



The Need Analysis for AI-Based Applications to Support Teacher Performance

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Abstract: In the digital transformation era, teachers play a pivotal role in shaping educational outcomes while facing challenges posed by modern curricula, including Indonesia's Merdeka Curriculum. This study investigates teachers' specific needs for AI-based applications, focusing on lesson planning, administrative tasks, and personalized teaching approaches. Employing a cross-sectional survey, data were collected from 300 teachers across Java and Bali, spanning early childhood to vocational education. The findings highlight significant difficulties in aligning lessons with student-centered principles and diverse learner needs despite considerable enthusiasm for AI's potential to reduce workloads and enhance efficiency. Nonetheless, ethical concerns and limited training remain issues. Critical factors for successful AI adoption include time efficiency, ease of use, curriculum alignment, and cost. These insights guide developers and policymakers in creating localized, user-friendly, and accessible AI solutions. In conclusion, effectively designed AI-based tools, coupled with sufficient professional development, can improve teacher readiness and performance, offering a pathway to more effective implementation of the Merdeka Curriculum and advancing Indonesia's educational landscape.

Keywords: AI-based teacher tools; educational curriculum support; teacher digital readiness; teacher performance

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INTRODUCTION

Teachers occupy a pivotal position in shaping educational outcomes and advancing the quality of human resources, as their instructional practices, attitudes, and self-efficacy can profoundly influence student learning (Blazar & Kraft, 2017; Husin & Lian, 2021; Petek & Pope, 2023; Thommen et al., 2022; Zee & Koomen, 2016). Numerous studies illustrate that highly qualified and professionally supported teachers enhance not only students' cognitive gains but also socio-emotional growth, motivation, and academic behaviors (Martin et al., 2024; Zee & Koomen, 2016). However, current educational landscapes demand continuous adaptation to evolving curricular frameworks and technological transformations, including the complexities of implementing Indonesia's Merdeka Curriculum. Concomitantly, the digital era has witnessed rapid developments in Artificial Intelligence (AI), positioning it as a potentially transformative force in education and sparking a growing body of research on its capacity to optimize various instructional tasks (Gao et al., 2024; Kshetri, 2023). AI-driven tools show promise in helping teachers manage workloads, such as administrative tasks and real-time student assessments, while facilitating personalized learning pathways (Alatrash et al., 2024; Latif & Zhai, 2024; Pardamean et al., 2022). Despite this potential, an in-depth understanding of teachers' unique needs, challenges, and contextual realities remains underexamined, leaving a critical gap in the literature on AI readiness and adoption (Lee & Moore, 2024; Moorhouse & Kohnke, 2024). These underexplored dimensions are pivotal because teachers, as the frontline practitioners of educational reform, must align AI-based applications with specific curricular demands, student diversity, and personal competencies to maximize effectiveness (Blazar & Kraft, 2017; Husin & Lian, 2021; Petek & Pope, 2023).

A considerable portion of AI-in-education research has focused on systems designed primarily for student-centered applications—intelligent tutoring systems, adaptive learning software, and learning analytics platforms—emphasizing gains in student engagement, motivation, and academic performance (Aryadoust et al., 2024; Bressane et al., 2024; Mason et al., 2020). While these advances underscore the remarkable potential of AI to enrich student learning experiences, they often overlook the day-to-day realities faced by teachers who orchestrate and sustain these technologies in actual classrooms (Albayati, 2024; Latif & Zhai, 2024). Many of these studies heavily emphasize technical aspects, such as refining predictive models or improving large language models, rather than examining the pedagogical agency, specific competencies, and professional growth trajectories of teachers (Almenara, 2024; Pacheco-Mendoza et al., 2023). Given that teacher roles include lesson planning, assessment creation, resource management, and the cultivation of supportive learning environments, a focused examination of how teachers perceive, adopt, and integrate AI-based solutions is essential (Emeršič et al., 2024; Zee & Koomen, 2016). Researchers and policymakers thus need greater clarity on how the design and implementation of AI tools can be tailored to teacher needs, especially in contexts like

Indonesia, where the Merdeka Curriculum demands student-centered pedagogical approaches and greater adaptability to local conditions (Kshetri, 2023; Martin et al., 2024). By exploring teachers' particular perspectives on AI, scholars can illuminate the underlying barriers—ranging from limited infrastructure to ethical concerns—and propose scaffolds such as professional development initiatives or policy guidelines that promote more sustainable technology adoption (Husin & Lian, 2021; Petek & Pope, 2023).

