# The Higher Education Landscape: Trends and Implications

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## The Higher Education Landscape: Trends and Implications

**The World is Changing. Higher Education is Changing.**
*We are facing unprecedented challenges—social, economic and environmental—driven by accelerating globalisation and a faster rate of technological developments. At the same time, those forces are providing us with myriad new opportunities for human advancement. The future is uncertain and we cannot predict it; but we need to be open and ready for it.* (OECD, 2018)

Technological developments shaping our daily lives have also reshaped higher education (HE) (Adams et al., 2017; AFR, 2017; CEDA, 2015; Davis, 2017; EYGM, 2018; Frey et al., 2013; James et al., 2017; Marginson, 2016; Norton, 2017; PwC, 2018):

1. ***Massification:*** More students with diverse expectations paying more for HE.
2. ***Democratisation of Knowledge:*** Information is now easily accessible via the internet.
3. ***Post-truth World***: Expertise and evidence are being questioned and disregarded.
4. ***Changing Work:*** Many career changes over longer lifespan impacted by automation.
5. ***Competition:*** Increasing global competition and emergence of new providers.

Against this backdrop, the University of Queensland (UQ) vision—*knowledge leadership for a better world*—remains robust. But if we are to continue preparing our students to create change, our educational structure must evolve to ensure we can meet shifting and diversifying expectations around how education is delivered and how students want to engage in learning.

**Guiding Questions**
Three questions will guide our discussion with three 'headlines' to inform our thinking about the future direction of education at UQ.

1. What are the goals—the knowledge, skills, and attitudes—of a UQ education?
2. How should UQ learning experiences change as student expectations shift?
3. What infrastructure—virtual and physical—will support our educational goals?

## HEADLINE 1:
## LIFETIME OF LEARNING IN A DIGITAL WORLD

Continuous learning will be vital as people change careers more often over a longer working lifespan (AFR, 2017; FYA, 2017; PwC, 2018). As automation is predicted to significantly transform the current labour market, upskilling, reskilling, and re-invention through lifelong learning becomes vital (Adams et al., 2017; EYGL, 2017; Grajek et al., 2018; PwC, 2018).

University curriculum has to create space for students to learn how to learn and imbue values for continuous learning.

| Impact of Automation: Predictions about the Future of Work | |
|---|---|
| By 2030 workers will spend per week:<br>▪ 30% more time learning new skills on the job<br>▪ 77% more time using science and maths skills<br>▪ 41% more time using critical thinking and judgement<br>(FYA, 2017) | Automation is predicted to:<br>▪ Impact 47% of US employment (Frey et al., 2013)<br>▪ Replace 40% of Australia's workforce by 2035 (CEDA, 2015) |
| *By replacing workers doing routine, methodical tasks, machines can amplify the comparative advantage of those workers with problem-solving, leadership, EQ (Emotional Intelligence), empathy and creativity skills. Those workers performing tasks which automation can't yet crack, become more pivotal—and this means creativity, innovation, imagination, and design skills will be prioritised by employers.* (PwC, 2018) | |

Learning at UQ must infuse relevant knowledge and skills that shape our students' attitudes and values so they are both prepared for the changing demands of work and to contribute to solving the profound challenges facing humanity.

| Preparing for the Future: Knowledge in Action* | |
|---|---|
| ***Skills*** | ***Attitudes and Values*** |
| 1. Foundational: Literacy, language, numeracy<br>2. Enterprise: Critical thinking, problem-solving, collaboration, creativity<br>3. Digital: Data interpretation, coding, STEM~ literacies underpinning modern technologies<br>4. Human: Emotional intelligence, complex cognitive reasoning, intercultural competence | 1. Flexibility and adaptability enabled by learner agency to navigate through complexity<br>2. Self-direction and initiative where learners can take responsibility for shaping the future<br>3. Openness to different ways of knowing where learners accept tensions and uncertainty<br>4. Individual and collective well-being fostering learner's commitment to sustainability |
| *In the face of an increasingly volatile, uncertain, complex and ambiguous world, education can make the difference as to whether people embrace the challenges they are confronted with or whether they are defeated by them. And in an era characterised by a new explosion of scientific knowledge and a growing array of complex societal problems, it is appropriate that curricula should continue to evolve, perhaps in radical ways.* (OECD, 2018) | |

*List compiled from a synthesis of many sources including: Adams et al., 2017; AFR, 2017; Bailey et al., 2018; CEDA, 2015; Consortium of Researchers, 2018; EYGL, 2018; FYA, 2017; Grajek et al., 2018; Kung, 2018; OECD, 2018; Partnership for 21st Century Skills, 2009; PwC, 2018

~Science, technology, engineering, and mathematics

## What are the goals—the knowledge, skills, and attitudes—of a UQ education?

Future higher education curriculum has to be at the intersection of ***knowledge, skills, attitudes, and values*** where learners apply ***specialised disciplinary knowledge*** to:

1. Work in interdisciplinary teams across traditional knowledge boundaries with people from diverse cultural backgrounds.

