluations and provides a more comprehensive foundation for decision-making in educational policy and practice.

To operationalize the philosophical synthesis discussed above, Table 2 summarizes the proposed evaluative framework, categorizing the critical questions and design indicators necessary for a balanced integration of GenAI in education.

ISSN: 2797-3174

Table 2. Synthesized Evaluative Framework for GenAI in Education

Evaluative Dimension	Primary Philosophical Lens	Critical Evaluative Question	Indicators of Success (Design Guidelines)
Pedagogical Quality	Pragmatism (John Dewey)	Does the integration of AI support active inquiry and the reconstruction of experience, or does it instead lead to cognitive shallowing (cognitive offloading)?	AI is positioned as a scaffold rather than a substitute; prioritizes reasoning processes over merely producing polished outputs.
Equity (Social Justice)	Reconstructionism (George Counts)	Are the benefits of AI equitably distributed across different geographic and socio-economic contexts, or do they reinforce existing educational stratifications?	Presence of redistributive policy interventions; fulfillment of minimum infrastructure standards and digital literacy, especially in underserved regions (e.g., outside Java).
Governance	Dual-Lens Synthesis	Are policies and institutional norms designed to simultaneously maximize quality and equity, or do they primarily serve market efficiency?	Existence of a comprehensive national governance framework; repositioning teachers as critical learning architects rather than merely technical supervisors.

By adopting this multidimensional framework, educational stakeholders in Indonesia can move beyond the binary of technophobia or uncritical adoption. This approach ensures that GenAI serves as a catalyst for both intellectual growth and social democratization, rather than merely an instrument of efficiency. To operationalize the philosophical synthesis discussed above, Figure 2 illustrates the proposed evaluative framework, categorizing the critical questions and design indicators necessary for a balanced integration of GenAI in education. Without such an integrated approach, GenAI risks functioning merely as a tool of efficiency rather than a driver of meaningful and equitable educational transformation.

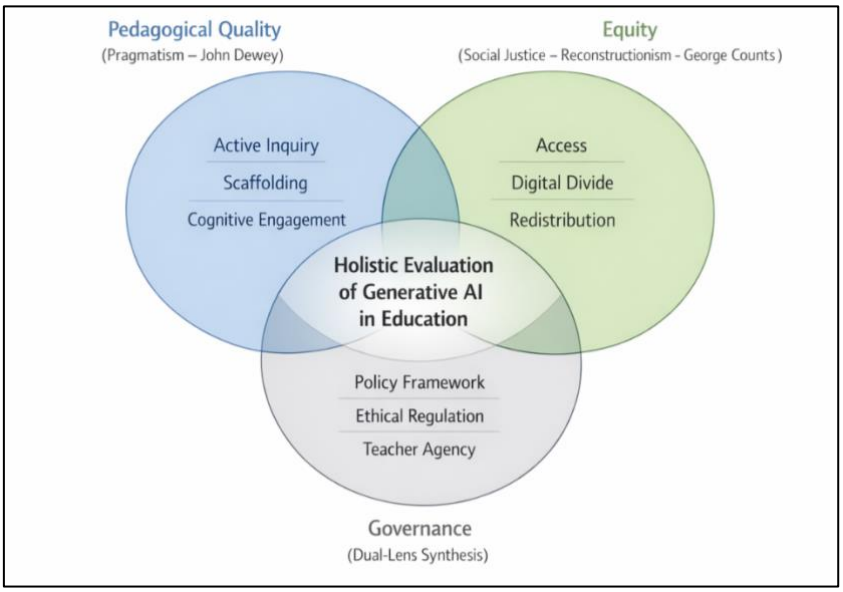

Figure 2. Integrated Evaluative Framework for GenAI in Education based on Pragmatist and Reconstructionist Lenses

3.5. Implications

The findings of this study provide several important implications for educational policy, pedagogy, and future research concerning the integration of Generative Artificial Intelligence (GenAI) in education. From a pragmatist perspective rooted in Dewey's conception of experiential inquiry, the study highlights that GenAI should not merely function as a productivity-enhancing technology, but as a pedagogical scaffold that supports reflective thinking, inquiry, and active knowledge construction. Educational institutions should therefore prioritize instructional designs that position AI as a tool for intellectual engagement rather than a replacement for student cognition. Without such pedagogical orientation, the increasing use of GenAI may accelerate forms of cognitive offloading that weaken critical inquiry and reflective learning processes.

