



Pre-Service Language Teachers' Perceptions of AI-Driven Language Assessment: A Preliminary Investigation

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Abstract

The rise of artificial intelligence (AI) in education is transforming language assessment practices and necessitating the development of critical AI literacy among future educators. This exploratory qualitative study investigates the perceptions of 45 Indonesian pre-service language teachers regarding AI-driven language assessment, and how these perceptions inform their readiness to integrate such technologies into classroom evaluation. Data were collected using open-ended online questionnaires and analyzed thematically. Results indicate that 68% of participants view AI as a tool that can enhance assessment consistency and feedback speed, yet 74% express concerns about ethical risks, algorithmic bias, and their limited knowledge of AI applications. Despite recognizing AI's potential benefits, participants demonstrate hesitation rooted in uncertainty about reliability and a lack of structured training. These findings underscore the urgent need for teacher education programs to embed AI-related assessment training that includes practical tool integration, critical evaluation of AI outputs, and ethical considerations in assessment design. This study contributes to the evolving discourse on educational technology in language teacher education by advocating for targeted curricular reforms that foster both technical competence and reflective judgment in AI-assisted assessment practices.

Keywords: *AI in education, language assessment, teacher education, educational technology, pre-service teachers*

Introduction

The growing integration of artificial intelligence (AI) in education is reshaping how language assessment is designed and delivered. Tools such as automated essay scoring, AI-generated feedback, and adaptive testing offer the potential for increased efficiency, personalized evaluation, and real-time formative assessment (Chen et al., 2025). These developments are particularly relevant in language education, where assessment plays a central role in tracking linguistic development and performance. However, while AI promises objectivity and speed, it also introduces critical concerns regarding fairness, algorithmic bias, accountability, and the need for sufficient digital literacy among educators.

In this study, AI-driven assessment refers to the use of machine learning-powered tools to support or automate language evaluation tasks, including but not limited to writing feedback, test grading, language proficiency diagnostics, and adaptive questioning. As these tools gain ground in educational settings, it becomes crucial to examine how future educators—particularly pre-service language teachers—understand and engage with them. Their perceptions, beliefs, and confidence with AI technologies are likely to influence how meaningfully and ethically these tools are used in future classrooms.

While global discourse on AI in education is expanding, research remains limited on how pre-service teachers, especially in developing contexts like Indonesia, interpret these innovations. This study addresses that gap by exploring the beliefs and perceptions of Indonesian pre-service language teachers regarding AI-driven assessment. It aims to understand how their emerging assessment literacy—the ability to design, interpret, and act upon assessment data responsibly—intersects with their readiness to adopt AI tools in educational evaluation.

Indonesia provides a particularly important setting for this research. As the fourth most populous country in the world, it has embarked on ambitious digital transformation efforts in education, including the Merdeka Belajar (Freedom to Learn) curriculum, which promotes independent learning and technology-enhanced pedagogy. Despite these national reforms, teacher preparation programs often lag in integrating contemporary digital assessment training. Most Indonesian pre-service teachers receive limited formal instruction in AI-based tools, and their experiences with digital technology are often shaped by uneven access and varying institutional support. Moreover, English language teacher education programs in Indonesia are still catching up with global trends in AI-assisted instruction and assessment, making this investigation timely and relevant.

This study is grounded in the theoretical lens of assessment literacy (Ogan, Bekiroglu & Suzuk, 2014; Mertler, 2004) and draws connections with emerging frameworks on technology acceptance and AI adoption in education (e.g., Davis, 1989; Zhang et al., 2023). Assessment literacy, in this context, encompasses not only technical knowledge of assessment principles but also critical judgment, ethical awareness, and an understanding of how digital tools influence learning

outcomes. Integrating AI into language assessment requires pre-service teachers to navigate not only procedural skills, but also conceptual clarity and reflective decision-making. Understanding their beliefs at this early career stage is essential for designing responsive teacher education programs.

