

## Inaugural editorial

This first issue of *Learning Letters* focuses on artificial intelligence (AI) in education, learning analytics, and digital technologies in the workplace. AI has emerged as a transformative force, revolutionising various sectors and reshaping the way we live and work. In the realm of education, AI holds immense potential to transform the way we teach and learn by enhancing learning experiences, personalising instruction, and empowering both students and educators. As we navigate the dynamic landscape of education in the digital age, it is crucial to explore and harness the benefits of AI in shaping the future of learning, while also pausing to consider challenges and how we may overcome them. Generative AI, the type of AI that can produce different content based on user-driven prompts, such as ChatGPT, became publicly available earlier this year and quickly captured the attention of the media. We are at critical time to understand how we, as a society, within the educator sector and beyond, react to Generative AI tools, and how we can effectively and ethically use them in our daily lives. There is much unknown at the moment and, at the same time, substantial research in neighbouring disciplines of educational technology, learning analytics, machine learning and data science that can inform how we traverse this new and unfamiliar era of digital transformation.

The papers in this issue argue for frameworks, policies, and data management processes that can guide the use of AI of education. However, while this inaugural issue begins by discussing the opportunities and challenges of AI in education, it also presents novel and innovative learning analytics research in the areas of assessment and belonging analytics, synthetic data generators, and concludes by arguing for better engagement with stakeholders and actors for designing learning analytics or digital learning systems.

### Papers in this issue

*Fowler et al.* report on the response of Australian universities to the release of ChatGPT, a large language model developed by OpenAI, in the first 100 days after its public availability. The study involves a content analysis of university policies and media coverage related to Generative AI and machine learning, as well as thematic coding of quotes from university spokespersons. Their findings indicate that initially, only a small percentage of universities had policies referencing AI, and the ones that did focused on academic integrity and cheating prevention. However, over time, the discourse shifted towards viewing AI as a tool for supporting deeper learning. The analysis also reveals concerns regarding equity, data privacy, and cultural bias in the use of AI technologies. The paper emphasises the need for universities to develop clear policies and guidelines on the ethical use of AI tools and the potential impact on teaching and learning. It also calls for greater transparency and scrutiny of the large language models themselves, urging universities to assess and align these models with their values and objectives.

With clear policies and guidelines, educational institutions also need effective approaches to managing the data that supports AI-powered educational technologies (AIEdTech). *Khosravi et al.*'s paper discusses the role of AI in education and AI-powered educational technologies in improving the design and delivery of education. They highlight the challenges in existing AI-

EdTech systems, such as the lack of a common data infrastructure, limited access to comprehensive data, and ethical integration of multi-sourced data. Their paper examines the application of AI-EdTech in supporting learners, teachers, and institutions and emphasises the importance of data custodianship, explainable decisions, and fairness in AI-EdTech. The authors suggest leveraging data management research to address these challenges and outline future research opportunities.

Turning from AI to learning analytics research, *Ifenthaler et al.* discuss the need for clear indicators for assessment analytics, which involves using assessment data to inform learning processes. In their paper, they highlight the increasing use of online assessments and their potential benefits in terms of efficiency and access to assessment data. They categorise online assessments based on their mode, format and type, including peer, teacher, automated and self-assessments, as well as various assessment formats such as quizzes, essays, e-Portfolios and project-based tasks. The categorisation aims to bridge the gap between theory and practice by providing a foundation for the meaningful implementation of assessment analytics. The authors argue that, by selecting indicators based on the assessments' design, it is possible to obtain valid pedagogical insights and customise the analysis to suit specific learning outcomes and processes.

*Lim et al.* propose a new agenda connecting learning analytics and students' sense of belonging. They explore the concept of "belonging" in higher education and its importance for student success and well-being. Their paper considers the challenges of tracking belonging and proposes the use of learning analytics as a potential solution. It introduces the emerging field of "Belonging Analytics" and presents different approaches within this framework, including Dispositional Learning Analytics, participatory narrative coding, learning analytics dashboards, social network analysis, writing and discourse analytics, and activity-based personalised feedback. They conclude with a set of questions for future research to advance the field.

Learning analytics research uses a lot of student data and this extensive collection of, at times, personal student data raises privacy and ethical concerns. *Zhan et al.* discuss the privacy and ethical issues connected to the collection and use of student data. They compare multiple Synthetic Data Generators (SDGs), testing their compatibility with learning analytics models. SDGs offer a methodological innovation by learning from real data to generate synthetic data that closely matches the statistical characteristics of the original data, providing privacy guarantees and avoiding ethical debates. Chen et al. provide useful insights and guidelines for researchers and practitioners interested in integrating SDGs and synthetic data into LA.

*Martinez-Maldonado* argues that successful learning analytics systems require human-centered design approaches. He argues that the design of LA systems should consider not only instructional and learning design but also principles from the broader field of design, to understand better the sociotechnical systems in which LA tools operate. The paper highlights the importance of involving stakeholders at different stages of the design process, and explores four key challenges in data-intensive educational contexts: ensuring representative participation, understanding expertise and lived experiences, balancing stakeholder input with technological innovation, and navigating power dynamics and decision-making processes. With the aim of enhancing design practices in LA, Martinez-Maldonado suggests strategies such as fostering inclusivity, valuing diverse perspectives, collaborating with experts, and using generative tools to address these challenges.

Design challenges are common amongst design teams, particularly when building digital

professional learning systems. *Littlejohn et al.* address this persistent problem of members of diverse design teams feeling helpless, voice-less, or in paralysis. However, digital learning systems – particularly for the workplace – require a combination of educational researchers, technical experts, and professional domain specialists, often leading to tension. Littlejohn et al. introduce the concept of "critical encounters" during design activities and suggest using a Logic Model as a tool to support negotiations and resolve conflicts among design team members. Their paper provides a case example based on a project focused on workplace transformation in the health sector. The proposed method aims to bridge the gap between learning and work by using the Logic Model as a tool for negotiation and action planning when designing digital professional learning.

## Conclusion

The inaugural issue of *Learning Letters* sheds light on the transformative potential of AI in education, while also reporting on innovative approaches to assessment and belonging analytics. It offers alternative solutions for the ethical and privacy concerns of using student data in learning analytics research, and overcoming challenges in collaborative digital learning system design.

In order to maximise the benefits of AI in education while minimising the challenges, it is important to approach AI implementation in a thoughtful and intentional way. This includes ensuring that AI systems are designed to be transparent and explainable, so that educators and students can understand how these systems are making decisions. It also means taking steps to address potential biases in the data used to train AI systems and ensuring that human teachers remain a central part of the education process.

As we move forward in the digital age, it is essential for educators, researchers, policymakers, and institutions to continue exploring and leveraging the benefits of AI in education, learning analytics, and collaborative digital learning system design. Through the neighbouring disciplines AI in education, learning analytics, educational technology, machine learning and data science, we can continue to advance our knowledge and understanding of learning that is dynamic, personalised, and empowering for all learners. The insights and findings presented in this inaugural issue provide a foundation for ongoing research and innovation in these neighbouring fields.