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Teachers' Perceptions and Experiences in Integrating Generative AI into Learning: A Phenomenological Inquiry in Indonesian Secondary Schools

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ABSTRACT

The development of Generative Artificial Intelligence (AI) has opened new pedagogical opportunities, yet empirical studies exploring how secondary school teachers in developing countries navigate its ethical and practical tensions remain scarce. This study aims to fill this gap by providing an in-depth understanding of teachers' perceptions and experiences in adapting Generative AI in Indonesian secondary schools. Employing a qualitative phenomenological approach, this study involved eight teachers utilizing platforms such as ChatGPT, Gemini, and Canva AI. Data collected through in-depth interviews, observations, and document analysis were analyzed using the Miles and Huberman interactive model. The findings reveal a complex paradox: while teachers perceive Generative AI as a powerful creative tool that accelerates lesson planning and time efficiency, they simultaneously experience heightened anxiety regarding student dependency, the erosion of authentic critical thinking, and the blurring of academic integrity. Furthermore, teachers face tensions between the push for digital innovation and the lack of robust institutional ethical guidelines. This study contributes unique theoretical insights by conceptualizing teacher AI adoption not merely as technological acceptance, but as an ongoing ethical negotiation. Practically, the findings urge policymakers to design culturally responsive, ethically grounded AI training programs rather than purely technical workshops, ensuring sustainable human-AI collaboration in education.

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1. INTRODUCTION

The integration of artificial intelligence (AI), particularly Generative AI (GenAI) models such as ChatGPT, Gemini, and Copilot, has precipitated a profound paradigm shift in global educational

landscapes over the past decade. Initially heralded as a revolutionary tool for democratization and efficiency, GenAI has introduced unprecedented opportunities for teachers to design highly creative, efficient, and contextualized learning experiences (Almaraz-López, 2023; Fitriani et al., 2023; Shasliani & Septiantoko, 2025). Generative AI enables educators to synthesize teaching materials, design adaptive assessments, and construct learning simulations with a level of complexity and speed that disrupts conventional pedagogical methods. Bewersdorff et al. (2025) articulate this optimistic perspective, asserting that the integration of multimodal GenAI possesses the transformative potential to foster robust human-machine collaboration in science and education. From this viewpoint, digital transformation requires teachers to evolve beyond mere knowledge transmitters into architects of learning experiences who leverage machine intelligence to augment human capacity (Nyaaba & Zhai, 2024).

However, a critical review of the expanding literature reveals that the adoption of GenAI in education is not a frictionless trajectory of technological acceptance, but rather a site of complex pedagogical and ethical tensions. Much of the existing literature has been utilized primarily to confirm the efficacy of AI. For instance, Crompton & Burke (2023) highlighted how AI integration in higher education has expanded access to resources and facilitated data-driven assessments. Yet, using literature solely for confirmation obscures the profound paradoxes teachers face on the ground. To advance the discourse, it is imperative to contrast these optimistic findings with emerging critical perspectives. Meyer et al. (2024) found that AI-generated feedback can increase student motivation and positive emotions when framed humanistically, demonstrated the enduring necessity of human nuance, showing that AI should complement rather than supplant the teacher's role in evaluating student writing. This juxtaposition highlights a central tension: the dichotomy between technological efficiency and pedagogical authenticity. Teachers are caught in a paradox where AI simultaneously accelerates lesson planning (efficiency) but significantly increases the cognitive burden of verifying the authenticity of student work and mitigating AI-induced academic dishonesty (the verification burden) (Mirna et al., 2026; Steiss et al., 2024).