Recent empirical findings highlight the magnitude of these barriers, underscoring that successful AI integration hinges not only on robust technical innovations but also on teachers' readiness and local curricular alignment (Lima, et al., 2024; Wang, 2023; Wu et al., 2024). For instance, a survey of 102 Brazilian educators showed that while most participants approved of AI's effectiveness in personalizing instructional delivery, nearly half remained uncertain about adopting AI-based assessments due to insufficient technological infrastructure and inadequate training (Lima et al., 2024). A separate study involving 606 pre-service teachers revealed that "GenAI anxiety" and low technology self-efficacy were common, further illustrating the need for institutional support systems, including comprehensive training models and improved access to digital resources (Wang et al., 2024). Moreover, ethical considerations and gaps in AI literacy persist across educational levels: Wu et al. (2024), examining 98 K-12 classrooms, found that merely 5.1% of AI-focused lessons addressed ethics or higher-level competencies like evaluating and creating AI. These findings indicate a pronounced need for stakeholder collaboration—government authorities, technology developers, and school administrators—to design more context-appropriate solutions. Consequently, a systematic needs analysis can help determine what practical supports or policy frameworks might reduce teachers' apprehension about AI and more closely align the technology with day-to-day instructional goals (Emeršič et al., 2024; Moorhouse & Kohnke, 2024).

Against this backdrop, the present study attempts to address the evident gap in the literature by centering teachers' insights on AI-based solutions to support professional performance. In contrast to generalized discussions of technology's benefits, this research specifically pinpoints the barriers, facilitators, and priority features that educators deem most relevant. Three key research questions guide this inquiry: (1) What aspects of teacher performance require AI-based support? (2) How do teachers perceive and demonstrate readiness for AI adoption? (3) Which contextual factors most critically shape AI-driven application design for the Indonesian teaching environment? By deepening the understanding of teachers' challenges—such as navigating the Merdeka Curriculum, tailoring lessons to heterogeneous student needs, and handling ethical considerations—this study offers data-driven recommendations to stakeholders poised to advance Indonesia's educational landscape (Gao et al., 2024; Rütli-Joy et al., 2024). With teachers at the center of the analysis, the goal is to explore how they interpret AI-based platforms and outline concrete solutions that help them thrive in a digital era. Ultimately, the findings of this investigation provide actionable insights for AI solution developers aiming to design teacher-oriented interfaces and functionalities. Equally, policymakers stand to benefit from evidence-based guidelines that can shape targeted professional training initiatives or policy reforms, thus bridging existing gaps in teacher preparedness (Emeršič et al., 2024; Pardamean et al., 2022). This research furthers the discourse on AI in education by illuminating how teacher perspectives can guide the alignment of technological innovation with authentic classroom practices, thereby enhancing teacher performance and long-term educational outcomes. By embedding teacher needs and feedback into the design and development process, AI applications are more likely to be embraced, effectively implemented, and harnessed to elevate the quality of instruction. In this way, the study clarifies how AI might serve as a genuinely transformative agent in Indonesian education, fulfilling critical objectives such as learner-centric pedagogy, equitable access to high-quality resources, and improved teacher efficacy. The resultant knowledge base thus contributes substantially to discussions on operationalizing AI to meet pressing educational demands, signifying a constructive step toward fully realizing the potential of technology in contemporary learning environments.

METHODS

This study employed a cross-sectional survey design to capture a "snapshot" of teachers' experiences with the Merdeka Curriculum and their attitudes toward educational technology—particularly AI-based tools—at a single point in time (Cohen et al., 2018; Creswell & Creswell, 2018). Cross-sectional surveys are widely utilized in educational research due to their efficiency in gathering large amounts of data from geographically dispersed respondents over a relatively short period (Bryman & Bell, 2021). Accordingly, this design was considered appropriate for investigating current teacher practices and perspectives in Java and Bali, providing an essential baseline for contextualizing the role of AI in curriculum implementation. The study involved 300 teachers from various formal educational institutions across Java and Bali, encompassing early childhood, primary, secondary, and vocational levels. A non-probability convenience sampling approach was used to recruit participants, with invitations sent via institutional email lists and social media platforms (Etikan et al., 2015). The study objectives and procedures were explained before data collection, and participants provided informed consent. They were assured of voluntary participation and confidentiality in all collected data (Wiersma & Jurs, 2009). Data were