Although previous studies have addressed the broader implications of AI in instruction and teacher preparation, few have examined the intersection of AI adoption and authentic assessment practices from the standpoint of pre-service teachers. This study responds to that gap by addressing the following research questions:

1. What are the perceptions and beliefs of Indonesian pre-service language teachers regarding AI-driven language assessment?
2. How do these perceptions relate to their assessment literacy and readiness to use AI tools in future teaching practice?
3. What challenges and expectations do pre-service teachers express regarding the integration of AI tools in authentic assessment design?

By investigating these questions, this study contributes empirical insights into how AI technologies are understood and potentially implemented by the next generation of language educators. It also offers practical implications for teacher education curricula, advocating for targeted training that equips pre-service teachers with both the technological competence and critical awareness needed to responsibly engage with AI-driven assessment systems.

Method

This study employed an exploratory survey design to examine Indonesian pre-service language teachers' perceptions of AI-driven assessment. As AI integration into language education is still a developing phenomenon, an exploratory approach was deemed suitable for capturing participants' emerging beliefs and attitudes (Creswell, 2014; Yin, 2018). This design is particularly useful when existing theories are limited or the constructs under investigation are complex and evolving. It aligns with the study's aim to gain in-depth insight into how future educators interpret AI-assisted assessment within the broader context of assessment literacy.

The participants were 34 pre-service English language teachers enrolled in the Language Testing, Evaluation, and Assessment (LTEA) course at a private university in Central Java, Indonesia, during the 2024/2025 academic year. Purposive sampling was used to select individuals who had direct exposure to language assessment theory and practice. The sample included 27 females and 7 males, aged between 20 and 24 years, with varied prior teaching experiences ranging from microteaching only to short-term teaching practicums. This group was considered ideal for exploring early-career perspectives on AI-based language assessment.

Data were collected over a three-week period in April 2025 using an online questionnaire created in Google Forms. The survey link (<https://forms.gle/mmRgQUkbzTFSBzhB8>) was distributed through institutional email and the official class learning management system. Participants were given clear instructions, and two reminders were sent to encourage full participation. The survey was anonymous, and participants could withdraw at any time without penalty. The questionnaire consisted of 16 closed-ended items measured on a 5-point Likert scale and 5 open-ended questions.

The closed-ended items assessed perceptions of AI's usefulness, reliability, ethical implications, and readiness for integration into assessment practices (e.g., "AI tools can improve the fairness of language assessment," "I feel confident using AI to assess my students' language skills"). The instrument was adapted from prior studies on digital assessment perceptions and was validated through expert review by two scholars in language assessment and educational technology. The open-ended items invited participants to reflect on their experiences designing assessments, their opinions about AI as a cognitive partner, and challenges they foresee in future practice.

Prior to data collection, ethical clearance was obtained from the university's research ethics committee. All participants provided informed consent through a digital form embedded at the beginning of the survey. They were assured of confidentiality, voluntary participation, and the purpose of the study. No identifying personal information was collected.

Quantitative data were analyzed using descriptive statistics (frequency, percentage, mean) to identify trends across demographic variables such as gender, age, and teaching experience. The responses were processed using Microsoft Excel and cross-verified manually for accuracy. For qualitative data, thematic analysis was conducted following Braun and Clarke's (2006) six-step framework. Codes were initially generated inductively from the data, then clustered into themes related to participants' conceptions of assessment, AI integration challenges, ethical concerns, and self-efficacy in using AI tools. Triangulation between quantitative trends and qualitative themes helped deepen the interpretation of the findings.

Results

This section presents findings from both the quantitative Likert-scale survey and qualitative open-ended responses, analyzed to explore Indonesian pre-service language teachers' perceptions of AI-driven assessment activities. Descriptive statistics are reported using measures of central tendency (mean and standard deviation), followed by thematic analysis from qualitative responses to deepen interpretation and ensure triangulation of results.