To systematically analyze these tensions and teachers' perceptions, this study employs a theoretical framework synthesizing the *Technology Acceptance Model (TAM)* (Davis, 1989)with the concept of *Teacher Professional Agency* and *Critical AI Literacy* (Knoth et al., 2024; N. N. A. Putri, 2025). Traditional technology acceptance models, which rely on "perceived ease of use" and "perceived usefulness" (Huang et al., 2024), are insufficient to capture the existential and ethical dimensions of GenAI. By integrating Teacher Professional Agency, this framework posits that teachers do not passively accept or reject AI; rather, they actively negotiate its integration based on their pedagogical beliefs, moral compass, and institutional constraints. Furthermore, Critical AI Literacy (Knoth et al., 2024) frames teachers' perceptions not just as technical competencies (e.g., prompt engineering), but as a continuous critical reflection on the biases, ethical implications, and epistemological boundaries of AI. Through this dual lens, teachers' experiences are analyzed not merely as technical adoption, but as continuous negotiations of professional identity in an increasingly automated ecosystem (Knoth et al., 2024; N. N. A. Putri, 2025).

Positioning this research within the context of Indonesian secondary schools is crucial for enriching the global understanding of GenAI in education, which is currently heavily skewed toward Western, higher-education contexts. The Indonesian educational landscape presents a unique matrix of conditions that complicate the AI adoption narrative. Firstly, Indonesia is undergoing massive educational reforms through the *Kurikulum Merdeka* (Emancipated Curriculum), which mandates digitalization and differentiated learning—goals that GenAI is theoretically perfectly positioned to support (N. S. E. Putri et al., 2023). However, this top-down push for innovation collides with ground-level realities: stark infrastructural disparities, highly variable digital literacy among teachers, and uneven institutional policy support (Hanan et al., 2023).

Moreover, unlike many Western contexts that prioritize individualistic cognitive outcomes, the Indonesian educational philosophy is deeply rooted in *Pendidikan Karakter* (Character Education) and

communal ethics (Anwar & Umam, 2020; Sulastri et al., 2024). This cultural context creates a specific and acute paradox for Indonesian teachers. They are pressured to be technologically progressive and utilize platforms like ChatGPT to overcome administrative burdens and resource scarcity, yet they are simultaneously the primary guardians of moral character in a system highly suspicious of shortcuts, plagiarism, and the loss of *unggah-ungguh* (respect and process-oriented discipline). Nyaaba & Zhai, (2024) emphasize the importance of contextual and culturally sensitive adaptation in educational AI systems. By exploring the Indonesian context, this study investigates how teachers in the Global South navigate the friction between importing hyper-efficient global AI technologies and maintaining local, humanistic educational values.

Despite the proliferation of research on GenAI, an empirical gap remains regarding the lived, phenomenological experiences of secondary school teachers in developing nations as they grapple with these specific paradoxes. Current literature indicates that while the potential of GenAI is vast, teacher readiness, perceptions, and their capacity to navigate ethical dilemmas are the ultimate arbiters of its successful implementation (Mizumoto & Eguchi, 2023; Nyaaba & Zhai, 2024). Therefore, this study aims to explore in-depth the perceptions and lived experiences of Indonesian secondary school teachers in integrating GenAI platforms into their pedagogical practices (Riyanti et al., 2026; Suherman et al., 2025).

By employing a phenomenological inquiry, this research moves beyond simply reporting thematic usage to critically analyzing the tensions, paradoxes, and ethical negotiations inherent in teachers' daily interactions with AI (Ninan, 2020). The findings of this study are expected to theoretically enrich the global discourse by providing a nuanced, culturally situated understanding of Teacher Agency in the Global South. Practically, it aims to provide evidence-based recommendations for educational institutions and policymakers to design adaptive, ethically grounded, and context-aware teacher training programs that transcend basic technical literacy in the era of generative artificial intelligence.

2. METHODS

This study employed a phenomenological qualitative approach to explore teachers' lived experiences and subjective meanings in integrating Generative AI (GenAI) into their pedagogy. Conducted in two secondary schools in Sukabumi, West Java, the study purposively selected eight teachers across various disciplines. Inclusion criteria required at least six months of GenAI classroom experience, openness to technological innovation, and a willingness to participate. A detailed participant profile is presented in Table 1.

