Scanning the Australasian Ed Tech Horizon

The 2021-2022 Contextualising Horizon Report

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Redefining and interrogating pedagogical practices

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Lockdowns and the rapid pivot to remote teaching disrupted much of Australasian higher education and has given us impetus to rethink educational design and practice. Overnight, some educators found themselves thrown into remote teaching, while for others, their courses were already designed with blended and online learning in mind. Universities with large face-to-face cohorts have tended to rely upon traditional teaching and assessment modes, with some variation across faculties and departments. Long before the pandemic, learners had been choosing flexible, online teaching and learning modes with dedicated online providers with programmes purposefully designed to leverage online technologies over the traditional on-campus experiences. Many across the higher education sector have recognised this as an opportune time to reflect on just how far education has shifted from a teacher-centred to a learner-centred approach, and how technology may enable or hinder that process.

The persistence of lectures in higher education has been an important topic of conversation. Academics who resist didactic pedagogies have worked hard to make lectures and learning more active. Some academics see lectures as an opportunity to stimulate, motivate and challenge learners. Preparing and performing interactive lecture content at scale, however, may still be the exception rather than the norm. Many universities were unprepared for remote learning in the pandemic and resorted to transposing traditional stand-and-deliver lectures into online recordings. Personal interactions in large lecture-format teaching are more difficult than in small-group discussive settings. Developing high-quality interactive online material requires expert skills and intensive resourcing, which most universities have found difficult to achieve. During the rapid flip to remote learning, the critical role of specialist third space staff and technology has become apparent. This includes learning designers and professional development units who upskilled academic staff and educational technologists who supported toolsets that went from nice-to-have to mission-critical overnight.

To manage this sudden change, some institutions have turned to pre-built educational packages and have been exploring the use of AI and adaptive technologies. In Singapore, the National University of Singapore has integrated basic adaptive learning tools into their university's LMS (LuminNUS). The Singapore Management University partnered with commercial providers, such as Desire2Learn, to adopt integrated learning platforms that include joining AI analytics tools with the LMS. This approach means teachers spend less time customising teaching material for each subset of learners, given the adaptive features of the platform.

The pandemic has reminded us of not only our social nature but also the value of a better work-life balance. In lockdowns, a sense of community was often missing. Understandably, this has manifested

Active engagement with discipline knowledge

The Business Co-Design team at the University of Sydney, as part of their Connected Learning at Scale project, worked with academic partners, learners and industry to develop self-paced and interactive online modules to replace lectures in large subjects. The project aims to foster true flipped learning and to provide learners agency in navigating the content and integrates multiple perspectives into the learning resources.

Online Interactive Oral Assessment

Danielle Logan-Fleming and Popi Sotiriadou from Griffith University implemented the online interactive oral assessments to achieve a more secure, authentic form of assessment over traditional exams. Learners work in teams in an unscripted interaction with an examiner to verbally demonstrate knowledge while participating in an activity representative of a workplace scenario.

in a strong desire to return to campus for some learners and staff, while others valued the flexibility of working from home. It is likely that the role of campus spaces will evolve, with learners taking advantage of opportunities to gather on campus but also leverage the affordances of social technologies to enable them to learn through networks, sharing and collaboration, in online communities as well as in face-to-face settings. Institutions will need to consider ways of facilitating the interactions of learners and staff, with online learning environments having an expanded role.

Active learning is effective and more inclusive than traditional didactic lecturing. It can also help promote equity in higher education, even if some learners enjoy group work and collaboration less because of the increased cognitive effort required. Learners need to understand the benefits of active learning to take charge of their education, and online platforms can provide a vehicle for such participation. Lively debate and discussion in synchronous tutorials can occur in multiple spaces, including online via social networks, in Microsoft Teams, in Zoom classes, breakout rooms and via tools such as Padlet; learning is not restricted to campus classrooms. Asynchronous discussions with rich media content can also be engaging and reflective with tools such as VoiceThread extending the functionality of online text-based discussion tools to provide a human touch.

Exams and lectures are traditionally designed to transmit and test learners' mastery of content. Similarly, a shift to online exams during the pandemic largely involved pen-and-paper exams being reproduced in online formats.

