



QUEENSLAND
FUTURES INSTITUTE



QLD POLICY LEADERS' FORUM

WORKFORCE, EDUCATION
AND INNOVATION

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WORKFORCE, EDUCATION AND INNOVATION

PANELISTS:



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Snapshot

The Queensland Futures Institute's Forum – *Workforce, Education and Innovation* – outlined the opportunities and challenges around a rapidly evolving education and training sector. The need for innovation and flexibility in education delivery is more important than ever due to rapidly developing technologies such as AI, and industry demand for an adaptable workforce which can operate in the economy of the future. The discussion highlighted the role for collaboration across universities, TAFE, industry and government to deliver education and training outcomes needed to meet this demand.

Summary of Panel Comments

- AI and emerging technologies are rapidly transforming the education and workforce sectors and will change how educational institutions deliver qualifications and training to support the workforce of the future.
- Adapting to these changes will require lifelong learning and a shift in perceptions around education. This will be reflected in an increased importance in flexible pathways across universities and TAFE.
- A key challenge to overcome is meeting both the workforce and training needs of Queensland businesses and employers whilst adapting to rapid changes in technology and ways of working.
- Additionally, rapid population and economic growth will create a high level of demand for continuing to deliver high-quality education and training. We must plan for this growth now if we are to meet this demand in the future.
- While universities and TAFE are already delivering forward-looking programs, partnerships between education institutions, industry and government will be required to support strong educational outcomes and build the workforce of the future.

Panel Comments



Jemma Horsley

- AI and emerging technologies are ubiquitous and transforming various sectors at a rapid pace – impacting how we work, live and play. Disruption and innovation are at an all-time high globally, which gives rise to a critical need for lifelong learning, upskilling and work integrated learning in this rapidly evolving environment.
- Education is among the top four industries being impacted by generative AI. While there are many opportunities associated with its developments, we must equip today's workforce to use the technology in a responsible way while managing the associated risks.



Professor Carolyn Evans

- Considering the workforce needs of Queensland is a key component of a Vice-Chancellor's role. Through this, it is clear there is significant demand for graduates across a diverse range of industry areas. These span skillsets across nursing, teaching, AI, cybersecurity and sciences, as well as in the trades.
- The Australian Universities Accord has found that in the next 10-20 years, 80% of the population will require either university education (at least 50% of the population) or quality TAFE/VET training.
- While Victoria, New South Wales and the ACT already see at least 50% of their population having attained higher education, Queensland lags these states at 36%. Queensland must clearly work to address this in the next decade.
- There are several initiatives which can increase higher education attainment across the state. Firstly, we must stop viewing TAFE and universities as adversaries and focus on delivering education to vulnerable populations at risk of job displacement as AI competes against low quality, lowly paid jobs.
- Secondly, we must broaden pathways into higher education, especially for marginalised groups. This means increasing the accessibility of various education pathways and encouraging these pathways for regional and marginalised students.
- Finally, we must consider the extent to which we can produce a future workforce with the students in our schools today. We must consider how both local workforce development and skilled migration can meet future demand and how current migration policies contribute to developing a skilled workforce.



Professor Geraldine Mackenzie

- The future of education requires collective effort and adaptation to meet evolving workforce demands.
- Collaboration between education institutions, business, industry and government will be critical to addressing the training and skills gap we are currently experiencing.
- To address this, we must overcome challenges around low participation in ATAR programs, and the associated low level of university applications and insufficient focus on STEM subjects. These challenges have flow-on impacts resulting in a lack of qualified students in professions such as engineering and teaching.
- Additionally, it will be important to encourage individuals to be adaptable across multiple careers over their lives, as we have seen a shift away from the tradition of working in the same job for multiple decades.
- We must also work harder to deliver education in the regions. We know that 70% of students who are trained in the regions stay there.

Panel Comments

- We are currently seeing a shortage of specialist school teachers which is particularly acute in regional areas.
- Addressing the above will require innovative approaches which can include micro-credential programs and flexible education pathways which cater to diverse needs. Another important part of building a flexible workforce is fostering students' digital literacy, as this underpins adaptability across multiple educational programs, as well as between career pathways through retraining.
- On the side of education providers, this adaptability must be considered throughout the design and delivery of programs and courses. This will remain important as we see a trend in students and employers demanding micro-credentials and flexible programs over traditional undergraduate and master's degrees. Initiatives like UniSQ's CoLab offered at our Brisbane hub on Queen Street exemplify this – and aim to provide industry-relevant learning experiences and facilitate learning throughout people's careers.



Joshua Rayner

- Jobs Queensland is a legislated Queensland State entity which focuses on providing advice and economic modeling for future workforce needs in consultation with regions and industries.
- Opportunities lie in Queensland's capable and diverse workforce, particularly in regional areas where innovative solutions are emerging.
- Challenges include delivering the required skills, education and training to facilitate the diversification of the economy, which increases the competition for labour. This is already seen through the tight labour market as we are experiencing strong growth in many sectors, including health and community services, IT and construction, requiring a diverse range of skills. This highlights the need to attract and retain skilled workers to meet this demand.
- Despite these challenges, the abundance of opportunities in various industries positions Queensland well for future growth.