2. Harness their highly complex cognitive skills reliant on emotional intelligence to collaborate effectively and creatively with others.
3. Grapple with ethical paradoxes arising from the dual nature of advanced technologies to help or harm humanity.
4. Interact daily with advanced technologies enabled by a digital fluency grounded in STEM literacies.

The **UQ Program Architecture** project will open up curriculum space to prepare students for the future by reviewing our current programs and simplifying rules.

| **Curriculum Priorities for the New Skills** | |
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| The **National University of Singapore** (NUS) is emphasising new 'set skills' with a change in their curriculum structures focused on 'experiential training'. All students will be required to complete statistics along with computational thinking or computer programming, regardless of discipline. A new 'roots and wings' model requires all subjects to develop students' personal skills (e.g. perseverance, collaboration). NUS is ranked 22 in the *Times HE* World University Rankings. (THE, 2018) | The **University of Maryland** is ranked in the top 10 for Innovation & Entrepreneurship (I&E) Education in the US. It has a dedicated Academy that fosters university-wide engagement with I&E. In 2015-16 they engaged over 13,000 students and had embedded I&E components into 203 courses across faculties from agriculture to the humanities. (University of Maryland, n.d.) |
| **UQ Entrepreneurship and Innovation (E&I)** offers a strong pathway from *UQ Idea Hub* (develop an idea) to *UQ Business School's Startup Academy* (test the market) to *ilab UQ* (bring idea to life) to *UniQuest* (turn ideas to products) with plans underway to embed E&I across the UQ curriculum. | |

More than what our students know and can do, UQ has to reimagine its relationship with students in changing times. UQ's cutting edge **Students as Partners** program enables students to work with staff to shape curricula and governance practices in ways that foster student agency and value them as members of the UQ community (Matthews et al., 2018).

## HEADLINE 2: CHANGING STUDENT EXPECTATIONS AND NEW PROVIDERS

There are over 1.4 million students enrolled in Australian HE with over 90% enrolled in one of 40 universities, and nearly five thousand registered training organisations offering vocational education and training (James et al., 2017; Norton, 2017). Approximately a quarter of HE enrolments are full fee paying international students. With more students, harnessing data and new analytic approaches to personalise the university experience is at the forefront of student success research and practice (Coates, et al., 2016). Although new technologies are and will continue to disrupt the traditional teaching models, student success will continue to be the driving force of HE (Adams et al., 2017; Coates, 2018).

In the competing marketplace with students personally investing more financial resources into HE, universities are reimagining their relationships with students as learners, customers, thinkers, and partners. Current and prospective students expect high-quality teaching and services and career outcomes that are commensurate with their financial investment in their university degrees (James et al., 2017).

Learner expectations for when and where they will learn are also changing, and there is quantitative variation between prospective and current students (EYGL, 2018):

- 22% of current students preferred for the majority of their degree to be delivered online compared to 42% of prospective students
- 43% of current students indicated that availability of online study plays an important role in course selection versus 58% of prospective students
- 37% of current students believe that online learning is as effective as traditional learning compared to 49% of prospective students

Despite Australia's HE sector performing well at present (James et al., 2017), the current system is not sustainable (AFR, 2017; Davis, 2017; EYGL, 2018). Changing learner expectations, uncertain funding policies nationally, emerging competition from new providers, and lack of diversity within the Australian HE sector indicate that changes will be required to remain competitive.

| **Emerging Competitors** | |
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| The **University of Phoenix** is an accredited, for-profit university that has accrued over one million alumni in forty years. It delivers practical degrees with maximum flexibility and a 'no-frills' campus experience. Students take one course at a time via their preferred delivery method (online or on-campus) and can enrol every five weeks so there is no significant waiting period. (University of Phoenix, n.d.) | **Udacity** is a for-profit education provider focused on producing industry-ready graduates. They offer 'Nanodegrees' in technical areas such as Artificial Intelligence and Self Driving Cars in partnership with companies like Google, Amazon, and Facebook. The majority of students pay for courses up-front or via a monthly subscription payment. (Udacity, n.d.) |
| *Once recognised by employers, massive open online courses or MOOC-based credentials from well-established overseas institutions may yet disrupt parts of Australia's international and domestic student markets. Campuses will not disappear, but '50 shades of blended learning' will be the new normal.* (Sharrock, 2017) | |

The overall trend of more favourable attitudes toward online delivery from prospective students and growth in lifelong learning for professionals signal a need to rethink the traditional, on-campus only model of learning. For example, our **Virtual Exchange Program** involves seven leading international universities. The program allows UQ students to gain credit through online enrolment in courses from the partnered universities (UQa, n.d.).

| **Learning at UQ** | |
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| The **UQ2U Program** will translate 60 large courses into blended learning mode by 2020. Harnessing the technology and approaches developed by the UQx team, new courses—and modules within—will allow students to learn anytime, anywhere via online content and assessment. Students are supported by rich, dynamic, and collaborative on-campus learning experiences that challenge and deepen their learning experiences. | Our **UQ HE Learning Framework** (HELF) is an evidence-informed model for university learning in the 21st century (Carroll et al., 2018). It comprises seven principles for quality learning developed from our Science of Learning Centre and informed by world-leading scholars researching learning, cognition, and higher education. Our HELF is becoming the underlying design principles driving teaching and learning at UQ into the future. |

**UQ Student Strategy, 2016-2020** features student-centred flexibility to provide our students with flexible options that support and service their priorities, meet their expectations and personalise their learning experience through blended learning and unbundled course options. (UQb, n.d.)

