

## P-TECH courses prepare students for occupations of the future

This innovative model deserves to be widely adopted

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As a nation, we need to deliver on the promise that our children, regardless of wealth or background, are entitled to every educational opportunity possible to help them reach their full potential. Advancing an innovative workforce in an age of rapid technological change and global competition is a key pillar of Australia's economic growth and prosperity.

But how can we prepare today's students not just for a job, but for the skills needed to succeed in tomorrow's high-growth careers? Additionally, how can we future-proof our educational models to develop curriculums that address jobs that haven't yet been invented?

The educational models that served us well in the past – however well-meaning – often fail to engage our students who need the knowledge and skills for today and tomorrow. The widening gap between the skills we're teaching and those industry values threatens to affect the permanent economic and social disengagement of Australia's youth.

We know we must act quickly – the question is: how?

International research shows 75 per cent of the fastest growing occupations require STEM (science, technology,



engineering and mathematics) skills and knowledge.

We need to investigate and provide support for new education and training models that promote STEM skills and training for young Australians.

On a Churchill Fellowship in 2012, I looked at models in Britain and the US that could be adapted to Australian conditions. While in the US, I came across the Pathways in Technology (P-TECH) model. Begun in 2011 in Brooklyn, New York, P-TECH offers students an industry-supported pathway to a STEM-related diploma, advanced diploma or degree.

On top of teaching STEM skills and knowledge, P-TECH has a strong focus on developing students' soft skills.

Examples of these skills include problem solving, communication, digital literacy, creativity and teamwork.

Developing soft skills enables young people to tackle the changing work environment and thereby sets them up

for long-term career success.

P-TECH stood out to me as an ideal model to respond to a critical need among parents, educators and employers to provide students with relevant and meaningful pathways to employment. I had to bring it to Australia.

In 2016, with support from the federal government, Australia's first P-TECH pilot sites launched in Ballarat and Geelong, Victoria.

Each pilot represents a multisector partnership among educators, local industry, government and community stakeholders to engage and energise young people.

There are 10 P-TECH sites across Australia now, with four more opening next year. More than 2500 students have taken part in the pilot.

The Southern Perth P-TECH Partnership is based at Cecil Andrews College. The school has a strong STEM focus with its own state-of-the-art STEM centre. This learning facility gives students access to the latest technology, such

as virtual reality, laser cutters, and 3D printers. Staff are trained to work with this technology so they can deliver an innovative curriculum that develops students' STEM knowledge and soft skills in line with P-TECH's objectives.

Principal Stella Jinman says: "The STEM disciplines connected to all subjects give students a sense of purpose and relevance that influences their lives on many levels so that even people with marginalised backgrounds flourish."

But P-TECH schools do not work in isolation to develop and implement the program. By forging partnerships with industry and educational institutions, P-TECH sees cross-disciplinary experiential learning, incorporating industry mentors, workplace learning and paid internships.

Across Australia, the 39 employers committed to involvement with P-TECH so far include: PricewaterhouseCoopers, Telstra, Barwon Health, Bendigo Bank, GMHBA, Tribal, Opteon Property Group, Royal Geelong Yacht Club, City of Greater Geelong, Analytical Microlabs, Mars Food Australia, Sanitarium Health & Wellbeing, IBM, Century Engineering, Saab Australia, PMB Defence, Ampcontrol, BAE Systems, Jetstar Airways, Varley Group, Regional Development Australia Hunter, Austal, Thales, Civmec, Datacom, Wilmar Sugar, Ergon Energy, Growcom, Elphinstone Group, Jayben Australia, Maltec Engineering, TasFoods, Lion, Norship, the Navy, Territory Generation, and Power and Water Corporation.

P-TECH gives students a window into the enterprise world of today. And it is changing their perceptions about STEM careers.



For example, at another P-TECH pilot school, Wyong High on the NSW central coast, technological and applied studies student Emma, who's in Year 10, has become fascinated with chemistry thanks to the program.

"I'm interested in how chemicals change food just by changing one thing, such as by degree or by adding one more ingredient.

"I want to study chemistry and then work on chemistry in a lab," she says.

That's a change for her from last year when she didn't study chemistry. However, through the P-TECH program Emma has worked in small student teams with industry mentors. She is now studying a food science elective.

"I've learnt through the P-TECH program that chemistry can lead

to a range of exciting career opportunities," she says.

Across the country, P-TECH is showing its worth as a new education model – a way students can develop the transferable workplace skills and enterprise mind sets that industry and employers need today and will need tomorrow.

The pace of change will continue to accelerate, but change always presents opportunities. The future belongs to those who can think differently and take risks in the name of innovation.

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