John Tucker

- TAFE Queensland aims to provide innovative and transformational education and currently educates around 140,000 students per year.
- TAFE is challenging the outdated perception that vocational education outcomes are less valuable than university outcomes. The growth of TAFE highlights some success in challenging this belief – and exemplifies the value of vocational education as a pathway to various career options to deliver for students, employers and industry.
- This growth is facilitated by strong integration of technology in education. For example, TAFE has used augmented reality for teaching welding, and virtual simulations in healthcare and marine operations.
- As we are seeing innovation and technology developments, education and training must keep pace, and provide the skills to students. The use of the above technologies in the training and delivery of education, but additionally, this can play a role in developing a strong foundation for future careers.
- For example, TAFE Queensland offers a full apprenticeship in electric vehicles, combining traditional means of delivering apprenticeships with new technologies and potential future jobs which may utilise this skillset.

Panel Comments



Chris Mountford

- Queensland has 234 independent schools – in addition to State and Catholic schools – educating about 17% of students. Independent schools offer diverse educational philosophies and cater to various values and preferences, as well as demographic groups such as Indigenous communities in the Cape.
- Looking ahead, the key challenges for schools will be accommodating rapid population growth and ensuring enough teachers. The State Government has suggested that between now and 2041, there will be about 90,000 more school-aged students in Queensland.
- This will require new schools to be built – as we are already seeing schools in Southeast Queensland reaching capacity – as well as new teachers. It will likely fall to independent schools to deliver the growth required to keep pace with this demand.
- Traditional models of building new schools face challenges due to land availability and parental expectations. This is a key hurdle to overcome in addressing this challenge.
- The need for teachers, especially in regional areas, is also a significant challenge due to an aging workforce and difficulty attracting new educators.
- An example of an innovative solution to this challenge is the use of AI tools for delivering curricula and assessment, which are being explored to reduce teachers' workload and enhance student learning.

How are you preparing for the skills and workforce of the future amidst the rapidly evolving technology and AI landscape which continues to reshape our workplaces?



Chris Mountford

- Independent Schools Queensland (ISQ) is exploring the role of AI in schools in three ways.
- ISQ is developing its own AI tool and supporting schools in their exploration of AI through professional development initiatives, such as the upcoming AI conference ISQ is hosting in July.
- Within schools, ISQ is supporting innovation and exploration among teachers, with networks like QLD Net, in facilitating collaboration and sharing of best practices.
- Finally, ISQ is focused on fostering learning, sharing information, and advocating for supportive government frameworks for the AI education landscape. Government will play a critical role in providing frameworks to guide the use of AI in education, helping the sector take advantage of opportunities and mitigate risks such as those around security and privacy.

Panel Comments



John Tucker

- TAFE Queensland is addressing the opportunities and risks of AI through two lenses: internal workforce development and external partnerships.
- Internally, TAFE Queensland has an AI task force focused on harnessing opportunities and implications of AI for its 4,500-5,000 employees, half of whom are teachers.
- For example, one initiative is exploring the deployment of a chatbot avatar powered by generative AI for teachers, which offers 24/7 support to students.
- TAFE Queensland emphasises the importance of collaboration with organisations and communities to deliver impactful education and training initiatives.
- For example, external partnerships with organisations and communities, such as the one with BHP Mitsubishi Alliance and Central Queensland University, focus on curriculum development in automation, particularly in mining-focused autonomous technology.
- These partnerships aim to equip students, including school-aged individuals, with the skills needed for future industries, such as mining automation, through innovative programs like the Certificate II in Autonomous Technology.



Joshua Rayner

- Technological change is inevitable and will also have a significant impact on the workforce. This is exemplified in a quote from 1937 which remains relevant today – “the only constant changes to industry have been and continues to be profound and far-reaching new machines and new processes in industry, radically changing whole areas of employment, wiping out old jobs and creating many new ones”.
- Within the last few years, Jobs Queensland conducted intensive consultation and industry validation on the future of work, highlighting two significant takeaways.
- Firstly, the supposed job losses due to automation are overstated, with more jobs being created than lost due to productivity gains, innovations or advancements in production methods.
- Secondly, change is inevitable and is happening at an increasing rate, as seen throughout history from the industrial revolution to modern times.
- Embracing and planning for this change is critical for societal and economic development. Rather than viewing change as inherently negative or positive, we must leverage it for the benefit of society, communities, individuals, and enterprises.

Panel Comments



Professor Geraldine Mackenzie

- We must consider the needs of business, industry and communities in considering the future jobs. This is a key focus for universities and the education sector as it continues to focus on innovation and excellence and flexibility in delivering on this goal.
- The perceived dichotomy between TAFE and higher education should be eliminated, through efforts from universities and TAFE to create more opportunities for partnerships and pathways between them. This will provide the flexibility for the workforce to move between jobs and careers whilst maintaining the necessary skillset.
- This is exemplified in initiatives like associate degrees in allied health and online programs at the University of Southern Queensland which demonstrate efforts towards flexibility, as well as meeting industry needs. Similarly, the introduction of a new three-semester calendar aims to provide greater flexibility for students, aligning with what employers are seeking.
- Continuous innovation in education delivery is essential to avoid being left behind in the rapidly changing landscape. This will ultimately benefit both institutions and the broader community at state and national levels.