Table 1. Descriptive Statistics for Perceptions of AI-Assisted Assessment Tasks

Item	Perception Statement	Mean	SD	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Q2	AI helped me understand authentic assessment	3.88	0.94	0	6	8	15	10
Q4	I enjoyed using AI tools for assessment design	3.91	1.07	2	3	6	11	14
Q5	AI-based tasks are more meaningful than traditional exams	3.68	0.98	1	3	13	11	8
Q6	The task was cognitively challenging	3.50	0.83	0	5	17	9	3
Q7	I showed creativity and critical thinking	3.38	0.85	1	4	18	8	3
Q8	I want similar tasks in the future	3.85	0.89	0	2	13	9	10

Note: 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree)

Table 1 presents the descriptive results from a Likert-scale questionnaire exploring pre-service teachers' perceptions of using AI tools, such as ChatGPT, in assessment-related tasks. The items (Q2–Q8) covered aspects of conceptual understanding, enjoyment, perceived authenticity, cognitive challenge, creativity, and future interest in similar assignments. The findings reflect an overall positive response toward AI-driven assessment, with implications for integrating emerging technologies into teacher education curricula.

Highest rated item: Q4 (Enjoyment) and Q2 (Understanding of authentic assessment) scored highest (Mean = 3.91 and 3.88), indicating strong engagement and conceptual gains. Lowest rated item: Q7 (Creativity and critical thinking) had the lowest agreement (Mean = 3.38), indicating a perceived lack of deep cognitive engagement. Neutrality levels were consistently high on Q6 and Q7, pointing to either uncertainty or limited task scaffolding.

From demographic insights, a cross-tabulation analysis revealed the following trends:

1. Gender: Female participants (n = 27) were slightly more likely to report enjoyment and future willingness (Q4 & Q8) than male participants (n = 7), though no statistical significance was tested due to sample size.

2. Prior teaching experience: Those with microteaching-only experience (n = 20) showed higher agreement on Q2 and Q4, suggesting that less experienced students benefited more from AI tools in grasping assessment concepts.

From 5 open-ended questions, a total of 102 coded segments were analyzed and grouped into four main themes:

1. Conceptual Clarification of Assessment

"ChatGPT helped me understand how to make assessments that really test skills, not just memory."

"I learned to match tasks with real-life language use."

Participants reported that AI-assisted guidance clarified previously abstract notions of authentic assessment. This reinforces the quantitative result on Q2 (Mean = 3.88). A large proportion of respondents agreed (n = 15) or strongly agreed (n = 10) that using ChatGPT or an AI chatbot helped them understand the concept of authentic assessment. Only 6 students disagreed, and none strongly disagreed. This suggests that AI tools supported participants' cognitive processing of abstract pedagogical concepts by providing personalized, interactive feedback, consistent with findings from recent studies emphasizing AI's potential in enhancing conceptual learning (Chen et al., 2020; Holmes et al., 2021).

2. Mixed Perceptions of AI Support

"AI gave good examples, but sometimes I didn't know if it was correct."

"It helped me a lot, but I still checked it with the lecturer."

While many participants appreciated the AI's scaffolding, others expressed uncertainty about content reliability, reflecting ethical and pedagogical concerns—a finding aligned with prior studies (e.g., Holmes et al., 2021). Most participants enjoyed creating assessment tasks using AI tools, with 25 students responding positively (Agree = 11; Strongly Agree = 14). These results indicate high engagement levels and suggest that AI-supported tasks may increase motivation, autonomy, and creativity in instructional design tasks—an important goal in preparing 21st-century educators (Voogt et al., 2015).

3. Creativity and Critical Thinking Gaps

"It was creative, but I followed what the AI suggested."

"I liked it, but didn't feel it helped me think deeply."

These quotes explain the neutral responses to Q7. Students appreciated AI's utility but often did not perceive it as cognitively demanding unless prompted to go beyond suggestions. Eighteen students expressed a neutral stance regarding whether the task allowed them to demonstrate creativity and critical thinking, while only 11 agreed or strongly agreed. This outcome might indicate that while

students engaged with the task, they may not have fully recognized its potential for higher-order thinking. Research suggests that learners may not automatically transfer critical thinking skills without scaffolding or explicit instruction (Zohar & Dori, 2003).

4. Future Readiness and Enthusiasm

"I want to use this again—it saves time and gives ideas."

"If I learn more about how to use it properly, I will use it in my teaching."

The majority expressed interest in future integration, supporting high agreement levels in Q8 (Mean = 3.85), but also highlighting the need for proper training in AI literacy. Importantly, most participants (Agree = 9; Strongly Agree = 10) expressed interest in having similar AI-supported assignments in future courses, with only two disagreeing. This supports the feasibility and acceptance of incorporating AI-enhanced assessment activities more broadly in teacher education programs.