gathered using a structured online questionnaire explicitly developed for this research. The questionnaire was constructed based on a comprehensive literature review of curriculum implementation challenges, teacher digital competence, and AI integration in education (Kumar, 2011). It underwent an expert review for face validity and content relevance, with minor revisions to item wording and response formats made accordingly. The data collection process was carried out over 2 weeks in November 2023. Questionnaires were electronically distributed via customized survey links shared through email invitations and teacher social media groups to ensure broad reach (Fink, 2017). Before completing the questionnaire, respondents accessed a digital consent form detailing the research objectives, voluntary nature of involvement, and assurances of anonymity. They were informed that they could withdraw from participation without penalty. Upon submission, responses were automatically recorded in a secure database accessible only to the primary researcher. Following the collection phase, raw data were exported into a statistical software package (SPSS) for preliminary cleaning to remove incomplete or invalid responses (Field, 2013). Descriptive statistics, including percentages and frequencies, were used to summarize participants' demographic profiles and response distributions across all Likert-scale and multiple-choice items. Results were visualized through bar charts and tables for clarity and ease of interpretation. Findings from the quantitative approach provide a comprehensive view of teachers' needs, challenges, and readiness for AI-supported teaching.

RESULT AND DISCUSSION

This section presents the main findings from analyzing teachers' needs for AI-based applications to support their performance in implementing the Merdeka Curriculum. Data from 300 teachers across Java and Bali were collected, encompassing respondents from early childhood to vocational education settings. The results below are organized according to key survey items, complemented by brief explanations of each table. By examining teachers' difficulties with the Merdeka Curriculum, the main considerations in creating learning plans, and their perceived needs for technology, this study offers insights into both the readiness and the challenges educators face. Where relevant, the overall patterns highlight the variation in teacher responses across different educational levels. Additionally, descriptive statistics provide a snapshot of the extent to which teachers endorse or remain uncertain about integrating AI into their lesson-planning process. These observations set the stage for further discussion of how AI can address the specific areas teachers have identified requiring additional support.

Table 1. Teachers Have Difficulties in Implementing the Merdeka Curriculum

Educational level	Difficulties in Implementing the Merdeka Curriculum					Total
	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)	
PAUD	2	5	24	20	21	72
SD	7	10	39	28	23	107
SMP	2	6	12	13	11	44
SMA	2	7	9	8	20	46
SMK	3	1	8	7	12	31
Total	16 (5,9%)	29 (9,7%)	92 (30,7%)	76 (25,3%)	87 (29,0%)	300 (100%)

Based on Table 1, the survey results show that teachers frequently encounter significant challenges in designing and implementing learning activities aligned with the Merdeka Curriculum. Among 300 participants, 53.3% indicated moderate to high difficulty (Likert scores of 4 or 5), underscoring the widespread nature of these obstacles. By contrast, only 15% reported minimal difficulties (scores of 1 or 2), suggesting that a small minority feels confident adapting their instructional practices to new curricular demands. Meanwhile, 30.7% of respondents remained neutral, which may imply partial uncertainty or the perception that they still require further clarification on specific curriculum requirements. Notably, these patterns emerged across all educational levels, as both primary and secondary teachers expressed a comparable sense of challenge. The data also suggest that the Merdeka Curriculum's shift toward more student-centered approaches demands additional preparation and support for most educators. These findings highlight the importance of targeted interventions—such as professional development workshops and context-specific resources—to help teachers manage curriculum changes effectively and enhance student learning outcomes.

Table 2. Teacher Considerations in Developing Learning Plans

Statement Items	Considerations in Developing Learning Plans	
	Responses	Percent of Cases
Need General Profile of Student	181	60.3%
Requires Student Interest Info	227	75.7%
Need Student Character Data	231	77.0%
Need Student Learning Style Data	215	71.7%
Need Favorite & Non-Favorite Subject Data	134	44.7%
Need Student Academic Ability Data	180	60.0%
Need Data on Students' Non-Academic Abilities	134	44.7%
Need Student Report Result Data	104	34.7%
Need Data on Special Student Needs	112	37.3%

When creating lesson plans, the findings in Table 2 indicate that teachers consider a diverse range of factors, with 77.0% highlighting student character data and 75.7% emphasizing student interests and talents. In addition, 71.7% reported that a student's learning style is crucial in formulating effective instructional strategies. Moreover, 60.3% of participants noted that a student's general profile provides essential background context, while 60.0% emphasized academic ability as another cornerstone for lesson design. Interestingly, factors such as non-academic abilities (44.7%) and favorite or non-favorite subjects (44.7%) had lower, yet still substantial, frequencies, pointing to the multifaceted nature of inclusive education. These priorities collectively underscore the extent to which teachers strive to tailor their approaches to meet diverse student needs, illustrating a commitment to the core philosophy behind the Merdeka Curriculum. Such evidence of personalization highlights how crucial it is for any new technological solution—especially AI-driven tools—to account for these varied student attributes during the lesson-planning phase.

