

APPLICATION SUMMARY

Concept: Supporting Self-Regulation in Assessment through AI

This short guide summarises how artificial intelligence (AI) tools can support the development of self-regulation skills in student assessment and feedback, drawing heavily on the work of Waring and Evans (2023). It outlines the capabilities of AI, strategies for integration, and important ethical considerations. The central aim is empowering learners to take ownership of their learning process.

For some ideas and support in the use of generative AI technologies in education, try this website: <https://sites.google.com/my.shu.ac.uk/theaiforge/home>

Introduction

Self-regulation refers to the ability to manage one's own learning through skills like goal setting, self-monitoring, strategy adjustment and reflection (Zimmerman, 1989). Developing self-regulation is crucial for student autonomy and success. With advances in AI, new opportunities have emerged to enhance self-regulatory processes in assessment (Woolf et al., 2010).

AI Capabilities for Assessment

AI, at its core, involves machines learning from data to make decisions or predictions. Key capabilities for assessment include:

- Adaptive learning systems that tailor instruction and resources based on individual progress (Koedinger et al., 2013).
- Automated feedback systems that provide personalised recommendations for improvement using natural language processing (D'Mello et al., 2014; Shute & Zapata-Rivera, 2008).
- Predictive analytics that forecast student outcomes based on historical data patterns (Tempelaar et al., 2015).
- Learning analytics dashboards that visualise progress over time for monitoring and reflection (Ifenthaler & Widanapathirana, 2014).

Strategies for Integration

AI can support key self-regulatory processes in the following ways:

- Goal setting: Predictive analytics help students set realistic targets based on capabilities (Tempelaar et al., 2015).
- Self-monitoring: Dashboards enable tracking performance and strategy effectiveness (Ifenthaler & Widanapathirana, 2014).
- Feedback interpretation: NLP assists understanding complex feedback and extracting actionable steps (D'Mello et al., 2014).
- Reflection: Simulations paired with reflective activities provide experiential metacognitive development (Rudolph et al., 2023).

Ethical Considerations

Despite the potential benefits, integrating AI warrants caution around issues like:

- Algorithmic bias: Models can perpetuate biases in training data, requiring proactive evaluation (Bolukbasi et al., 2016).
- Student privacy: Adhering to data protection laws and ensuring transparency is mandatory (Zuboff, 2019).
- Overreliance: Students still require guidance in critically evaluating AI tools and not outsourcing learning (Pears, 2023).
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Conclusion

AI presents opportunities to empower students as self-regulated, autonomous learners. A thoughtful, ethical integration focused on enhancing metacognitive skills, guided by educational principles and research, can augment assessment and learning. Critical evaluation skills are key in using AI judiciously rather than as a crutch. Further research is needed into long-term impacts and best practices.

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