

Editorial

The implications of educational technology research for practice and/or policy

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The implications for practice or policy section of AJET journal articles provides authors with an opportunity to translate their research for the readers who will ultimately use this research for change. In this editorial we discuss considerations for this with respect to the characterisation of educational technology research, the challenges in reporting on innovations in and with technology, and the institutional context of policymakers. Finally we unpack a core question for consideration by the ASCILITE community and beyond: how can the research published in AJET best be used to provide evidence for change in practice or policy?

Keywords: instructional designers, policymakers, tertiary education, characterisation of research, editorial.

Introduction

There are many ways that tertiary education institutions measure the value of research. These can include research income (from government funding bodies, industry partners, government departments or philanthropic organisations); research outputs (such as journal articles, book chapters or conference papers); or the impact of research (measured by stories of changes to policy and practice, or by citations by other researchers). This editorial continues our focus this year on exploring the features of journal articles in AJET, including authorship practices (Thompson et al., 2022) and keywords (Corrin et al., 2022). This editorial addresses the purpose of the *implications for practice or policy* section of an AJET journal article. The aim of this section, not unique to AJET, is to provide authors with an opportunity to engage in the translation of their research for readers who will use this research beyond other researchers. The importance of this translation and the risks of not engaging in the effective translation of research was another topic we focused on in our editorial series this year (Lodge et al., 2022). In the case of AJET, the core end users include practitioners (such as instructional designers or tertiary educators) and policy makers (within organisations or government) in addition to researchers. In what follows we discuss considerations for the translation of research in the *implications for practice or policy* section with respect to the characterisation of educational technology research, challenges in reporting on innovations in and with technology, and the institutional context of policymakers. Finally, we unpack a core question for consideration by the ASCILITE community and beyond: how can the research published in AJET best be used to provide evidence for change in practice or policy?

Considerations for the translation of research

There is good reason to care about how educational technology research is characterised. Terms such as basic research, applied research, experimental development research, and use-informed basic research can be used to describe the research that is published in AJET. The differences between these types of activity can be considered to be determined by the motivation for asking the research questions. Basic research is focused on the generation of knowledge in its own right, without a need to justify the application or use of that knowledge. Applied research also results in new knowledge, however there is a specific aim in mind. Experimental development is “systematic work, drawing on existing knowledge gained from research and

practical experience and producing additional knowledge, which is directed to producing new products or processes or to improving existing products and processes (OECD, 2015, p. 45). Until the 1990s and 2000s one underlying assumption was that there was a unidirectional, linear relationship from the knowledge generated in basic research to applied research. Gibbons et al. (1994) and Nowotny et al. (2003) discussed the shifting focus to applied research and identifying transdisciplinary and collaborative approaches (Bentley et al. (2015) provide a detailed discussion of the development of these arguments). In 1997, Stokes published work discussing a new model for considering basic and applied research. In his book, *Pasteur's Quadrant* (Stokes, 1997), he makes two main arguments - the first is that research can be characterised according to the four quadrants: as pure basic with only a quest for fundamental understanding (e.g., Bohr), pure applied research with only considerations of use (e.g., Edison), an un-named quadrant with no quest for fundamental understanding or considerations of use (investigations of a particular phenomenon), and finally use-inspired basic research with considerations of use and a quest for fundamental understanding (e.g., Pasteur). He also argues that knowledge created through research was best described by bidirectional relationships. In many fields that are aligned with the ASCILITE community (such as learning design or the learning sciences), use-inspired basic research (that found in Pasteur's quadrant) has been held up as the ideal characterisation of research (Klahr, 2019).

Despite the importance and usefulness of research carried out in Pasteur's quadrant, timely sharing of results is difficult in fast-moving fields such as educational technology. Advanced technologies for education and skills can include simulators (airplane, paramedic training), XR, visualisations, mobile-based apps, drones, platforms for online learning, virtual production and high performance computing. An ongoing challenge for educational technology is the innovative nature of the field and the subsequent lag in research publication. Often articles are published based on research undertaken several years before. The implications for practice or policy section of the article provides authors with an important opportunity to abstract beyond the specific technologies used so that practitioners can relate this research to their current practice, and policy-makers can incorporate the new, relevant knowledge into their decision-making.