Table 3. Teachers' Needs for Technology to Assist in Learning Planning

Educational level	Needs for Technology to Assist in Learning Planning					Total
	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)	
PAUD	0	0	7	24	41	72
SD	0	0	13	33	61	107
SMP	0	0	1	14	29	44
SMA	0	0	1	15	30	46
SMK	0	0	4	6	21	31
Total	0 (00,0%)	0 (00,0%)	26 (8,7%)	92 (30,7%)	182 (60,7%)	300 (100%)

Based on Table 3, the findings reveal a strong overall perception of the importance of technology in lesson planning, with 91.4% of teachers agreeing (scores of 4 or 5) that digital tools are essential to their instructional workflows. The complete absence of disagreement (0% for scores 1 or 2) illustrates a near-universal standpoint that technology plays a constructive role in helping educators streamline or enhance lesson preparation. Notably, 8.7% of respondents selected a neutral stance (score of 3), possibly reflecting variations in their familiarity with digital platforms or uncertainty about their potential benefits. These trends are consistent across all educational levels surveyed, from early childhood through vocational contexts, suggesting a broad acceptance of technology's value. Teachers in PAUD, for instance, showed exceptionally high enthusiasm (41 teachers strongly agreeing), hinting that technology can be adapted even in settings with very young learners. The data further highlight the practical implications for policymakers and developers of educational technology, who should note that, while broadly welcomed, such tools will likely need customization to address varying curriculum requirements at different institutional levels. The overall consensus underscores that teachers view technology as a key ingredient in modernizing lesson-planning processes aligned with the Merdeka Curriculum.

Table 4. Level of Teacher Confidence Regarding AI in Assisting with Learning Design

Educational level	Confidence Regarding AI in Assisting with Learning Design					Total
	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)	
PAUD	1	3	13	29	26	72
SD	0	2	18	35	52	107
SMP	0	1	7	10	26	44
SMA	0	0	9	13	24	46
SMK	0	2	3	11	15	31
Total	1 (0,3%)	8 (2,7%)	50 (16,7%)	98 (32,7%)	143 (47,7%)	300 (100%)

Table 4 illustrates that most teachers (80.4%) exhibit a positive attitude toward AI's potential to support lesson design, as inferred from the combined totals of Agree and Strongly Agree categories. A smaller fraction of respondents (3.0%) indicated skepticism by selecting Strongly Disagree or Disagree, hinting at lingering doubts about whether AI can enrich the planning process or address specific classroom concerns. Meanwhile, 16.7% of participants were neutral, signifying that some educators may require further evidence or training to feel entirely comfortable deploying AI-based solutions. This distribution occurs relatively consistently across different schooling levels, implying that educators in PAUD, SD, SMP, SMA, and SMK cultures generally share comparable attitudes toward adopting AI. The disparity between respondents who strongly agree (47.7%) and those who merely agree (32.7%) underscores varying degrees of enthusiasm, possibly influenced by personal experiences with digital platforms or institutional support. Nonetheless, the data affirm that most teachers are open to new technologies if they perceive a precise alignment with curricular goals and ease of use. As such, successful AI implementation may hinge on effectively demonstrating tangible benefits, providing robust user training, and addressing lingering apprehension about how AI might transform traditional pedagogical methods.

Table 5. Teacher Considerations in Choosing to Use an AI Technology

Factor Statement Items	Considerations in Choosing to Use an AI Technology	
	Responses	Percent of Cases
Time Efficiency Factor	240	80.3%
Ease of Use Factor	215	75.7%
Cost Factor	124	77.0%
Technical Support Factors	148	71.7%
Factors Relevant to the Merdeka Curriculum	169	44.7%
Accessibility Factor	172	60.0%
Helping factors for creating modules and media	174	44.7%
Helpful Factors in Carrying Out Student Assessments	139	34.7%

