

REIMAGINING ASSESSMENT: AI-DRIVEN STRATEGIES FOR TRANSFORMING TEACHER EDUCATION

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Abstract

This paper presents findings from a research project investigating innovative curriculum-based assessment models that integrate Generative AI tools into pre-service teacher education. Engaging over 700 students across diverse teaching programs, the study explored how future educators experiment with, adapt, and critically evaluate the use of Generative AI in classroom and applied learning contexts. Students documented their AI usage, provided critical justification, and reflected on their experiences through structured assignment responses. Key findings reveal that when critically embedded into assessment design, Generative AI can significantly enhance students' confidence, digital literacy, and pedagogical adaptability. The process of monitoring and reflecting on AI use fostered deeper critical engagement and ethical awareness. Importantly, the study highlights the role of educative assessment redesign in transforming teacher preparation, positioning AI not as a threat but as a pedagogical partner. Implications for higher education include the need for robust assurance frameworks to manage AI-integrated assessments, professional development for educators, and policy guidance to support ethical and effective AI use. The paper concludes with recommendations for sustaining the integration of emerging AI technologies in teacher education, ensuring alignment with both academic integrity and future classroom realities.

Keywords: *Generative AI, assessment, academic support, AI pedagogies.*

1. Research design

This study used a mixed method study design, which allowed for an in-depth exploration of the phenomenon within its real world context. An open-ended survey was chosen because it enabled the researcher to examine complex processes and behaviours that could not be fully understood through quantitative methods alone.

2. Participant selection

The participants were selected using purposive sampling. It was chosen because it aligned with the research questions and offered opportunities for rich, detailed analysis. Selection criteria included relevance to the topic, accessibility of data, and the potential to generate meaningful insights.

Participants were identified based on their direct connection to the case. These included:

- 700 Pre-service teachers
- physical or digital artefacts such as assignments
- observations of behaviours or interactions

Participants were recruited through purposive or convenience sampling to ensure they had firsthand knowledge of the AI use in teaching.

3. Data analysis

The thematic analysis was applied to teaching practice by considering how students' patterns of AI use reflect their learning needs and the pedagogical opportunities available to educators. The themes highlight several areas where teaching can be strengthened to support students' academic development while promoting ethical and transparent engagement with AI tools.

Students' reliance on AI for productivity and efficiency underscores the importance of explicitly teaching academic processes rather than assuming students will acquire them independently. When students use AI to summarise texts, reduce word counts, or organise information, it suggests a need for targeted

instruction in academic literacy skills such as note taking, synthesising sources, and structuring written work. Embedding these skills within curriculum design can help students develop greater autonomy and reduce over dependence on automated tools.

The frequent use of AI for language support particularly among students for whom English is an additional language indicates the value of integrating explicit language scaffolding into disciplinary teaching. Providing sentence frames, model texts, vocabulary support, and opportunities for guided practice can help students build confidence in their linguistic abilities. Rather than replacing human instruction, AI can be positioned as a supplementary tool that reinforces, rather than substitutes, language learning.

Students' use of AI to enhance academic writing quality highlights the need for direct instruction in academic voice, coherence, and paraphrasing. Many students turn to AI to refine tone, improve clarity, or avoid repetition, which suggests that these aspects of writing require more explicit modelling and feedback within the classroom. Teaching students how to critically evaluate AI generated suggestions can also foster metacognitive awareness and strengthen their independent writing skills.

The use of AI for brainstorming and idea development reflects students' need for structured support during the early stages of assessment tasks. Educators can respond by incorporating guided planning activities, collaborative discussions, and scaffolded brainstorming exercises that help students generate and organise ideas before drafting. This reduces the likelihood that students will rely on AI to interpret task requirements or determine the direction of their work.

Students' use of AI to clarify assessment expectations indicates that instructions and criteria may not always be sufficiently transparent. Providing annotated exemplars, unpacking rubrics in class, and encouraging dialogue about assessment expectations can reduce confusion and promote academic integrity. When students understand what is required, they are less likely to seek clarification from AI tools.

Sixth, the reliance on AI for referencing and citation support highlights the need for explicit teaching of academic integrity practices. Many students appear uncertain about how to reference correctly or how to acknowledge AI use appropriately. Embedding referencing instruction, offering practical workshops, and providing clear guidelines on acceptable AI use can help students navigate these expectations with confidence.

Finally, the presence of students who either minimally used AI or did not use it at all raises important considerations regarding equity. Not all students possess the same level of AI literacy, nor do they equally understand institutional expectations around AI use. Ensuring that all students receive foundational instruction in responsible AI use can help prevent disparities in academic performance and promote fairness across the cohort.

Collectively, these themes suggest that AI use in student writing is not merely a technological issue but a pedagogical one. By addressing the underlying learning needs that drive students to use AI whether for language support, writing development, task comprehension, or educators can design learning environments that foster both academic integrity and genuine skill development.

4. Conclusion

Findings suggest that curriculum models are needed to embed Generative AI tools into pre-service teacher education. Pedagogical approaches that scaffold the critical use of Generative AI can significantly influence students' digital efficacy. Additionally, designing reflective assessment tasks assisted in teacher preparation and supports authentic classroom practice for the future.

References

- Alper, A. (2024). Evaluating the evaluators: A comparative study of AI and teacher assessments in higher education. *Digital Education Review*, (45), 124-140.
- Alwaqadani, M. (2025). Investigating teachers' perceptions of artificial intelligence tools in education: potential and difficulties. *Education and Information Technologies*, 30(3), 2737-2755.
- Jamal, A. (2023). The role of artificial intelligence (AI) in teacher education: Opportunities & challenges. *International Journal of Research and Analytical Reviews*, 10(1), 139-146.
- Moorhouse, B. L., & Kohnke, L. (2024). The effects of generative AI on initial language teacher education: The perceptions of teacher educators. *System*, 122, 103290.
- Owan, V. J., Abang, K. B., Idika, D. O., Etta, E. O., & Bassey, B. A. (2023). Exploring the potential of artificial intelligence tools in educational measurement and assessment. *Eurasia journal of mathematics, science and technology education*, 19(8), em2307.
- Salas-Pilco, S. Z., Xiao, K., & Hu, X. (2022). Artificial intelligence and learning analytics in teacher education: A systematic review. *Education sciences*, 12(8), 569.