From a reconstructionist perspective inspired by Counts, the findings underscore the necessity of equity-oriented AI policies, particularly in developing educational systems such as Indonesia. Unequal access to digital infrastructure, technological resources, and teacher readiness may intensify existing educational disparities if AI adoption is implemented without deliberate redistributive interventions. In this regard, national educational

ISSN: 2797-3174

reforms such as *Merdeka Belajar* may provide an important foundation for integrating AI in ways that remain context-sensitive, learner-centered, and socially inclusive. Consequently, policymakers should incorporate considerations of digital equity, AI literacy, and institutional readiness into broader educational transformation agendas.

The findings also imply that teacher education and professional development programs should move beyond technical AI training toward critical and ethical engagement with AI technologies. Teachers need to develop the capacity not only to use AI tools effectively, but also to critically evaluate their pedagogical, ethical, and social consequences. In this sense, educators should be repositioned as reflective learning architects who guide students in navigating AI-mediated knowledge environments responsibly.

Finally, this study contributes theoretically by proposing a philosophically grounded evaluative framework integrating pedagogical quality, equity, and governance. This framework may serve as a conceptual reference for future empirical studies examining the implementation of GenAI across diverse institutional, cultural, and socio-economic settings, particularly within developing educational contexts.

3.6. Synthesizing the Dual Lens: Toward a Philosophically Grounded Framework for Evaluating Generative AI in Education

This study has several limitations. First, as a qualitative conceptual study, the analysis relies primarily on the interpretation and synthesis of existing literature rather than direct empirical investigation. Consequently, the proposed evaluative framework has not yet been empirically validated within specific educational settings or learning environments.

Second, the study predominantly draws upon literature indexed in major international databases and philosophical traditions rooted in Western educational thought, particularly Deweyan pragmatism and Countsian social reconstructionism. Although these perspectives provide valuable analytical foundations, they may not fully capture the diversity of local epistemological traditions and socio-cultural realities within Indonesian education. Future studies may therefore benefit from incorporating non-Western or indigenous educational perspectives to enrich the philosophical evaluation of AI-mediated learning.

Third, the rapid evolution of Generative Artificial Intelligence (GenAI) means that technological capabilities, governance frameworks, and educational practices continue to develop beyond the temporal scope of the present study. As a result, some interpretations and evaluative considerations presented here may require continuous refinement in response to future developments in AI technologies and educational policy landscapes.

Despite these limitations, the study provides a theoretically grounded contribution to ongoing discussions concerning the responsible integration of AI in education. Future research is encouraged to empirically examine the applicability of the proposed framework across diverse educational contexts and to further explore the relationship between pedagogical innovation, social equity, and AI governance in developing educational systems.

4. Conclusion

This study examined Generative Artificial Intelligence (GenAI) in education through the complementary perspectives of pragmatism and social reconstructionism, demonstrating that the educational value of AI is determined not merely by technological sophistication, but by how it is pedagogically implemented and socially governed. From a pragmatist perspective, GenAI contributes positively to education when it supports experiential inquiry, reflective thinking, and active knowledge construction, whereas excessive reliance on AI-generated outputs risks encouraging cognitive offloading and weakening critical inquiry. From a reconstructionist perspective, the study reveals that unequal access to digital infrastructure, limited AI governance, and disparities in educational readiness may intensify existing educational inequalities, particularly within the Indonesian context. Based on these findings, this study contributes a philosophically grounded evaluative framework integrating pedagogical quality, equity, and governance as interconnected dimensions for assessing GenAI in education. This framework offers a conceptual foundation for policymakers, educators, and researchers in promoting more critical, equitable, and context-sensitive AI integration within developing educational systems.

Author Contributions

Isa Ansori: Conceptualization, Methodology, Formal Analysis, Investigation, Writing – Original Draft. Andi Kristanto: Supervision, Validation, Methodology, Writing – Review & Editing. Mochamad Nursalim: Supervision, Project Administration, Validation. Anastasia Danya Raini Banase: Writing – Review & Editing, Validation. All authors have read and approved the final version of the manuscript.

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Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/ or publication of this article.

Data Availability

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

Declaration on AI Use

The authors declare that AI-assisted tools were used only for language refinement and editing purposes. All intellectual content, analysis, and interpretation were developed by the authors.

References

Anderson, L. W., & Krathwohl, D. R. (2001). *A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives: Complete edition*. Addison Wesley Longman, Inc.

Banh, L., & Strobel, G. (2023). Generative artificial intelligence. *Electronic Markets, 33*(1), 63. https://doi.org/10.1007/s12525-023-00680-1

Bulathwela, S., Pérez-Ortiz, M., Holloway, C., Cukurova, M., & Shawe-Taylor, J. (2024). Artificial intelligence alone will not democratise education: On educational inequality, techno-solutionism and inclusive tools. *Sustainability, 16*(2), 781. https://doi.org/10.3390/su16020781

Counts, G. S. (1978). *Dare the school build a new social order?* (Vol. 143). SIU Press.