Finally, Table 5 delineates multiple key factors that teachers weigh when selecting AI-based applications to support their work, with time efficiency emerging as the most prominent consideration (80.3%). This finding underlines educators' prioritization of immediate practical benefits, such as streamlined workflow or rapid lesson customization. Interestingly, cost appeared equally significant (77.0%), indicating that affordability remains a pivotal determinant in teachers' decision-making processes, potentially affecting the extent of institutional adoption. Ease of use followed at 75.7%, reinforcing that, regardless of feature sophistication, technology platforms must remain accessible, especially for educators with varying levels of digital proficiency. Additional considerations like technical support (71.7%) and accessibility across multiple platforms (60.0%) further highlight teachers' emphasis on robust infrastructure and user-friendly interfaces. Meanwhile, nearly half of the respondents indicated the importance of relevance to the Merdeka Curriculum (44.7%) and the capacity to aid in developing teaching modules and media (44.7%). These data suggest that teachers require an optimal blend of time-saving features, cost efficiency, and user-centered design before fully embracing AI solutions in education. The findings from this study indicate that teachers experience substantial challenges in designing learning activities aligned with the Merdeka Curriculum. This is consistent with earlier research suggesting that

shifting to a more student-centered approach often demands technological tools to ease lesson planning and classroom implementation (Lima et al., 2024). However, by providing empirical evidence from 300 teachers across Java and Bali, this study contributes a more context-sensitive understanding of these challenges. Specifically, the data highlight teachers' need to systematically integrate multiple factors—such as student character, interests, talents, and learning styles—into their instructional plans. Notably, these results reinforce the idea that an AI system capable of synthesizing large volumes of student-related data can serve as a practical solution to many of these pain points (Lima et al., 2024; Suchanek et al., 2024).

In particular, AI tools that automate routine processes can partially alleviate the administrative burden placed on teachers, which can detract from their core instructional duties. By extending Duan and Zhao (2024) work on improving autonomous teaching and reducing digital fatigue, the current study underscores the necessity of a holistic AI design that combines automated features (such as report generation) with teachers' continuous professional growth opportunities. A key contribution of this study lies in emphasizing the local realities of Indonesian teachers. While existing literature suggests that AI enhances student engagement and personalizes instruction (Chounta et al., 2022), our data reveal context-specific concerns such as limited institutional support, varying digital literacy levels, and the imperative to adapt to a new curriculum framework. By foregrounding these contextual factors, our findings offer a valuable extension to the literature on AI-assisted pedagogy, illustrating the need for applications that align with global best practices and the day-to-day circumstances of teachers in Indonesian schools. The findings from this study indicate that a considerable number of teachers (53.3%) experience notable difficulties in designing and implementing learning activities aligned with the Merdeka Curriculum (scores of 4 or 5 on the Likert scale). This corroborates previous research suggesting that teacher preparedness is often hindered by ambiguity in curriculum interpretation and a lack of supportive resources (Astuti et al., 2024; Syofyan et al., 2024). Only 15% of participants here reported minimal difficulties (scores of 1 or 2), underscoring the prevalence of limited instructional readiness across different educational levels. A further 30.7% remained neutral, which may hint at residual uncertainty regarding how AI-based strategies could effectively supplement—or possibly complicate—Merdeka Curriculum requirements.

Such perceptions echo broader trends in Indonesian education, where teachers frequently cite insufficient institutional support and limited familiarity with emerging technologies as primary barriers to successful curriculum integration (Rohmah et al., 2024). Although most participants in our study expressed strong enthusiasm for AI's potential to streamline lesson planning and facilitate student-centered learning, they also highlighted concerns about ethical issues and pedagogical appropriateness—particularly regarding the extent to which AI might overshadow human interactions in the classroom (Aghaziarati et al., 2023; Chisega-Negrilă, 2024). These findings reinforce the assertion that teacher buy-in stems not merely from the perceived efficiency gains of AI but from adequate training and resource allocation that aligns with local educational mandates (Kitcharoen et al., 2024). In line with prior investigations (Duan & Zhao, 2024), the present study further suggests that teachers' willingness to adopt AI hinges significantly on their level of professional autonomy and ongoing professional development opportunities. Educators who regard themselves as digitally competent—through formal training or self-directed learning—tend to show greater readiness to integrate AI in the classroom. Conversely, those unsure about the relationship between AI tools and the Merdeka Curriculum may avoid incorporating these technologies without clear institutional guidance. Hence, while the positive outlook on AI is encouraging, policymakers, school administrators, and AI developers must orchestrate systematic training programs, mentorship, and reliable technological support to ensure teachers can effectively implement AI alongside curricular demands. By addressing these factors, educational stakeholders can help mitigate the challenges teachers face and bolster AI's transformative potential in Indonesian classrooms.

