

AI Across the Lifespan: From Policy to Practice

Chair: Stefanie Chye

Artificial intelligence is rapidly reshaping educational environments, creating new opportunities to enhance learning, reflection, and human development. At the same time, these advances raise important questions about learner self-regulation, dependency, equity, and the translation of policy into practice. This symposium brings together four studies that examine how AI and technology-enhanced learning systems can be designed to support meaningful learning across the lifespan. Spanning community-based educational support initiatives for children, AI-assisted self-regulated learning in teacher education, AI-supported reflective practice through digital portfolios for educators, and AI coaching for adult learning, leadership, and workforce development, the papers collectively explore both the promise and challenges of AI-mediated learning. Together, they investigate how technologies can serve as scaffolds, coaches, and reflective partners, while identifying the conditions under which such support strengthens rather than diminishes human agency and learning. By connecting classroom practice, educational innovation, and policy development, the symposium offers a lifespan perspective on how AI can contribute to lifelong learning, educational equity, and human flourishing in an increasingly digital world.

Adaptive Learning Systems in Community-Based Educational Support Initiatives: Preliminary Findings and Implementation Challenges

Stefanie Chye

Abstract:

Educational support initiatives play an important role in reducing achievement gaps and expanding opportunities for students from low socioeconomic status (SES) backgrounds. Recent advances in adaptive learning systems (ALS) offer new possibilities for personalising learning, supporting self-regulated learning (SRL), and enhancing student well-being. Such innovations are particularly relevant in an era shaped by digitalisation and lifelong learning. This paper presents preliminary findings from a large-scale pilot study examining the implementation of an ALS-enabled educational support initiative for primary school students from low-SES backgrounds in Singapore. Drawing on early evidence from learning analytics, student surveys, classroom observations and teacher feedback, the study explores patterns of student engagement, learning, SRL, and well-being. The paper also reflects on key implementation challenges encountered.

Implications for the design, implementation, and scaling of technology-enabled educational support initiatives aimed at advancing educational equity are discussed.

Supporting or Undermining Self-Regulated Learning? Examining the Promise and Risks of an AI Chatbot

Kah Loong Chue, Amelia Yeo, Punithavathy Palanisamy*

Abstract:

This study examines the impact of a generative AI chatbot, “Learning Buddy” (LB), on students’ self-regulated learning (SRL) processes in teacher education. Grounded in Barry Zimmerman’s cyclical model of SRL, the chatbot was designed to support learners’ forethought, performance, and self-reflection through guided prompting, feedback, and conversational scaffolding. LB was integrated into an assessment course for pre-service teachers during an e-learning week. Findings suggest that the AI chatbot showed potential in supporting SRL by helping learners clarify goals, monitor understanding, sustain engagement, and reflect on their learning processes. Students generally reported positive experiences using the chatbot as a learning support tool, particularly in relation to metacognitive engagement and learning guidance. Metacognitive awareness was positively associated with students’ perceptions of the chatbot, suggesting that learners with stronger self-regulatory capabilities were better able to leverage AI support productively. At the same time, the findings raise important concerns regarding the risks of dependency and uneven benefits across learners. While some students appeared to use the chatbot as a scaffold to enhance self-regulation, others may have relied on it more passively, potentially limiting opportunities for independent monitoring, decision-making, and reflection. The variability in learner experiences suggests that AI-supported learning environments may not benefit all students equally, particularly those with weaker metacognitive skills. The study highlights the dual role of generative AI as both a potential enabler and possible inhibitor of SRL. It underscores the importance of carefully designing AI-supported pedagogies that cultivate learner agency, metacognitive awareness, and autonomy, rather than encouraging over-reliance on AI assistance.

Title: AI-Powered Digital Portfolios to Develop Reflective Practitioners.

Chua Bee Leng

Abstract:

In today’s teaching and learning context—shaped by rapid technological development and the persuasive use of artificial intelligence (AI) in education—it is essential for educators to reimagine, rethink, and redesign curriculum, pedagogical approaches, and assessment. It is equally important that learners become critical users of AI: using it to

strengthen the development of metacognitive and cognitive strategies, rather than relying on it as a crutch that may contribute to metacognitive laziness. This study focuses on initial teacher education and examines how student teachers perceive the usefulness of a Reflective Practice Assistant (RPA) embedded within a digital portfolio. All student teachers create digital portfolios as part of an initial teacher preparation programme to encourage ownership of their learning and to build the competencies needed to reflect on and inquire into their teaching practice. Given that reflective practice is central to this process, the study also examines whether the RPA enhances student teachers' metacognitive engagement as they reflect on their teaching and learning. Findings and implications for practice will be discussed.

AI Coaching and Adult Learning for Sustainable Human Development: An Ongoing Innovation from Singapore with Global Relevance

Faisal Aman

Abstract:

This paper examines Singapore's lifelong learning policies and EdTech Masterplan 2030, focusing on efforts to develop an AI-fluent workforce through AI-enabled learning and coaching. Using Fukumoto and Bozeman's Theoretical-Operational Gap (TOG) framework, the study analyses ministerial speeches, policy documents, and press releases to identify gaps between policy intentions and implementation. Findings reveal a strong government-led push to integrate AI learning into workforce development, while AI coaching remains at an early stage and is fragmented across public and private sectors. Although organisations have shown growing interest in AI coaching, particularly for leadership and executive development, challenges remain in sustaining policy support and translating national ambitions into effective cross-sector practice. The analysis identifies a secondary implementation gap within public-private collaborations and proposes a hybrid-first approach to AI coaching. To strengthen accountability and long-term impact evaluation, the paper recommends a tripartite partnership involving universities, practitioners, and AI providers. Such collaborations can support evidence-based implementation and advance sustainable human development in the age of AI.

Discussant: Chua Bee Leng