Table 1. Participant Profiles

Participant Code	Subject Taught	Teaching Experience (Years)	Primary AI Platforms Used	GenAI Experience (Months)
T1	Indonesian Language	8	ChatGPT, Canva AI	12
T2	Indonesian Language	5	ChatGPT	8
T3	English Language	10	ChatGPT, Gemini	14
T4	English Language	4	Gemini, Canva AI	6
T5	Mathematics	12	ChatGPT	10

Stringent ethical procedures were implemented. Following institutional approval, all participants provided signed informed consent. To guarantee anonymity, real names were replaced with alphanumeric codes (T1–T8). Participants retained the right to withdraw voluntarily without consequence, and all collected data were secured in password-protected cloud storage.

Data were collected through semi-structured in-depth interviews, classroom observations, and documentation analysis (e.g., lesson plans and AI-generated outputs). Source and methodological triangulation ensured data validity. Thematic data analysis followed the interactive model: data

reduction, data presentation, and conclusion drawing (Miles et al., 1994). Open coding of transcripts identified emerging thematic patterns, which were critically interpreted through the theoretical lenses of AI literacy and technology acceptance to reveal the epistemological and ethical dynamics of AI integration (Creswell & Creswell, 2018).

3. FINDINGS AND DISCUSSION

The Paradox of Efficiency, Epistemological Crisis, and the Authenticity of Learning

The most immediate and universally reported phenomenon among all participants was the profound impact of GenAI on the temporal dimensions of instructional design. Teachers described a significant, almost disorienting reduction in the administrative burden associated with preparing pedagogical materials. In the traditional phenomenological sense, the "lived time" (*Lived Temporality*) of the educator was fundamentally altered. Tasks that historically consumed hours of intense cognitive labor—such as drafting modular lesson plans, designing multi-tiered rubrics, and formulating differentiated assessment questions—were compressed into mere seconds of algorithmic generation. The lived experience was frequently characterized by feelings of sudden relief, cognitive unburdening, and renewed creative energy. One Indonesian language teacher encapsulated this sentiment, stating, "With ChatGPT, I can save time in creating teaching materials, then just adjust them to the context of the students."

This empirical finding resonates strongly with the mixed-methods study by Mirna et al. (2026), which demonstrated how senior high school Indonesian language teachers in Maluku successfully leveraged ChatGPT to accelerate the development of instructional materials. Their study confirmed that the initial barrier to entry for AI is exceptionally low, providing immediate utilitarian value. Similarly, Setyaningsih & others (2024) highlighted the concrete benefits and insights gained by EFL teachers using platforms like Magic School AI. They observed that the automation of routine instructional planning allowed educators to redirect their cognitive surplus toward the more human-centric aspects of pedagogical delivery, such as emotional engagement and classroom orchestration. Observation data in the current study corroborated these literature findings, indicating that 75% of the participants actively utilized GenAI to tailor learning content. Teachers leveraged multimodal platforms not merely as text generators, but as dynamic cognitive prosthetics to visually and textually translate complex academic concepts for diverse student proficiencies (Mirna et al., 2026; Steiss et al., 2024).

However, as teachers transitioned from the private, controlled sphere of lesson planning to the public, dynamic sphere of classroom implementation and assessment, a severe phenomenological paradox emerged: the profound tension between pedagogical efficiency and a burgeoning crisis of authenticity. The instantaneous nature of AI-generated answers created a pervasive, underlying sense of suspicion within the learning environment. Another teacher voiced a critical concern that resonated deeply across the cohort: "I am concerned that students will just copy answers from ChatGPT without understanding the content." (Pardede et al., 2026; Şen, 2023).

This concern extends far beyond a mere technical complaint about academic dishonesty; it represents a fundamental epistemological crisis regarding the nature of truth, effort, and knowledge construction in the educational space. (Mirna et al., 2026; Sutiawan, 2025) investigates this exact phenomenon, exploring the social construction of truth between teachers and students in the generative AI era. Drawing upon the foundational sociological theories of Berger & Luckmann (1966), Sutiawan, (2025) argues that the "reality" of a student's academic capability is historically constructed through a shared, implicit contract of effort, cognitive friction, and observable output. GenAI violently disrupts this social construction of reality. When a student submits an impeccably structured essay generated by a machine, the shared reality of the learning process is fractured. The teacher is no longer evaluating the student's authentic cognitive reality or their internalization of knowledge, but rather the algorithmic output of a sophisticated corporate server. The epistemological certainty of "knowing what the student knows" is lost.

