

Editorial: Volume 32 Issue 4

An argument for research significance

A recurring theme in the criticism of research relating to educational technology is that the field is swamped by descriptive studies. This work often does not provide for generalisation to population or theory, and rarely adds to our understanding of how the educational technology application or practices can be understood in terms of other contexts. Arguably, it is not sufficient to simply demonstrate that an effect was observed in response to an educational technology practice. There is an onus on researchers to consider how their findings are significant beyond the confines of their study.

One such way is to consider how one's research may contribute to the scalability of designs. Scaling up refers to when an innovation is successfully used more widely in other contexts. The problem is that education, including educational technology, has proven itself to be particularly resistant to scaling up of innovative teaching and learning practices. The concerns of scalability overlap with those of adoption and diffusion and together form a significant corpus of research, relating to innovations in educational technology and education more broadly. Chris Dede, a notable researcher in the field, commented in 2006 that the differences between education practitioners in the same department let alone institution make the transfer of innovations such as teaching strategies to be fraught with difficulty. He concluded that scalable designs for educational transformation must avoid assuming that an innovation can be simply replicated without taking into consideration the unique context of the new site. This obvious but important fact is worth considering in all educational technology research.

In coming to understand how one's work may contribute to scalability it may be useful to consider Dede's (2006) framework in which he highlights five key concerns: depth (the significance of the innovation for consequential change), sustainability (the ability to maintain the innovation over time), spread (the extent of diffusion), evolution (the mechanisms for redesign such as communities of practice) and shift (the ability for others to take ownership of the innovation). Researchers might also usefully draw on diffusion of innovation theory, such as described by Dearing et al. (2015) who highlight the importance of effectiveness (regularity of success), compatibility (alignment with beliefs and practices of the institution), simplicity (the ease of understanding and application of the innovation), cost (resource requirements such as cost and time), trialability (the ability to implement in stages with limited risk to resources), and observability (the visibility of impact).

Another way to approach contextual difference, and thereby achieve broader relevance of research to the field, is through an ecological approach (see for example, Bronfenbrenner, 1977; Bruce & Hogan, 1998; Lemke, 1994; Zhao & Frank, 2003). Such an approach can be used to highlight the roles of institutional policies, practices, cultures and routines that shape the appropriation of practices from one context to another. Selwyn (for example, 2014) has argued for several years that the success of innovations in technology enabled learning cannot be fully understood without also taking into consideration these broader socio-ecological issues. An ecological approach reminds us to not just describe the observed results of a particular intervention, but also to consider influences at the level of the individual student and teacher, alongside the layered 'contexts' of classroom, faculty, university, local community, state and nation, as well as the presence of many different competing innovations at any one time.

The field of educational technology research needs researchers to question and argue the significance of their work. Many journals now ask authors to state the significance, or implications, of their findings in relation to international practice or policy. However, we note that it is not uncommon for claims of significance to be made without critical consideration of contextual difference. For example, a study may find that a technology innovation had a positive impact for its participants, however it is arguably an overly simplistic response to claim that similar positive findings can be gained by others implementing the same innovation. Such claims would be more useful if located within an identified framework that can in turn strengthen claims of significance. Adopting this perspective allows authors to take recognised (although sometimes contested) ideas *such as* those introduced here (scalability, adoption and diffusion, and the socio-ecological model) to position their findings in terms of relevance to other contexts.

The ideas in this editorial are offered as a provocation for thinking about how we can more deeply interrogate the concept of significance. Claims of new knowledge should arguably be accompanied by discussions of how that knowledge (theoretical or practical) is relevant to other contexts.

Articles in this Issue

In this issue, as usual, the papers cover a broad range of topics, research methods and international contexts with authors hailing from Australia, Hong Kong, Singapore, Taiwan, the United Kingdom, and the United States of America. The issue begins with a paper by Cheng, Guan and Chau who draw on the technology acceptance model (TAM) to investigate user acceptance in relation to the implementation of a bring your own device (BYOD) initiative. One of their conclusions is that use of student owned technology reduces technological barriers to student online engagement and participation and consequently offers an insight into scalability for online learning. The second paper focuses on the affordances of WeChat for facilitating a community of inquiry (CoI), and in particular, teaching, social and cognitive presence. The authors, Wang, Fang, Han and Chen conclude that the media richness of WeChat, coupled with effective task design and facilitation, supports teaching, social and cognitive presence. The seventh paper in this issue, by Choy and Quek, also adopts a CoI framework in the study of academic achievement in a blended course. Among other findings the authors noted that the cognitive element was determined to have a direct relationship with performance and satisfaction.

The third paper, by Broadbent, offers us a nuanced understanding of the relationship between the usage of a learning management system and academic success. In previous studies it has been argued that frequency of use had a positive correlation with academic success. However, in this study the author found that online activity was not predictive of performance, and suggests that psychological factors such as self-efficacy need to be given more weight.

This issue also contains two papers that not only offer useful commentaries of technology innovations but also valuable insights into research design and analysis. The fourth paper, by Stevens, offers a review of the literature that explores the function of analytic diagrams in understanding and reporting of discussions in online forums. The eighth paper, by Easterday, Lewis and Gerber, revisits design research which is becoming more common in educational technology research while continuing to be paradigmatically underdeveloped. In this paper the authors argue that design research is best understood as offering arguments or models for learning.

In the fifth paper, Colasante and Douglas investigate the use of video annotation in a student centred learning approach. They conclude with a proposition of a three-step process to promote interactive video-based learning. In contrast, Falconer, Littlejohn, McGill and Beetham, in the sixth paper, investigate the motivations and tensions in the release of open educational resources. They paint a vivid picture of the complexity behind open resources, such as motivations for building reputation and efficiency being compromised by limited life cycles of the resources and conservatism of institutions trying to manage risk to reputation in the face of novel work practices.

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Lead Editors

Michael Henderson, Eva Heinrich and Chwee Beng Lee

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