Crotty, M. J. (1998). *The foundations of social research: Meaning and perspective in the research process*. SAGE Publications.

Dewey, J. (1986). Experience and education. *The Educational Forum, 50*(3), 241–252. https://doi.org/10.1080/00131728609335764

Dung, B. X., & Pham, K. T. (2022). Education philosophy of pragmatism and its impact in the global context present. *Contemporary Pragmatism, 19*(3), 310–329. https://doi.org/10.1163/18758185-bja10042

Feuerriegel, S., Hartmann, J., Janiesch, C., & Zschech, P. (2024). Generative AI. *Business & Information Systems Engineering, 66*(1), 111–126. https://doi.org/10.1007/s12599-023-00834-7

Gerlich, M. (2025). AI tools in society: Impacts on cognitive offloading and the future of critical thinking. *Societies, 15*(1), 6. https://doi.org/10.3390/soc15010006

Gouseti, A., James, F., Fallin, L., & Burden, K. (2025). The ethics of using AI in K–12 education: A systematic literature review. *Technology, Pedagogy and Education, 34*(2), 161–182. https://doi.org/10.1080/1475939X.2024.2428601

Guba, E. G., & Lincoln, Y. S. (1994). Competing paradigms in qualitative research. In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of qualitative research* (pp. 105–117). SAGE Publications.

Halkiopoulos, C., & Gkintoni, E. (2024). Leveraging AI in e-learning: Personalized learning and adaptive assessment through cognitive neuropsychology: A systematic analysis. *Electronics, 13*(18), 3762. https://doi.org/10.3390/electronics13183762

Herviana, A. (2025). Artificial intelligence in education: Opportunities and challenges of AI integration in Indonesian classrooms. *Journal of Smart Pedagogy and Education, 1*(1), 33–45. https://doi.org/10.65101/spedu.v1i1.22

Holmes, W., & Tuomi, I. (2022). State of the art and practice in AI in education. *European Journal of Education, 57*(4), 542–570. https://doi.org/10.1111/ejed.12533

Kadaruddin, K. (2023). Empowering education through generative AI: Innovative instructional strategies for tomorrow's learners. *International Journal of Business, Law, and Education, 4*(2), 618–625. https://doi.org/10.56442/ijble.v4i2.215

Maier, U., & Klotz, C. (2022). Personalized feedback in digital learning environments: Classification framework and literature review. *Computers and Education: Artificial Intelligence, 3*, 100080. https://doi.org/10.1016/j.caeai.2022.100080

Ruiz-Rojas, L. I., Salvador-Ullauri, L., & Acosta-Vargas, P. (2024). Collaborative working and critical thinking: Adoption of generative artificial intelligence tools in higher education. *Sustainability, 16*(13), 5367. https://doi.org/10.3390/su16135367

Schiff, D. (2022). Education for AI, not AI for education: The role of education and ethics in national AI policy strategies. *International Journal of Artificial Intelligence in Education, 32*(3), 527–563. https://doi.org/10.1007/s40593-021-00270-2

Shahzad, M. F., Xu, S., & Zahid, H. (2025). Exploring the impact of generative AI-based technologies on learning performance through self-efficacy, fairness and ethics, creativity, and trust in higher education. *Education and Information Technologies, 30*(3), 3691–3716. https://doi.org/10.1007/s10639-024-12949-9

ISSN: 2797-3174

Strielkowski, W., Grebennikova, V., Lisovskiy, A., Rakhimova, G., & Vasileva, T. (2025). AI-driven adaptive learning for sustainable educational transformation. *Sustainable Development, 33*(2), 1921–1947. https://doi.org/10.1002/sd.3221

Wiese, L. J., Patil, I., Schiff, D. S., & Magana, A. J. (2025). AI ethics education: A systematic literature review. *Computers and Education: Artificial Intelligence, 8*, 100405. https://doi.org/10.1016/j.caeai.2025.100405

Wulandari, P., Savitri, H. R., Rahmawati, S., & Zakaria, M. (2024). Artificial intelligence in higher education: A literature review on bridging the digital divide among college students in Indonesia. *ICOERESS, 1*(1), 239–248. https://icoeress.pascasarjana.uinjambi.ac.id/ojs/index.php/icoeress/article/view/16

Yan, Y., Liu, H., & Chau, T. (2025). A systematic review of AI ethics in education: Challenges, policy gaps, and future directions. *Journal of Global Information Management, 33*(1), 1–50. https://doi.org/10.4018/JGIM.386381

ISSN: 2797-3174