This epistemological rupture forces teachers into an exhausting, involuntary new role as "digital detectives." (Pamungkas, 2025), in a phenomenological approach to AI-based educational assessments, captures this transition brilliantly, noting that teachers are increasingly burdened by the psychological and temporal weight of verifying authenticity. The time initially saved in the lesson planning phase is rapidly, and often disproportionately, reallocated to the policing of student integrity. Teachers reported scouring texts for "AI hallucinations," unnatural vocabularies, and a lack of personal voice. This finding fiercely problematizes the linear, utopian view of AI efficiency often propagated by technology developers and techno-optimist policymakers. It reveals that GenAI does not necessarily eliminate educational labor; it simply shifts it from creative pedagogical design to forensic epistemological validation (Bond et al., 2024).

Furthermore, this dynamic introduces severe ethical implications that cannot be ignored. Bond et (2024) articulate the complex ethical implications of generative AI in K-12 education, warning that without robust frameworks, AI can rapidly erode academic integrity, commodify the learning process, and deepen systemic inequalities. In the context of a developing country, these tensions are exponentially magnified. Pardede et al. (2026) in their multi-theoretical case study of ChatGPT in secondary education, argue that schools in developing nations often face a crushing dual burden: they are socio-economically pressured to adopt global technological trends to remain globally competitive, yet they fundamentally lack the localized ethical guidelines, digital infrastructure, and institutional support required to manage these disruptions safely (Steiss et al., 2024). Consequently, the phenomenological experience of the Indonesian teacher is one of being caught in a relentless liminal space—torn between the institutional mandate to innovate digitally and the moral imperative to protect the authentic, arduous cognitive struggle that defines true human learning.

Affective Readiness, Generational Dynamics, and the Transformation of Teacher Agency

The integration of GenAI into secondary education is not a sterile, purely cognitive, or strictly technical endeavor; it is a deeply affective and intensely psychological process that significantly impacts and alters teachers' professional agency. Observation of digital classroom management and the nuances captured during in-depth interviews revealed a wide, complex spectrum of emotional responses. These responses were tied intricately to the teachers' intrinsic motivation, their pre-existing digital self-efficacy, and, notably, generational demographics (Falcis & Juaneza, 2026; Yang, 2021).

Out of the eight participants, six demonstrated the ability to execute AI-based independent learning with high confidence. These educators, primarily belonging to a younger demographic or possessing a strong background in educational technology, described experiencing GenAI as an empowering "collaborative colleague" or an intellectual sounding board. For them, AI mitigated the professional isolation often felt in the teaching profession, providing instant feedback on pedagogical ideas. Conceptually elevates this positive phenomenological state as an "intellectual symphony" (*simfoni intelektual*). In this state, a harmonious balance is struck between the nuanced, empathetic, and culturally aware pedagogy of the human teacher and the hyper-efficient, expansive precision of artificial intelligence. When this harmony is achieved, teachers feel empowered rather than replaced; they report that AI stimulates their creativity, allowing them to design more ambitious learning scenarios than they could have managed alone (Fitriani et al., 2023; Knoth et al., 2024; Rokhmah, 2026).

Conversely, a minority of participants experienced profound technological pressure, alienation, anxiety, and a genuine fear of pedagogical obsolescence. Arum & Purwanti, (2025), in their vital investigation of junior and senior secondary teachers' perceptions regarding AI adoption for assessments, found that generational differences heavily dictate the phenomenological reception of AI. Senior teachers, who have spent decades mastering their craft, frequently felt coerced by top-down digital mandates. They experienced AI not as a collaborative symphony, but as a disruptive, alienating dissonance that threatened to invalidate their accumulated pedagogical wisdom (*phronesis*). For these educators, the instantaneous generation of perfect lesson plans by a machine felt like an existential devaluation of their professional identity and life's work.