Lifelong learning requirements are also creating opportunities to reimagine what constitutes a degree program. For example, NUS is thinking about 'students for 20 years' by expanding a program that offers recent graduates two free courses to support the continuous learning of alumni into their professional careers (Kung, 2018).

Furthermore, micro-credentialing technologies are enabling the unbundling of courses and degree programs into smaller modules (Adams et al., 2017; Milligan et al., 2017). Early research has found that while students hold positive attitudes toward micro-credentialing and badging, employing them does not equate to increased motivation or engagement (Tomić et al., 2017). Emphasising technology over sound educational design principles is a common pitfall when adopting new technologies (Jensen, 2017). UQ's HE Learning Framework ensures solid educational design underpins all our learning experiences.

**Micro-credentials**

**Deakin Hallmarks** are digital credentials that recognise the achievement of graduate attributes (e.g. teamwork, critical thinking) by Deakin University students. Students can apply by submitting evidence to a panel of faculty and industry representatives. Successful applicants receive a credential that can be shared online, links to data which verifies the award's criteria and assessment, and appears on their academic transcript. (Deakin, n.d.)

**MicroMasters credentials** are a series of five graduate-level MOOC courses developed by universities and uploaded onto the online education platform EdX. Students who successfully complete all courses in a MicroMasters become credit-eligible and can apply to pursue a fast-tracked, less expensive Masters degree at affiliated universities usually eligible for one semester's credit. (Edx, n.d.)

**How should UQ learning experiences change as student expectations shift?**

## HEADLINE 3: TECHNOLOGIES POWERING THE FUTURE OF EDUCATION AND CHANGING CAMPUSES

Technological advancements are reshaping education. New and emerging technologies promise integrative systems affording a nuanced and personalised student experience creating opportunities for flexible, relevant, and deep learning. The systems that currently manage learning (e.g. Blackboard at UQ) will change dramatically as they offer more ways to support personalization, meet universal design standards, and play a larger role in assessment for learning (Adams et al., 2017; Grajek et al., 2018).

A key promise of emerging technologies is to further active learning through blended approaches (online and on-campus). The evidence for active learning is strong.

| Active Learning | |
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| Activities where students engage in explaining and testing ideas (most often with peers) to improve their understanding of concepts. It differs from traditional lectures where students listen and take notes as academics lecture content to them. Active learning encourages students to not only reflect on what they have learnt but how they learn. | A meta-analysis of 225 studies researching active learning and academic performance found that active learning increases examination performance by half a grade (on average) and that lecturing increases failure rates by 55% (Freeman et al., 2014). |

Alongside smart cities, smart campuses and classrooms will emerge; the internet of things (IoT) promises to make student and staff life more convenient, safe, and engaging in the coming decade (Adams et al., 2017; Grajek et al., 2018). Technologies will also play an important role in managing online privacy and academic integrity as well as helping with shifts in assessment design and evaluation (Milligan et al., 2017).

The UQ **Services for Students** project will introduce a tiered model that allows students to self-serve online (e.g. enrol in a course; apply for extension) and access services that require human interaction (e.g. career guidance; mental health counselling).

| Campus Spaces | |
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| **Arizona State University** is planning a range of initiatives to facilitate student-faculty engagement, including voice-activated digital assistants that provide on-demand information and 'wearables' that replace ID cards for access to campus facilities and also provide emergency location services, campus alerts and critical medical data. (ASU, 2017) | The proposed new **UQ Student Hub** will be designed for our new blended learning approach by enabling active and collaborative on-campus learning supported by online modules and self-assessment. Creating opportunities for informal interactions and social learning, the Student Hub will nurture relationships, foster lifelong learning, and enrich UQ's vibrate learning community. |

How UQ invests in physical campuses to enrich the learning experience underpinned by seamless technological platforms will fundamentally shape our success into the future. Yet, we also have to create online opportunities for alumni to continue learning along with new generations of students seeking solely online qualifications.

The possibilities of micro-credentialing and online learning opportunities create space to rethink the traditional academic calendar. New thinking combined with new technologies can allow for a more flexible UQ calendar that optimises the significant resources of our world-class campus while future-proofing UQ for changing student expectations.

**What infrastructure—virtual and physical—will support our educational goals?**

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