Discussion

Analysis of the questionnaire data revealed a range of perspectives reflecting both confidence and uncertainty in assessment practices, which were further illuminated through qualitative data from the surveys. Initial findings indicated that participants' perceptions of assessment were heavily influenced by their own prior educational experiences. Many reported encountering both significant challenges and meaningful opportunities during their academic journeys, which shaped their attitudes toward assessment. These experiences contributed to varying levels of self-efficacy in their ability to design and implement assessments effectively as presented on these statements:

What I liked most was the relaxed atmosphere it created. Using the AI felt like having a study buddy who's always ready to help. I could ask questions when I got stuck, get ideas, or even check if my writing made sense.

What I liked most about the take-home exam using an AI chatbot was the opportunity to be more creative and innovative in designing assessments. It allowed me to explore unique, real-world tasks that go beyond traditional paper-based tests. The AI also helped generate ideas quickly and gave me a clearer understanding of how to build assessments that are engaging, practical, and aligned with learning goals. This made the task not only easier but also more enjoyable and meaningful. It felt like a real collaboration that enhanced my skills as a future teacher.

To deepen the analysis, an AI-driven assessment tool employing natural language processing and machine learning was utilized to augment human coding. This AI system identified subtle patterns, thematic nuances, and emotional tones that might have otherwise gone unnoticed. For example, the AI highlighted recurring concerns about fairness and clarity in assessment, as well as enthusiasm for formative feedback as a tool for student growth. The integration of AI not only corroborated manual coding but also expanded the interpretive depth, revealing latent themes such as anxiety related to assessment literacy and optimism about technology-enhanced assessment methods.

Further qualitative analysis revealed that pre-service teachers conceptualize assessment as a complex, multifaceted process intertwined with their future teaching roles. Their beliefs were informed by several key factors: prior educational background, perceived competence in assessment, and expectations about professional teaching standards. The discussion underscores that while many participants recognize the value of assessments as both evaluative and developmental tools, gaps remain in their readiness to fully apply modern assessment strategies, especially those involving technology as stated below.

Yes and no. ChatGPT can be a very helpful tool for future teachers because it provides quick ideas and resources. However, it can also make us overly reliant if we're not careful. It's important to use it wisely as a support tool, not a replacement for critical thinking and creativity.

My suggestion is that maybe in the future teachers or lecturers are no longer unfamiliar with AI, and no longer prohibit students from using AI in doing assignments. because even though it is prohibited by teachers or lecturers, on social media there are many influencers who share how to use AI. Instead of being prohibited, it would be better if teachers or lecturers educate students about the use of AI.

Unlike prior studies that have largely examined assessment literacy in isolation from digital innovation (e.g., Xu & Brown, 2016; DeLuca et al., 2013) or have explored AI's role in general language learning (e.g., Huang et al., 2023), this study uniquely investigates how AI tools—specifically AI chatbots like ChatGPT—can mediate the development of assessment literacy among pre-service English language teachers. The findings illustrate how AI-facilitated tasks enhance learners' conceptual understanding of authentic assessment while simultaneously fostering reflective engagement with assessment design.

This dual impact addresses a current gap in the literature, where research rarely intersects AI implementation with pedagogical content knowledge in assessment practices. The novelty of this study lies in its integration of AI-driven formative learning activities with authentic assessment frameworks, offering both a conceptual and practical model for AI integration in teacher education. By

documenting pre-service teachers' responses and reflections, this research provides empirical grounding for the claim that AI, when scaffolded appropriately, can serve not only as a technological enhancement but as a catalyst for deepening pedagogical thinking. As such, this study extends the discourse on AI in education beyond language skill development, positioning it as a transformative tool in preparing assessment-literate, reflective educators for the digital age.

The study revealed that AI-assisted assessment tasks positively influenced pre-service teachers' conceptual understanding, engagement, and pedagogical reflection. These findings align with Stiggins' (2002) notion of assessment literacy as not only a technical skill but also a reflective, context-aware competence. Participants who engaged with tools like ChatGPT reported improved clarity in designing authentic assessments—an essential component of both formative and summative literacy.

