

Editorial

Trends in education technology in higher education

Kate Thompson

Queensland University of Technology, Australia

Linda Corrin

Swinburne University of Technology, Australia

Gwo-Jen Hwang

National Taiwan University of Science and Technology, Taiwan

Jason M. Lodge

The University of Queensland, Australia

Trends are important to us as researchers and practitioners in higher education (Boer et al., 2002). Trends influence decisions about funding for research, decisions about organisational infrastructure, and the establishment of new degrees. The dictionary definition of *trend* is a general direction in which something is developing or changing, and also a fashion. According to these definitions, a trend is both measurable with evidence that confirms the trend's existence and direction, and at the same time emergent, and sometimes fleeting. There is little in the design of tertiary institutions that encourages a timely response to trends, and yet there are people within universities who invest significant time in providing support for the implementation of new types of technology or pedagogical approaches for teaching and research staff. Outside of university settings, these would be R&D teams – testing the use of the latest technology and figuring out how it could be implemented in new contexts. White papers are often the way that these findings are shared in other areas. In education technology in higher education, we share innovation in practice through conferences and journals as well as online social networks and communities of practice such as Twitter and professional society networking platforms. The sharing of research in the area of education technology is subject to a significant lag for several reasons. Social networks reach some, but not all of the community, and journal articles can sometimes take months to move from submission to publication. Since the outbreak of the COVID-19 pandemic, sharing at conferences has been challenging, but even outside of the current restrictions on travel, conference attendance was reliant on funding from organisations or by individuals. Despite this, research in this field still experiences trends in emerging technology, methodological and theoretical approaches, and pedagogical practice.

One example of a formalised way of identifying trends in educational technology is the Educause Horizon Report. Each year, the teaching and learning edition of the report is produced, identifying emerging trends expected to influence the sector (EDUCAUSE (Association), 2021). They do this using a modified Delphi technique (EDUCAUSE (Association), 2021). Delphi techniques involve experts being asked to comment on specific content over several iterations in order to achieve consensus. It has been used extensively in higher education research (Mckenney & Voogt, 2016). Each year the Educause team identify trends under the macro headings of social, technological, economic, environmental, and political, as well as identifying key technologies and practices.

In 2021, the panellists identified the following trends as the most important: remote work/learning, widening of the digital divide, and mental health issues (social); widespread adoption of hybrid learning models, increased use of learning technologies and online faculty development (technological); decreasing higher education funding, demand for new/different workforce skills, and uncertainty in economic models (economic); climate change, reduction in work travel and sustainable development (environmental); and increase in online globalisation, rise of nationalism and public funding for higher education (political). The

key technologies and practices identified were artificial intelligence, blended and hybrid course models, learning analytics, micro-credentialling, open educational resources (OER) and quality online learning. Panellists were then asked to consider impacts of these on dimensions such as equity and inclusion, learning outcomes, risks, learner and instructor receptiveness, cost, importance for more flexible approaches to teaching and learning, and whether new literacies might be required by these key technologies and practices. Approximately half of the technologies and practices were new to the list this year, both because the language used has changed and the priorities of universities have shifted in response to the COVID-19 pandemic. For example, in 2020, the elevation of instructional design, learning engineering, and UX design was identified as a key technology/practice as was XR (AR, VR, MR, Haptic) technologies (EDUCAUSE (Association), 2020).

In professional societies such as ASCILITE, trends are also identified by experts and shared through special interest groups, as well as in the selection of themes for conferences and the identification of keynote speakers. In the past five years, keynote and invited speakers have discussed topics such as learning analytics, mobile learning, business intelligence, online learning, assessment, blended learning, the future of work, the internet of things, and design for learning. The conference themes have inspired future thinking and learning without borders. These trends include a mix of emerging technologies (such as robotics and the internet of things) as well as emerging practice in response to, or supported by, technological drivers (such as learning analytics or design for learning). This year the theme is Back to the Future, and after a focus since early 2020 on responding to the COVID-19 pandemic, the society is leading this community in looking forward again, leading a vision for innovation in technology, research and practice.

At AJET we aim to provide the community with high quality research in response to these trends, however research usually becomes available after the hype around new technologies and approaches has peaked. We share research on trending topics through editorials and special issues, drawing on expertise from the editorial team as well as the community to identify suitable topics. Topics of special issues and editorials have included those focused on emerging technologies, such as smart learning environments (Cheung et al., 2021), learning analytics (Axelsen et al., 2020; Corrin et al., 2020), learning spaces (Flynn et al., 2018), mobile augmented and virtual reality (Cochrane & Farley, 2017), and the use of videos (Fyfield et al., 2019). Others have discussed approaches to practice such as partnerships for scaled online learning and the unbundling of the traditional university (Huijser et al., 2020) and learning designs (Dobozy & Cameron, 2018). There have been topics of broad interest such as digital equity (Willems et al., 2019) and also specifically related to conceptualising learning and teaching, such as cognitive tools (Drew, 2019) and TPACK (Harris et al., 2017; Saubern et al., 2020). Some are specifically future looking (Costello et al., 2019; Thompson & Lodge, 2020), and some focused on methodological and analytic questions (Henderson et al., 2018).

In this issue, three of the articles are about supporting learners, teachers and designers in online learning environments (including Moodle (Cilsalar Sagnak & Baran, 2021), blended learning (Clark & Post, 2021), and supporting students with print disabilities (Cain & Fanshawe, 2021)), and understanding the design and development process (Anikieva, 2021). There is also research into the implementation and utilisation of technology for teaching and learning (such as the GoingOK Web App to support reflective writing (Willis et al., 2021), the NAO robot for language learning (Banaeian & Gilanlioglu, 2021), the STEMUP app for English language learning (Lin & Tsai, 2021), and VR in learning about hazard identification (Valentine et al., 2021)). Other articles are broader, providing us with an understanding of the current state so that a trend can be identified (e.g. digital badges in New Zealand (Hartnett, 2021)). And finally, two of the articles help us better understand how people learn through technology (e.g. with MOOCs to learn about programming (Alonso-Mencía et al., 2021), via mobile learning (Alowayr & Al-Azawei, 2021) and about TPACK in preservice teacher education (Mourlam et al., 2021).

Examining these three approaches to identifying trends in education technology research in higher education, it is satisfying to note that in addition to emerging technological trends (some of which have been fleeting), those related to the way we discuss research and teaching practice are relatively stable. It is one of the strengths of this community that we continue to reflect on our methodological and pedagogical approaches in relation to emerging technology. It is this important work that our authors provide, identifying these trending aspects and providing researchers and practitioners with information to help them understand how to apply this in their teaching. The call is out now for our community to identify topics for

the special issue for 2022. We look forward to planning how AJET will provide a platform to continue to reflect on our pedagogical and research practice while examining the influence of emerging technology.

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Corresponding author: Kate Thompson, kate.j.thompson@qut.edu.au

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