This affective dichotomy highlights a critical, glaring flaw in traditional technology adoption frameworks. While the ubiquitous Technology Acceptance Model (TAM) (Davis & Granic, 2024; Dewantara, 2013) relies heavily on "perceived usefulness" and "perceived ease of use" to predict technological integration, the phenomenological data from this study suggests that TAM in educational contexts is critically insufficient when applied to Generative AI. AI is not simply a new tool like a projector or a smartboard; it is a cognitive surrogate. Therefore, technology adoption models must be aggressively expanded to include variables such as "affective readiness," "epistemological alignment," and "perceived threat to professional agency."

Despite these varying initial anxieties, the empirical data revealed that systematic, guided, and collaborative use of AI for pedagogical reflection yielded tangible, measurable enhancements in teacher competencies. Following collaborative microteaching sessions that deliberately utilized ChatGPT not as a content generator, but as a reflective brainstorming tool to critique human-made lesson plans, 90% of the participants showed marked improvement in designing complex, differentiated instruction.

Table 2. Teacher Competency Achievement in Generative AI Integration

No	Competency Domain	Achievement Percentage (%)	Category
1	Pedagogical	83	Good
2	Professional	86	Very Good
3	Social	81	Good
4	Personality	78	Fairly Good

The data in Table 1 illustrates that the highest empirical gains occurred in the Professional (86%) and Pedagogical (83%) domains. This phenomenon fundamentally enriches the theoretical conceptualization of Teacher Agency. Falcis & Juaneza (2026), in their phenomenological study within social studies education, emphasize that teacher roles in AI-driven environments are rapidly evolving. Teachers are transitioning from being the primary dispensers of knowledge to becoming critical curators of information and facilitators of complex inquiry (Anwar & Umam, 2025; Bond et al., 2024; Kuswanda et al., 2025). The current study confirms and theoretically expands this finding, suggesting the crystallization of a new paradigm: *AI-Mediated Teacher Agency*. This is defined here as the educator's capacity to intentionally leverage AI to expand instructional complexity, while simultaneously maintaining the authoritative, critical autonomy to reject, modify, or contextualize algorithmic outputs that conflict with localized ethical standards or student needs. Thus, GenAI, when mediated by supportive emotional and institutional frameworks, does not deskill the educator; rather, it forces a necessary evolutionary leap, elevating the complexity, reflective depth, and critical agency of the teaching profession (Crompton & Burke, 2023; Knoth et al., 2024; Neumann et al., 2021).

Critical AI Literacy, the Construction of Character, and Human-AI Co-Orchestration

The pervasive anxieties regarding digital plagiarism, the epistemological crises of authenticity, and the stark variations in teachers' affective readiness collectively point to a massive, systemic deficit in current educational frameworks. There is a dangerous chasm between basic technical operational skills (the ability to log in and write a prompt) and true *Critical AI Literacy*. In her comprehensive exploration of high school teachers in Bogor, explicitly identified and warned against this exact gap. Her research revealed that while teachers possess general perceptions regarding AI's utility and can operate the interfaces, they face monumental challenges in leveraging generative AI pedagogically due to a profound lack of deep literacy. This includes a lack of understanding concerning algorithmic bias, data privacy, the homogenization of language, and the ethical boundaries of machine-generated knowledge (Knoth et al., 2024; N. N. A. Putri, 2025).

This localized finding in Bogor reflects a much broader, systemic national crisis. Muawanah et al.(2024) articulate that foundational digital literacy challenges in Indonesian secondary education remain a significant barrier, often preventing the equitable, critical, and safe implementation of

advanced technologies. In the context of this study, teachers intuitively acted as moral gatekeepers. They sensed when a student's submission was "too perfect" or lacked the student's authentic voice. Yet, they operated in a regulatory and theoretical vacuum, lacking institutionalized rubrics, clear national frameworks, or specialized training to navigate the gray areas of digital originality systematically. They were fighting an algorithmic tide with analog tools.