Higher education needs to mainstream assessment design that better prepares graduates with 21st century skills for an ambiguous future. Although the assessment, supporting learning activities and delivery methods all need to be constructively aligned to the desired learning outcomes, new ways of thinking about assessment need to be canvassed. Widespread use of online invigilation of exams during the pandemic has exposed how stressful the experience can be for learners, while perpetuating an inauthentic method of assessing learner capabilities to solve problems in the real world. Some higher education institutions try to use AI to supplement human teachers in the assessment and invigilation without changing the perspectives of assessments. Ngee Ann Polytechnic in Singapore has been trialling the use of AI for marking, and remote exam invigilation. Although the Australian Government–funded project Transforming Exams provided examples of how we can increase the authenticity of online exams at scale, we can also learn from innovative educators who explore alternative assessment approaches, such as online interactive oral assessment at Griffith University (see Logan et al., 2020), collaborative online exams at the University of New South Wales (see Kellerman & Betts, 2021), and virtual WIL supplemented with simulations at the University of Western Australia (see Male & Valentine, 2019). Apart from assessment that is authentic, scalable and valid, learners benefit from choice in how they represent what

Transforming Exams

Transforming Exams aims to enable authentic, high-stakes assessments that empower learners to demonstrate employability requirements for 21st-century learning, using bring-your-own-device (BYOD) capability for campus-based exams. The e-Exam software and guides and research are publicly available through the project's website. Funded by the Australian government, the project is a partnership among 10 Australian universities.

they know, and how they engage in the learning and assessment process.

Educators in Australasia have been quick to adopt online conferencing technology during the pandemic, notably Zoom because it was relatively easy to access and use (despite the occasional Internet dropout). It became readily apparent that translating face-to-face methods and expectations to the Zoom classroom was a challenge for many educators unfamiliar with the new way of working. The role of academic developers has been critical in helping educators to design learning experiences that can exploit the affordances of these online technologies, such as effectively using chat, sharing whiteboards, editing documents collaboratively, strategising the use of breakout room activities and timings that work best in such spaces and rethinking didactic delivery into something that is interactive and collaborative (see Bryant, 2022, for an example). Educators need more time to tap into support models, exemplars and encouragement to be able to realise the potential of online facilitation. Although there is already a long tradition of early adopters, e-learning champions and online and distance education technology research to draw from, the pivot to remote learning was so rapid that there was precious little time to find and apply this knowledge and skills. If anything, the mixed success of the rapid switch to online delivery has highlighted the scale of effort and resources involved in producing quality higher education in distributed modes.

Higher education learners are choosing the convenience and flexibility of online learning, and it is therefore less likely that higher education will flip back to face-to-face teaching to the same extent as has occurred in the school sector. Learners in higher education are largely there by choice and will likely select providers that enable them to juggle study as part of their increasingly complex lives.

AI educational applications such as intelligent tutoring systems and automated response systems may also assist learners to learn at their own pace and preference in certain discipline areas. By allowing learners to explore concepts and practise core skills with adaptive AI applications and automated formative feedback, teachers can focus on facilitation and being a guide-on-the-side for learners. Microsoft Qbot developed in collaboration with the University of New South Wales is an example of an AI-infused agent that has been trialled in large blended and online UNSW engineering courses with positive outcomes. Singapore Management University has been able to leverage AI to custom-build tools, such as Peer Evaluation Tool, to encourage collaborative and peer learning. The technology that enables automated or supported grading has been present for a number of years. However, anything outside of selected response formats such as multi-choice questions has seen only limited use in Australasian higher education.

Higher education has been slow to grapple with the possibilities and role of AI and adaptive and automated tools in teaching, and how algorithms might reshape education in unexpected ways. Although

there have been some budding implementations of using AI technology in educational delivery, such as National University of Singapore's Yong Loo Lin School of Medicine using AI simulation application Pass-It to train medical learners on various medical procedures, uptake on the use of AI has been traditionally low (United Nations Educational, Scientific and Cultural Organization, 2019). Further research is required to see if such tools are suitable in the Australasian context and in disciplines where responses to problems are less structured.

Changing university systems, processes, human and physical resources that are allocated around lectures and exams is challenging, despite evidence that active learning is more effective. Academics will default to lectures and exams without knowledge of feasible and institutionally supported alternatives. Hence, the leaders of higher education institutions must be prepared to support the exploration of practices on the horizon that are working at scale or have great potential.

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