

Book review

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Artificial Intelligence in Education A Machine-Generated Literature Overview

By Myint Swe Khine (Ed.)

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Dr Myint Swe Khine's edited volume stands at the intersection of technology and educational scholarship, offering a groundbreaking approach to the literature review through its use of machine-generated summarization. This methodological experiment in academic publishing addresses the growing challenge of information overload while raising important questions about the evolving relationship between AI and scholarly synthesis.

The book utilizes the Dimensions auto-summarizer, which employs a recursive clustering algorithm to generate chapter summaries from carefully selected Springer Nature publications. What sets this approach apart is its methodological transparency, ensuring that readers clearly understand how the content was produced and the balance between machine processing and human curation. By preserving original sentence structures from source materials, the work maintains the integrity of the research being summarized, avoiding potential misrepresentations that might occur in more heavily processed text.

The volume excels in its comprehensive treatment of AI applications across the educational landscape, creating a valuable roadmap for navigating this rapidly evolving field. Dr Khine's human-written introductions for each chapter provide essential context that connects automated summaries to broader theoretical frameworks and practical implications.

Chapter 1, "*Educational Data Mining and Learning Analytics*", serves as a foundational entry point for educational data mining (EDM) and learning analytics (LA), clearly articulating their theoretical underpinnings and practical applications. The chapter helps distinguish between these complementary approaches. EDM focuses on pattern discovery through data-driven methodologies, whereas LA emphasizes real-time feedback mechanisms for optimizing learning environments. This chapter effectively explains how these approaches draw from the wealth of data generated by learning management systems to inform educational practices, assess learner needs and enhance learning outcomes.

Chapter 2, "*Personalized Learning with AI, Eye-Tracking Studies and Precision Education*", highlights how AI can tailor learning experiences to individual students. This is a particularly relevant topic given the rise of adaptive learning platforms, intelligent tutoring



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systems and AI-powered recommendation engines in education. The inclusion of precision education, a data-driven approach that customizes learning interventions, demonstrates the field's growing granularity in educational decision-making. Furthermore, the chapter delves into the use of eye-tracking studies, showcasing innovative methods to personalize learning by understanding student focus and engagement.

Chapter 3, "*Using AI for Adaptive Learning and Adaptive Assessment*", provides a solid introduction to the core principles of adaptive learning, explaining how AI-driven systems dynamically adjust learning content based on student performance. The chapter thoughtfully explores the relationship between adaptive instruction and assessment, highlighting how AI algorithms can create testing experiences that evolve in real-time based on student responses. Particularly valuable is the discussion of how immediate feedback loops empower students with self-awareness of their learning progress while providing educators with actionable data to offer targeted interventions.

Chapter 4, "*AI in Teaching and Learning and Intelligent Tutoring Systems*", shifts the focus toward AI applications in direct instructional settings, particularly intelligent tutoring systems (ITS). The chapter effectively communicates how these systems use natural language processing, machine learning and rule-based AI to provide individualized instruction, essentially serving as AI-driven personal tutors. The section thoughtfully addresses the complementary relationship between human teachers and AI tools, emphasizing that while AI can automate repetitive tasks, the irreplaceable human elements of teaching remain essential for fostering critical thinking and social-emotional development.

Chapter 5, "*Machine Learning in Education*", is one of the most research-dense sections of the book, providing an extensive overview of machine learning (ML) applications in education covering diverse fields from medical education to employment forecasting. This broad scope allows readers to see how ML is being applied across disciplines, making the chapter highly informative for researchers working in various educational subfields. The chapter also emphasizes predictive analytics that how ML models can forecast student performance, academic trajectories and even career outcomes. The inclusion of natural language processing-based ML applications such as chatbots, automated assessment and text mining adds a dimension to the discussion.

Chapter 6, "*Ethics and the Future of Education in an AI-Driven World*", serves as a necessary and timely conclusion to the book, shifting the focus from AI's technical advancements to its broader ethical and societal implications. While it does an excellent job of raising critical questions about data privacy, algorithmic bias and the evolving role of educators, it could benefit from providing clearer ethical frameworks and policy recommendations. The chapter appropriately concludes by emphasizing the need for a balanced approach that harnesses AI's potential while safeguarding the human elements crucial to effective learning.

A significant strength of this volume is its ability to balance technical explanations with accessible insights for diverse audiences. The book would be particularly valuable for researchers beginning exploration of AI in education, educators seeking to understand technological trends affecting their profession, policymakers considering the implementation of AI-driven educational tools and students of educational technology.

Dr Khine's redefined editorial role, selecting source materials, organizing summaries and providing interpretive guidance, offers an intriguing model for future publishing that leverages machine capabilities while maintaining human scholarly judgment. This volume demonstrates that the relationship between AI and academic work need not be competitive but can be complementary, with each contributing unique strength.

However, the inherent limitations of extractive summarization merit consideration. Without transformative processing, these summaries occasionally lack the narrative cohesion found in traditionally authored literature reviews. Some readers might find themselves needing to work harder to identify conceptual threads across extracted passages.

This innovative volume serves not only as a content resource but also as a meta-example of how AI might transform academic publishing itself. As educational institutions continue to integrate AI technologies, this comprehensive synthesis provides valuable guidance for navigating both the opportunities and challenges of an AI-enhanced educational landscape. Dr Khine's work exemplifies how human expertise can effectively curate and contextualize machine-generated content to create a resource greater than the sum of its automated parts.

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