Professor Carolyn Evans

- Within university degrees, AI is already utilised to enhance the student experience and prepare them for the workforce. For example, simulated environments, such as running pharmacy businesses and practicing healthcare procedures, offer practical experiences for health and pharmacy students.
- Additionally, universities are starting to utilise digital analytics to help identify students' career paths early on, improving engagement and building industry connections to ensure a smooth pathway into the workforce.
- AI is recognised as a critical tool that future workers will need to utilise effectively. While concerns about cheating exist, it is essential to educate students on the potential, limitations and risks of this technology to prepare them for its integration into the workplace.
- As technology advances, we must retain an emphasis on developing human skills alongside technical ones. Programs like interactive orals promote essential skills such as communication, empathy and creativity, ensuring students can effectively engage in human interactions despite technological advancements.

Audience Questions

There's a dual sector university in Queensland – why are we still talking about the perceived distinction between TAFE and university education?



Professor Geraldine Mackenzie

- An important clarification is that there is no conflict between universities and TAFE – and that these institutions are committed to working collaboratively to create the opportunities already discussed.
- The challenge is around the perception of these pathways. To overcome this, we must create seamless transitions between TAFE and universities.
- Various models, including integrated TAFE and university setups or strong articulation pathways across these institutions are already established to facilitate smooth transitions and collaboration. This is best exemplified in the work of CQ University in Central Queensland, as well as the UniSQ's Ipswich campuses.



John Tucker

- The idea of a binary choice between TAFE and universities is outdated – and these institutions have made great efforts to overcome this.
- Dual sector universities such as CQU in Central Queensland aim to integrate both sectors seamlessly. Additionally, several initiatives such as partnerships and centres for excellence are being undertaken to bring these sectors together more seamlessly.
- But despite this collaboration, differences in funding between TAFE and universities still exist and need to be addressed. This is a challenge in dual sector universities and requires a rethinking of funding and governance arrangements to overcome this hurdle and deliver strong educational outcomes.



Professor Carolyn Evans

- There's a recognition of the need for better funding and respect for technical and trade training that can be delivered in a TAFE setting. This is akin to the German model for example (i.e. respect for German technical efficiency), but would require a similar funding system if we were to replicate this in Australia.
- This is because State and Federal Government funding and regulation differences create challenges in creating coherent pathways between TAFE, universities, and schools. As such, despite efforts on the ground to create innovative pathways, constraints from separate systems persist.
- The need for change has been evident in initiatives such as the University Accord, which will help to continue to address these challenges.

Audience Questions

How do we think about the future of work and the human elements such as wellbeing and resilience? What role can institutions play in helping to nurture that aspect of the future of work?



Joshua Rayner

- The tight labour market presents challenges for employers and gives rise to industry and businesses to step up efforts around attracting and retaining talent.
- Initiatives like the partnership between Jobs Queensland and the Business Chamber of Queensland focus on diversity, inclusion, and becoming an employer of choice – particularly for small and medium-sized businesses.
- Employers are increasingly aware that what worked in the past may not be effective in today's labour market. There is a growing recognition among employers of the need to change recruitment practices and adapt to evolving expectations. This ultimately creates an economic return for the Queensland economy.



Chris Mountford

- It is a shame to see people going through the process of becoming qualified to reach the job market and realise that the career pathway they've chosen isn't right for them.
- For example, from a school perspective, the transition from studying to working in a school environment can be challenging for early career teachers.
- Efforts are being made to support these teachers through programs aimed at helping them feel confident, comfortable, and welcome in their new roles.
- One approach involves the implementation of teaching school hubs, inspired by a model from New South Wales, where schools engage with graduates earlier through employment, potentially as trainees during their final year of study.
- This initiative aims to provide early exposure to the school environment, allowing future teachers to understand school operations and potentially increase retention in the teaching profession.

Audience Questions

Are we ready for the future of work and education, and the challenges this will bring?



John Tucker

- Labour shortages are a significant concern, and forecasts suggest they will worsen, which is alarming.
- Despite these concerns, Queensland benefits from immense talent, particularly among young people. This is evident in TAFE campuses and across tertiary and school sectors.
- While this positions us well for the future environment, we cannot become complacent and must strive to continuously improve.
- In the short-term, this means addressing labour shortages by finding the right balance between importing skills and nurturing local talent. This is the key challenge we face and will require ongoing attention and effort.



Professor Geraldine Mackenzie

- We are well equipped to handle future crises because of our strong forward planning. This is evidenced in initiatives such as the introduction of space engineering in UniSQ's programs in the near future to meet the future demand expected from Australia's space program.
- Industries and universities need to train individuals for multiple careers, rather than expecting lifelong employment. This will foster the flexibility and adaptability required in the workforce.
- Examples like a student pursuing an electrical apprenticeship before transitioning to electrical engineering highlight the trend towards individuals having multiple careers during their lifetime, reflecting the changing landscape of employment.

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