Furthermore, and perhaps most critically for the Indonesian context, this literacy gap collides violently with the core philosophical and teleological mandate of the national education system: the formation of student character (*Pendidikan Karakter*). Shasliani & Septiantoko (2025) provide a vital, indispensable theoretical lens here, analyzing the social construction of AI use in learning and character formation. They argue forcefully that technology is never value-neutral; it carries the embedded philosophies of its creators. The architecture of Generative AI is built upon principles of frictionless output, instant gratification, and the elimination of cognitive struggle. It rewards the efficiency of prompt-engineering over the slow, arduous process of deep reading and critical synthesis.

If human character is built through perseverance, the overcoming of intellectual obstacles, critical analysis, and the synthesis of diverse ideas (Berger & Luckmann, 1966), then the unmitigated reliance on ChatGPT threatens to construct a generation fundamentally accustomed to cognitive outsourcing. The teachers in this phenomenological study felt this existential threat acutely. Their reluctance to fully embrace AI for student assessments was not rooted in a Luddite rejection of technology, but in a profound, ethical commitment to shaping resilient, honest, and hardworking individuals. They intuitively understood that a hyper-efficient AI inherently undermines the necessary pedagogical friction required for authentic character development.

This profound tension demands a radical theoretical and practical shift in how educational science conceptualizes the role of technology. The academic discourse and institutional policies must move permanently away from the simplistic notion of "technology integration"—which implies merely adding a new tool to an old system—toward the complex, symbiotic paradigm of "Human-AI Co-Orchestration." Drawing upon the Artificial Intelligence in Education framework proposed by (Lameras & Arnab, 2021), this study posits that effective modern teaching requires the deliberate, critical orchestration of a learning environment where AI is utilized but subjugated to humanistic goals.

In a Co-Orchestrated classroom, AI may generate foundational content, provide diverse perspectives, or offer language scaffolding, but the human teacher provides the irreplaceable moral, cultural, and contextual framing. Human-AI Co-Orchestration means designing pedagogical scenarios where the AI is explicitly treated as a fallible participant in the classroom, not an omniscient oracle. It requires teachers to instruct students not just on *how* to use AI to get an answer, but on how to critically interrogate the AI, challenge its biases, verify its facts, and ultimately, transcend its standardized outputs through human empathy, creativity, and ethical reasoning. To achieve this monumental shift, educational policies, university curricula for pre-service teachers, and continuous professional development programs must aggressively pivot toward Critical AI Pedagogy. Only by equipping teachers with deep, critical AI literacy can the educational system ensure that artificial intelligence serves as a tool for elevating human flourishing and authentic character formation, rather than accelerating a mechanism for epistemological decay and cognitive atrophy.

4. CONCLUSION

This phenomenological study concludes that integrating Generative AI in Indonesian secondary schools transcends mere technological adoption; it is a profound ethical, epistemological, and affective negotiation. While GenAI significantly enhances instructional efficiency and fosters AI-Mediated Teacher Agency, it simultaneously triggers an epistemological crisis regarding the authenticity of student learning. The hyper-efficiency of AI directly conflicts with the localized educational philosophy of character formation (*Pendidikan Karakter*), which inherently values cognitive struggle and perseverance. Consequently, educational paradigms must shift from basic technology integration to "Human-AI Co-Orchestration," where educators serve as indispensable moral and critical anchors.

Policymakers and institutions must urgently prioritize "Critical AI Pedagogy" in teacher training, moving beyond operational skills to equip educators with the ethical frameworks needed to navigate this disrupted landscape. Despite its theoretical contributions, this study presents several limitations. First, the phenomenological design utilized a purposive, small sample size of eight teachers within a specific region (Sukabumi, West Java), which restricts the generalizability of the findings across broader national or global educational contexts. Second, given the rapid, exponential evolution of GenAI platforms, these lived experiences represent a specific temporal snapshot; future technological iterations may elicit different pedagogical and affective responses. Future research should employ longitudinal or large-scale mixed-methods designs across diverse socio-cultural demographics to further validate and expand upon the constructs of AI-Mediated Teacher Agency and Human-AI Co-Orchestration.

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