Editorial: Volume 32 Issue 2

From Tinkering to Systemic Change: The potential of Educational Technologies

The landscape of tertiary education continues to change. As an example, New Zealand tertiary sector data indicate that over the last 15 years the number of students in formal tertiary education in New Zealand has increased by 40%, and the proportion of international students has increased from 5% to 13% (Education counts, 2016). In 2014, based on equivalent full-time student units, 32% of study undertaken in formal tertiary education was part-time and/or part-year. In the same year 30% of equivalent full-time student units in first year courses were taken by students who did not enter directly from high school. The relatively rapid change in student numbers, demographics and enrolment options are difficult enough to manage, but in parallel, governments have also placed increased performance requirements on the tertiary sector, seeking improvements in both participation levels and qualification attainment (for example see New Zealand's Tertiary Education Strategy, 2015).

Over the years learning technologies have contributed to the development of new teaching and learning approaches. Learning management systems with their features of document delivery, online discussions and electronically administered assessments have become commonplace. Resources are provided in multimedia formats, enabling blended course deliveries. Learning analytics increasingly help to understand the effectiveness of teaching materials and interventions. On comparing a course with its equivalent twenty years ago we notice big changes in how material is delivered and how communication occurs. Yet, upon closer scrutiny we come to the conclusion that we are mostly still tinkering!

Educational technologies are regularly spoken about as 'game changers' and 'solutions', however, their application is still bounded by the traditions of higher education. Many fundamental parameters of tertiary education have not changed. We are hanging on to age-old concepts such as fixed semester durations and centrally administered examinations. Despite the diversity of learners and their needs, we apply fixed-timeframe learning schedules driven by an unquestioned faith in summative assessment regimes. Our one-size-fits-all approach slows down some of our students while at the same time denies others the opportunities required for successful transition into tertiary study.

Research on self-regulatory processes considering social, motivational and affective in addition to cognitive contributors in the 1990s has led to important theories on self-efficacy, self-directed learning and activity goals. As Bandura wrote, "a major goal of formal education should be to equip students with the intellectual tools, self-beliefs, and self-regulatory capabilities to educate themselves throughout their lifetime" (1993, p.136). Yet, more than twenty years later we still use assessment systems that foster performance instead of mastery goals. We encourage students with limited preparation for tertiary study into our courses, and do little to strengthen their self-beliefs and self-regulation skills.

As always, technologies by themselves will not provide the answers. Much systemic change is required. Current technologies can become the catalyst for such change. Blended approaches can be extended allowing students to complete courses in flexible timeframes. Technologies already employed in other contexts can be adopted for traditional education tasks. Take video interviewing software, commonplace in industry for the screening of job applicants. With a bank of exam questions and student-driven scheduling such software can be transformed into a flexible examination system. Many so far untapped opportunities exist.

Arguably a key affordance of educational technologies is the individualisation of learner experiences. This does not mean the isolation of learners, quite the contrary. It can provide students with more options which are relevant to them while at the same time giving them more ways in which to engage with each other and to construct meaning. Over a decade ago Collis and Moonen (2001) argued that flexible learning is a model which provides responsive and effective education for the constantly changing landscape of Higher Education and the needs of its students. They pointed out that we need to move away from acquisition models to participatory models where the course of study is designed around the central issue of facilitating student engagement with the content and each other.

We applaud the work in educational technology innovation and research that adds to our understanding of how technologies can improve the teaching and learning experience within well-defined learning systems. However, we also see a potential for critical research around digital technologies in relation to higher education as a system. How can we use technologies to drive fundamental change? Ten years after their first study, Colls and Moonen (2011) revisited their work on flexible learning and concluded that flexibility in higher education in terms of logistical and personal-usage options had increased, but that "more fundamental aspects of higher-education participation and pedagogic change will continue to require strategic incentives and appropriate support" (p.22). We encourage researchers to report on empirical studies or rigorously supported conceptual work that fundamentally reconceptualises teaching in higher education and critically questions existing configurations.

Articles in this Issue

The reach and relevance of AJET is perhaps reflected in the fact that the authors in this issue hail from Australia, Hong Kong, Netherlands, Estonia, Turkey, Belgium, Finland, Iran and the United States of America. In this issue there are two studies relating to the use of portfolio systems. **Lai, Lim** and **Wang** consider digital teaching portfolios, particularly in relation to how they may facilitate a professional learning community in higher education. Among other valuable findings they remind us of what others have found in relation to portfolios (whether it be for staff or students) that careful planning and negotiation needs to occur to manage the tension between showcasing and sharing. This tension was also mentioned in **Beckers, Dolmans** and **van Merriënboer** systematic literature review on e-Portfolios. Their review pays particular attention to how digital portfolios may enhancing students' self-directed learning and they conclude with a broad range of recommendations from portfolio system design, pedagogic design, institutional policy design, and professional learning for educators.

Moving away from studies on portfolios, **Põldoja, Duval** and **Leinonen** report on designing and evaluating an online blogging tool that can facilitate their use in open online and blended learning courses. They provide a useful summary of how blogs have been used in courses and some of the key barriers or concerns. One of their conclusions is that the fragmentation of discussions and awareness of learning activities in blog-based courses are critical issues that need to be addressed.

In this issue three of the papers have a focus on teacher education. The theme of professional learning is picked up again by **Herbert, Campbell** and **Loong** who revisit the potential of online systems in the support of rural teachers. In their study they describe an activity system, using cultural-historical activity theory, to conclude that flexible design and content utility are critically important for these isolated professionals. **Ebrahimi, Faghih** and **Marandi** consider the factors affecting pre-service teachers' participation in asynchronous discussion. Asynchronous discussion participation is a continuing topic of debate in higher education and their findings are of relevance beyond the context of teacher education. It is valuable to note in their concluding comments that the call for a meta-synthesis to help explain the often difference and sometimes conflicting claims in the literature over the issues of optimal group size, grading, and level of instructor involvement. **Baran** and **Uygun** continue the focus on teacher education with their study on technological, pedagogical, and content knowledge (TPACK). They propose that a design based learning (DBL) approach can foster TPACK-in-action. Among the valuable findings we note their concern that we need to address issues of sustainability not only in how we expose and engage students to TPACK in their degree program but also how we work towards instilling an ongoing professional commitment to such learning. It is of note, but not surprising, their concluding remarks that effective technology integration knowledge is something that develops over time as educators practise and develop expertise in connecting pedagogy, content, and technology.

The remaining two papers offer broad commentaries relating to higher education quality and impact: one paper focusses on the potential of current data systems to support quality enhancement in courses, while the other helps inform an ongoing debate regarding the validity of multiple article research dissertations. Quality assurance is a concept that often dominates the administration of degrees, however **Leonard, Fitzgerald** and **Bacon** present an exciting paper discussing the use of emerging technologies to move from quality assurance to quality enhancement. In this paper the term *fold-back* is borrowed from music amplification and used to propose as a way to describe how we might mix systems such as learning and business analytics to provide valuable information in enhancing educational quality.

Another current issue in higher education is that despite multiple article formats for research dissertations being used for decades they continue to be seen by some as a less rigorous alternative. This is a particularly relevant concern for the field of educational technology which values design based, iterative, and application focused research approaches that arguably could support such a thesis format. In this paper **Thomas, West and Rich** investigate the benefits, challenges, perceptions, and current practices of the multiple article dissertation format in instructional technology. Among other valuable findings they noted that multiple article format dissertations received more citations for their dissertations, facilitated authenticity and collaboration and prepared students for a career in academia.

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