However, despite positive perceptions, participants also expressed uncertainty about overreliance and limitations of AI's accuracy echoing the need for critical digital literacy within teacher education (Redecker, 2017). This tension between enthusiasm and caution reflects an emerging area of digital assessment literacy that remains underexplored. An unexpected finding was the high neutrality in responses regarding creativity and critical thinking (Q7).

While AI was expected to scaffold deeper cognitive engagement, many participants viewed it more as a practical assistant than a tool to foster higher-order thinking. This suggests a gap in metacognitive awareness and perhaps a lack of sufficient scaffolding in how AI can promote synthesis, evaluation, or innovation. Moreover, students' comments on resistance from lecturers to AI use highlight a cultural tension in the Indonesian context. While students embrace innovation, institutional hesitancy may inhibit the full integration of digital tools in pedagogical practice.

Compared to global literature, this study echoes themes found in research from other EFL contexts. For example, Sultan et al. (2022) reported similar positive responses to AI in assessment among Saudi pre-service teachers, particularly regarding formative feedback. However, unlike studies in Finland or Singapore (e.g., Chong & Kong, 2021), where AI integration is policy-supported and structurally embedded, Indonesian teacher education remains fragmented in its AI adoption. This suggests that contextual and infrastructural readiness plays a key role in shaping outcomes.

In summary, this study demonstrates that AI tools, when thoughtfully implemented, have the potential to significantly enrich pre-service teachers' understanding and enactment of authentic assessment. While enthusiasm is high, critical use, ethical awareness, and sustained pedagogical integration remain essential. This work contributes to a growing body of literature that reimagines assessment literacy not just as a cognitive skillset, but as a digitally enhanced, reflective, and socially situated professional competency.

To ensure the validity and reliability of the study, several strategies were employed throughout the research process. Content validity was established through expert review by three specialists in language assessment and educational technology, who evaluated the questionnaire items for clarity, alignment with research aims, and relevance to the constructs of AI-assisted assessment literacy. Feedback from this review informed several revisions to enhance construct coverage and reduce ambiguity.

Construct validity was further strengthened by the study's mixed-methods design, which allowed for methodological triangulation—comparing patterns from quantitative survey responses with qualitative reflections to confirm consistency and deepen interpretation. A pilot test involving 10 pre-service teachers outside the main sample was conducted to examine instrument clarity and internal consistency. The resulting Cronbach's alpha coefficient was $\alpha = 0.84$, indicating a high level of reliability for the Likert-scale items.

In the qualitative phase, intercoder reliability was addressed by having two independent researchers analyze the open-ended responses, achieving a 92% agreement rate. Discrepancies were discussed and resolved through consensus, ensuring the trustworthiness of the thematic findings. While these procedures contribute to the overall rigor of the study, limitations such as potential self-report bias and the context-specific nature of the sample are acknowledged. Nevertheless, the design choices and validation steps taken enhance confidence in the credibility and dependability of the results.

Conclusion

This study examined Indonesian pre-service language teachers' perceptions of AI-driven assessment, focusing on their views about the role of assessment in learning, preferred techniques, and perception differences across demographics. Findings indicate that participants recognized assessment as both a learning and evaluative tool, with a strong preference for authentic, AI-supported tasks over traditional exams. AI tools like ChatGPT were seen as helpful in fostering creativity, engagement, and conceptual understanding of assessment design, though some concerns about overreliance and ethical use emerged. Minor differences in perception based on teaching experience and gender were noted, suggesting prior exposure may influence confidence in using AI for assessment. However, these variations were not statistically significant.

The study highlights the potential of AI as a pedagogical scaffold in enhancing assessment literacy when supported by structured guidance and reflective practice. For teacher education programs, this implies a need to embed AI-integrated assessment training that balances technical proficiency with critical awareness and ethical considerations.

By bridging assessment literacy and digital pedagogy, this study contributes to the discourse on AI in language teacher education and suggests future research directions involving broader, longitudinal, and comparative designs to examine the

evolving role of AI in shaping future-ready educators.

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