In the information provided to authors submitting a paper at AJET, the potential end users of the research published in the journal include educators, instructional designers, policy makers, administrators, and other researchers. Given the variety of end users, the way the nature of educational technology research is described provides the basis of this translation work. This includes higher and further education, lifelong learning, and training. For many in the field of educational technology, and in the ASCILITE community, the focus has been on the university sector. Implications for policy in higher education institutions could include topics such as student engagement, academic standards, graduate attributes, assessment, research training, rankings or internationalisation (these are outlined in detail in Marginson et al. (2013)). However, since the COVID-19 pandemic, and with national and international policy prioritising digital skills, the contexts in which educational technology research can have implications for lifelong learning and training are expanding. Therefore a more nuanced understanding of decision-making in other sectors is needed to adequately translate the research for these end users.

Providing evidence for change in practice or policy

The ultimate aim of connecting research outcomes with practitioners or policy makers is to provide evidence for change. The change could be related to the design of a learning situation, the way in which assessment is protected, or government support for innovative approaches to digital skills training. However, R&D approaches to educational technology research is often underfunded and under-utilised to enact change in higher and further education, lifelong learning, and training.

In the Australian context, since the systemic national support for innovation in learning and teaching in higher education ceased in the mid-2010s, there have been limited sources of funding for research about, for and with the broader tertiary sector. Yet with recent challenges to the learning and teaching environment, it has never been more important for continued, quality research into how to address the changing motivations, formats, and contexts for learning. Most, if not all, tertiary institutions are currently completing a process of policy review to align their practices with lessons learned from the need to teach remotely, as well as the other innovative practices that have emerged from a general increase in the use of technology

in learning and teaching. Funding to support the translation of educational technology research into accessible forms for these policy makers to engage with is key to ensuring policy is evidence-informed and adaptive to future innovation and change.

In the areas of lifelong learning and training there are expanding opportunities for industry funding. There is a critical need for R&D funding in educational technology to develop the infrastructure necessary to support the priority areas of training and skills. The OECD defines research and experimental development (R&D) as “creative and systematic work undertaken in order to increase the stock of knowledge – including knowledge of humankind, culture and society – and to devise new applications of available knowledge” (OECD, 2015, p. 378). R&D includes basic research, applied research, and experimental development. R&D must be novel, creative, uncertain, systematic, transferable and/or reproducible (OECD, 2015).

Whether the focus is on tertiary institutions or the broader lifelong learning and training context, there are some key questions that can guide the development of research to have pragmatic implications for policy and practice. For example, how do we design projects that embed research in the creation of high quality educational technology products, services and learning designs? Collaborative approaches to research are one way that researchers can ensure that appropriate evidence is provided for change in practice or policy. For this to be productive researchers must spend a considerable amount of time understanding what the end users (such as instructional designers or industry partners) need within their context. Some core considerations are co-design practices, transdisciplinary approaches, authorship practices, a diversity of outcomes, and shared IP in collaborative research for learning, teaching and research (Coburn & Penuel, n.d.; Rosenfield, 1992; Thompson et al., 2022).

As editors of AJET we play an important role in ensuring that the research published in the journal can provide evidence for change. Some of the ways that we have done this include the creation of criteria by which articles are selected for inclusion in the journal, encouraging broad authorship practices (Thompson et al., 2022), and inclusion of the section under discussion in this editorial. In writing this editorial, we are curious about whether institutions are prepared for a change in how educational technology research is conducted, applied and valued. We wonder how prepared researchers are to undertake a significant shift in how research is conducted into the future (Reeves, T. C., 2000).

Our community has the potential to redefine the role that education technology research can play in connecting policy and practice. Research about design, teaching, learning and assessment can provide evidence-informed support for new ways to collaboratively engage in learning and teaching in higher and further education, lifelong learning, and training. The ability to translate the research published in AJET so that practitioners and policy makers can make use of it is crucial to informing change. It flows directly to decisions about research funding from government departments, and (therefore) the institutional and societal value that is given to educational technology research. The community just needs to decide what we want that change to be.

Author contributions

Kate Thompson: Conceptualisation, Investigation, Writing - original draft, Writing - review and editing; **Linda Corrin:** Writing - review and editing; **Jason Lodge:** writing – review and editing

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