A key takeaway from the survey concerns the factors teachers prioritize when selecting and using AI technologies in their instructional planning. Time efficiency and ease of use emerged as top considerations, echoing the user-friendly interface principle advocated by Owan et al. (2023). The current study's findings extend this principle by highlighting that user-friendliness alone is insufficient unless matched with relevance to local curricular demands—particularly vital given the Merdeka Curriculum's emphasis on student-centered outcomes. Moreover, our data reinforce Zhao et al. (2022) contention that AI literacy and technical support are pivotal for maximizing the benefits of AI interventions. Since AI tools can only be as effective as teachers' abilities to adapt and apply them, consistent training and accessible support channels must be embedded in any large-scale technology rollout. This study contributes practically oriented evidence that can inform educational decision-makers and technology developers by highlighting the gap between teachers' awareness of AI's potential and their capability to deploy such tools effectively. Furthermore, aligning AI features with the Merdeka Curriculum and facilitating teachers' creation of locally relevant learning modules appear to be decisive elements for successful adoption. Our analysis thus reinforces Kim et al. (2022) recommendation that collaborative environments—where teachers can share experiences and troubleshoot together—exert considerable influence on whether and how AI is mainstreamed into everyday teaching. We also bolster Adams et al. (2022) and Xu (2023) caution that ethical and cultural fit, particularly regarding data security and privacy, must remain integral

to AI tool design. By exploring these issues in the Indonesian context, the present study reveals how socio-cultural and policy dimensions intersect with technical and pedagogical features, an area that had not been sufficiently detailed in prior literature.

Overall, this study makes several important contributions. It broadens the theoretical and practical conversation on AI integration by (1) confirming that complex, learner-centric curricula such as Merdeka necessitate advanced technological support, (2) detailing the interplay between teachers' pedagogical beliefs and their immediate institutional realities in AI adoption, and (3) specifying critical design imperatives—ease of use, time efficiency, contextual alignment, ethics, and ongoing training—that must be met for AI solutions to be successful. Putting Indonesian teachers' voices at the center enriches the global discourse on AI in education with culturally embedded insights and underscores the necessity of a context-sensitive approach to technology innovation. Consequently, the study addresses existing knowledge gaps regarding teachers' readiness for AI-based tools and highlights the foundational role of structured training, ethical considerations, and curriculum relevance in ensuring effective AI-driven teaching. For educational policymakers, these findings offer actionable guidance on resource allocation, professional development design, and curriculum revisions that can facilitate sustainable AI adoption in classrooms. Researchers and developers, meanwhile, may draw upon these insights to create AI tools that resonate with teachers' real-world challenges while respecting local pedagogical values. In short, by bridging theoretical frameworks and everyday practice, this study provides a nuanced roadmap for harnessing AI's potential to enhance teacher performance and student learning in the Indonesian context.

CONCLUSION

This study advances our understanding of how AI-based applications can support Indonesian teachers, particularly in implementing the student-centered Merdeka Curriculum. Conceptually, the findings highlight the interplay between teachers' pedagogical beliefs, their perceived needs for digital tools, and the institutional frameworks necessary for effective AI integration. By centering on teacher perspectives, the research confirms that robust AI solutions—when aligned with local curriculum demands—can address persistent challenges in lesson design, reduce administrative workloads, and foster more personalized learning experiences. Empirically, teachers expressed an apparent demand for AI-driven tools emphasizing time efficiency, ease of use, and minimal administrative burdens. They also voiced concerns regarding ethical implications, data privacy, and a lack of systematic training. These concerns underscore the necessity for professional development programs that build technical competencies and cultivate reflective practices around ethical AI deployment. Although the study focused on Java and Bali, it offers a starting point for broader, nationwide inquiries into how AI might serve diverse educational contexts and varying degrees of digital readiness. From a practical standpoint, these findings suggest that educational policymakers, technology developers, and school leaders should collaborate to devise supportive infrastructures and implement comprehensive training initiatives. By doing so, they stand to enhance teachers' digital competencies and address ethical considerations in parallel, ensuring that AI-based tools are effectively integrated and used to improve teacher performance. Equally important, ongoing professional development and iterative feedback from teachers can guide the customization of AI applications to adapt to rapidly evolving curricular and classroom demands. Ultimately, this research contributes to educational science by detailing both the benefits and the challenges of AI integration, proposing actionable pathways that, if heeded, could significantly elevate educational outcomes in Indonesia.

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