Learning analytics in the classroom

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The field of learning analytics has progressed significantly since the first *Learning Analytics and Knowledge* (LAK) conference in 2011. In recent years, the emphasis on technical and statistical aspects of data and analytics has given way to a greater emphasis on what these data mean in the classroom context. This panel session is aimed at examining the emerging role that data and analytics play in understanding and supporting student learning in higher education. Specifically, the panel will focus on the importance of transdisciplinarity and how translation from data to action can occur in the classroom context. The aim of this session is to broaden the conversation about learning analytics within the ASCILITE community. From there, the panel will discuss ways in which learning analytics can have a greater impact on learning design in physical and digital learning environments.

Keywords: learning analytics; transdisciplinarity; student learning; teaching; learning sciences

Panel background and aims

Since its emergence as a field in the early 2010s, learning analytics has evolved beyond the initial focus on technical and analytical aspects to become more tightly integrated into practice. For example, there has been increased emphasis on learning analytics incorporated into learning design (Bakharia et al., 2016). There has also been extensive discussion about integrating learning analytics with the learning sciences (e.g. Friend, Wise & Shaffer, 2015). In tandem with these trends, there is an increased emphasis on the processes of translation of research into practice in education (e.g. Horvath, Lodge & Hattie, 2017) and on the necessity of examining educational issues from a transdisciplinary perspective (Lodge, Alhadad, Lewis & Gašević, 2017). These trends both align with a broader emphasis on what is being referred to as 'implementation science' or the deliberate translation and application of foundational research and science in applied settings.

Recent publications (e.g. Thompson et al., 2018; Martinez-Maldonado et al., 2017) have attempted to capture these trends through outlining how exactly learning analytics can impact on the physical and virtual classroom. For learning analytics to deliver on the potential the field promises, there is a need to consider the translation and implementation process. In conjunction with the release of the new edited volume: *Learning analytics in the classroom: Translating learning analytics research for teachers* (Lodge, Horvath & Corrin, 2019), we will bring together authors and editors to discuss these issues.

This panel aims to explore with the ASCILITE delegates how areas of the learning analytics can help to understand learning and inform teaching practice in virtual and physical classrooms in higher education.

Within this broader aim, three overall themes will be covered as outlined below:

- Translation from data and analytics to student learning and teaching practice;
- Data and analytics for better understanding how students are learning. In particular, what can data tell us about how students are progressing as they learn?
- Data and analytics informed design and intervention.

The session will draw on the expertise of the panel members to show how collaborations between data scientists, learning scientists, educators, educational technologists, and computer scientists are fundamental to furthering our understanding of data and analytics in the context of the virtual or physical classroom.

Format, Strategies, Audience

The format of the panel session will involve each of the panel members providing a brief overview and provocation (presentation) on one of themes above. After these three, short presentations a range of questions will be posed for the audience that will drive a semi-structured discussion. This discussion will be guided by questions posed by members of the audience. The session will be designed to be as interactive as possible, drawing on the experiences and questions raised by delegates, and the experience and presentations of the panel.

This panel session will be relevant to researchers, teaching academics, academic developers, learning designers and those with an interest in the use of data and analytics in higher education. The session will be designed so that it is accessible to ASCILITE delegates who have no experience in data science or learning analytics. The expectation is that through a clear, structured presentations and carefully prepared, open questioning attendees will leave the panel with a better sense of the intersection between data, analytics and practice; and between the fields of learning analytics, the learning sciences and educational technology.

Biographies of Panel Members

Associate Professor Jason M. Lodge (Chair)	Jason Lodge, PhD is Associate Professor of Educational Psychology in the School of Education and Institute for Teaching and Learning Innovation at The University of Queensland. Jason's research focuses on the cognitive, metacognitive, social and emotional mechanisms of concept learning and conceptual change. He also conducts research on the translation of the science of learning into practice in educational settings, particularly in digital learning environments and higher education.
Dr Kate Thompson	Dr Thompson is a Senior Lecturer in Educational Technology in the School of Education and Professional Studies and Head of the Creative Practice Lab at Griffith University. Kate's main area of research is situated in the Learning Sciences, she researches the activity of participants in complex learning environments (e.g. with technology, in groups, engaged in design), applying innovative approaches to the analysis of complex data (including interdisciplinary approaches to research).
Dr Jared Cooney Horvath	Jared Cooney Horvath is a research fellow at St Vincent's Hospital in Melbourne and the co-founder of the Science of Learning Group – a team dedicated to bringing the latest in educationally relevant brain and behavioural research to students and educators at all levels. Currently he teaches at the University of Melbourne, prior to which he spent a number of years working as a teacher and curriculum developer for several institutions around Los Angeles, Seattle, and Boston.
Paula de Barba	Paula de Barba is a Research Fellow in Higher Education in the Melbourne Centre for the Study of Higher Education at the University of Melbourne. Paula's research focuses on students' cognition and emotions when learning in digital environments. Topics of her interest include self-regulated learning, motivation, interest, and feedback.
Dr Marion Blumenstein	Marion is biologist by training, a researcher by heart, and a teacher by passion. Since switching career from biomedical research to higher education ten years ago, she became interested in student learning, in particular how to foster data-informed course design towards student success. She provides a practical perspective on learning analytics approaches for teachers to better understand their students, and to act on the insights gained. Marion is at The University of Auckland.

References

Bakharia, A., Corrin, L., de Barba, P., Kennedy, G., Gašević, D., Mulder, R., ... & Lockyer, L. (2016). A conceptual framework linking learning design with learning analytics. In *Proceedings of the Sixth International Conference on Learning Analytics & Knowledge* (pp. 329-338). ACM.

Friend Wise, A. & Williamson Shaffer, D. (2015). Why theory matters more than ever in the age of big data. *Journal of Learning Analytics, 2*(2), 5–13. https://doi.org/10.18608/jla.2015.22.2

Horvath, J. C., Lodge, J. M., & Hattie, J. A. C. (2017). *From the laboratory to the classroom: Translating science of learning for teachers.* Abingdon, UK: Routledge. https://doi.org/10.4324/9781315625737

Lodge, J. M., Alhadad, S. S. J., Lewis, M. J. & Gašević, D. (2017). Inferring learning from big data: The importance of a transdisciplinary and multidimensional approach. *Technology, Knowledge & Learning, 22*(3), 385-400. https://doi.org/10.1007/s10758-017-9330-3

Lodge, J. M., Horvath, J. C. & Corrin, L. (2019). *Learning analytics in the classroom: Translating learning analytics research for teachers.* Abingdon, UK: Routledge. https://doi.org/10.4324/9781351113038

Martinez-Maldonado, R., Goodyear, P., Carvalho, L., Thompson, K., Hernandez-Leo, D., Dimitriadis, Y., Prieto, L. P., & Wardak, D. (2017). Supporting collaborative design activity in a multi-user digital design ecology. *Computers in Human Behavior, 71*, 327-342. https://doi.org/10.1016/j.chb.2017.01.055

Thompson, K., Alhadad, S. S. J., Buckingham Shum, S., Howard, S. K., Knight, S., Martinez-Maldonado, R., & Pardo, A. (2018). Connecting expert knowledge in the design of classroom learning experiences. In J. M. Lodge, J. C. Horvath, & L. Corrin (Eds.), *Learning analytics in the classroom: Translating research for teachers*. Abingdon, UK: Routledge. https://doi.org/10.4324/9781351113038-8

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https://doi.org/10.14742/apubs.2018.1982